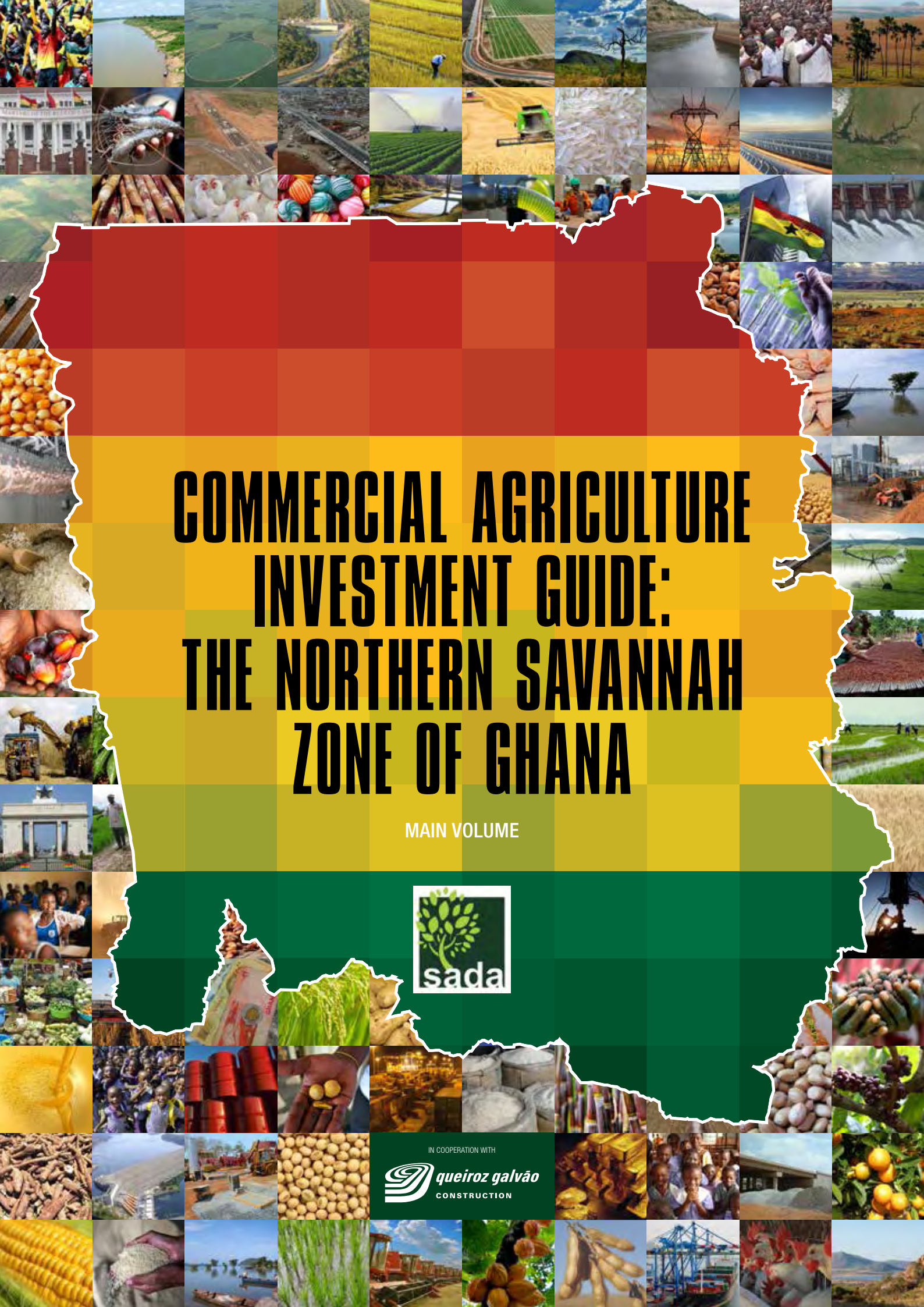

COMMERCIAL AGRICULTURE INVESTMENT GUIDE: THE NORTHERN SAVANNAH ZONE OF GHANA

MAIN VOLUME

sada

IN COOPERATION WITH

queiroz galvão CONSTRUCTION

REPUBLIC OF GHANA

SAVANNAH ACCELERATED
DEVELOPMENT AUTHORITY

H.E. JOHN DRAMANI MAHAMA
PRESIDENT OF THE REPUBLIC OF GHANA

KWESI AMISSAH-ARTHUR
VICE-PRESIDENT OF THE REPUBLIC OF GHANA

HON AKWASI OPPONG FOSU
MINISTER IN CHARGE OF DEVELOPMENT AUTHORITIES

BOARD OF DIRECTORS OF SADA

ALHAJI ADAM SULLEY (AG CHAIRMAN)
DIRECTOR AT THE AGRIC DEVELOPMENT BANK

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PROF. OF GEOGRAPHY AND MIGRATION STUDIES,
UNIVERSITY OF GHANA

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NATIONAL DEVELOPMENT PLANNING COMMISSION
AND FORMER GOVERNMENT STATISTICIAN

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HEAD OF RESEARCH, MINISTRY OF FINANCE

DR. SAMUEL AMEYAW
FMR HEAD OF DEBT MANAGEMENT DIVISION,
MINISTRY OF FINANCE

MR. WILBERT TENGEY
REPRESENTATIVE CIVIL SOCIETY

NABA SIGRI BEWONG
CHAIRMAN OF THE UPPER EAST HOUSE OF CHIEFS

MR. CHARLES ABUGRE (CEO)
DEVELOPMENT ECONOMIST AND FMR DIRECTOR, UNDP

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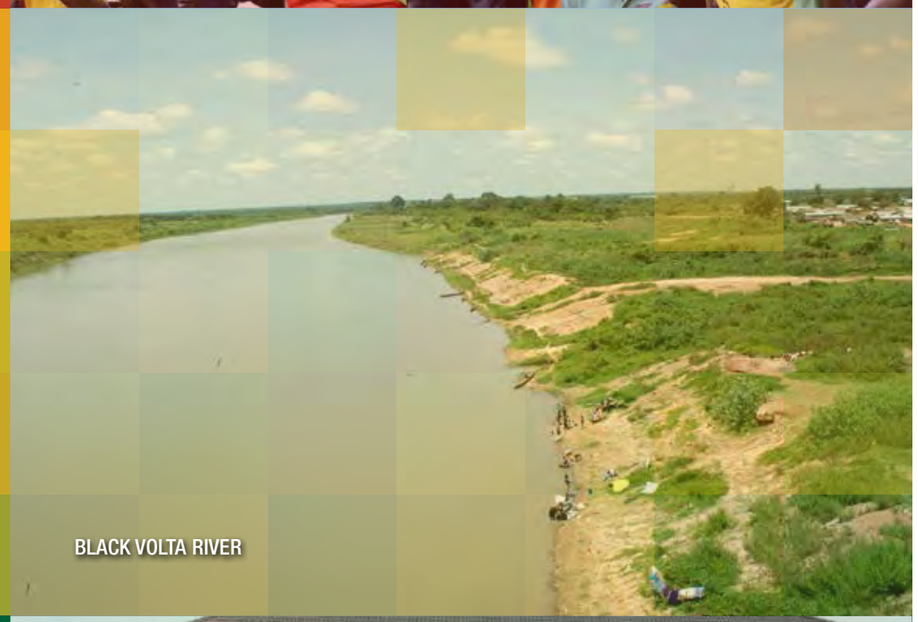


BLACK VOLTA RIVER

ABOUT THIS GUIDE

This guide is a nation-wide effort. Support by a number of institutions and authorities within the government of Ghana has been provided in the most diverse disciplines (from business development to hydrology, and many other).

While the list of institutions here is not conclusive, the board of SADA would like to convey its gratitude to these and all other institutions that have directly or indirectly provided their share of knowledge for this work. SADA is particularly grateful to Queiroz Galvão for the technical support and for putting this guide together.

THE PRESIDENCY REPUBLIC OF GHANA

MINISTRY OF FINANCE

MINISTRY OF TRADE AND INDUSTRY

MINISTRY OF FOOD & AGRICULTURE REPUBLIC OF GHANA

VOLTA RIVER AUTHORITY

KWAME NKRUMAH CIRCLE IN ACCRA,
UPGRADED BY QUEIROZ GALVÃO, INAUGURATED IN 2015

TAMALE AIRPORT RUNWAY EXTENSION PROJECT,
INAUGURATED IN JANUARY 2016

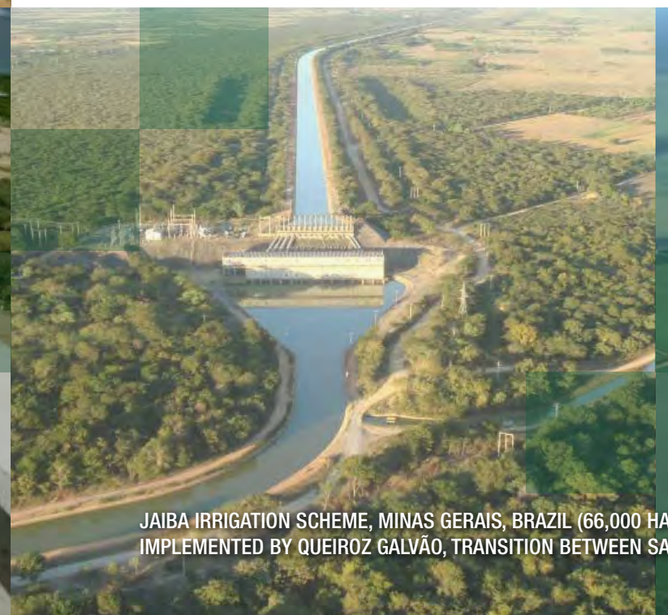
QUEIROZ GALVÃO – A TRUE PARTNER FOR GHANA'S INFRASTRUCTURE DEVELOPMENT

Founded in Brazil in 1953 as a public works and civil construction company, Queiroz Galvão has grown into a diversified portfolio of businesses in its 62 years of existence to include agriculture and livestock, renewable energy, Oil & Gas and many other sectors.

Present in Ghana since 2010, Queiroz Galvão strongly believes in this Country's accelerated development potential through modernized, irrigated agriculture and agribusiness. Brazil has witnessed an agriculture-based accelerated economic transformation process occurred in a lifetime, in which vast stretches of its Savannah and Sertão biomes (semi-arid zone), once deemed unsuitable for agriculture, were turned into agricultural powerhouses on a global level. Ecological conditions in these Brazilian areas are very similar to the ones found in the Northern regions of Ghana.

Queiroz Galvão provided modest contributions to the transformation of the Brazilian Savannah and Semi-arid biomes and stands ready and committed to provide the same efforts to the transformation of the Ghanaian Savannah.

SERTÃO CANAL, NORTH EAST BRAZIL (250 KM, 56,000 HA OF IRRIGATION),
OF WHICH 64.7 KM BUILT BY QUEIROZ GALVÃO



JAIBA IRRIGATION SCHEME, MINAS GERAIS, BRAZIL (66,000 HA NET IRRIGABLE AREA) – PHASE 2
IMPLEMENTED BY QUEIROZ GALVÃO, TRANSITION BETWEEN SAVANNAH AND SERTÃO BIOMES

GHANA'S COMMITMENT TO AGRICULTURE

"Government's objective is to position agriculture as a truly viable and attractive area for private capital, just as we are seeing with mining, petroleum and housing. I call on the private sector to partner with us to create these new instruments that can allow us to share both the risk and benefits of such large-scale undertakings, which will trigger a more sustainable transformation, to deliver prosperity to our people."

(H.E. JOHN DRAMANI MAHAMA, President of the Republic of Ghana, 2014 State of the Nation Address, February 25th, 2014)

GHANA'S COMMITMENT TO AGRICULTURE

"On behalf of the Board of Directors of SADA, I would like to express my sincere appreciation to Queiroz Galvão and all who supported the production of this Investment Guide. The SADA Zone is the new frontier for transformational agriculture as this Guide clearly illustrates. We welcome you as partners and commit to be the facilitators and catalysts for investment that we were set up to be. "

ALHAJI ADAM SULLEY (Ag Chairman)
Director at the Agric Development Bank

GHANA'S COMMITMENT TO AGRICULTURE

The Savannah Accelerated Development Authority (SADA) is an independent agency established by an Act of Parliament to provide a framework for a comprehensive and accelerated development agenda for the Northern Savannah Ecological Zone of Ghana. The area comprises the three Northern regions of Ghana namely, Upper East, Upper West and the Northern Region, and stretches to include districts contiguous to the Northern region that are located North of Brong-Ahafo and north of the Volta region.

The SADA Zone occupies about 54,4% of Ghana's surface area and 30% of the population. The vision of SADA, is to see a transformed Northern Savannah Ecological Zone; a place of opportunity and free from poverty. SADA aims to achieve this vision through coordination, collaboration and facilitation. SADA's key values are Sustainability; Professionalism; Integrity & Accountability; Respect for Diversity & Gender; Impact and; Trust.

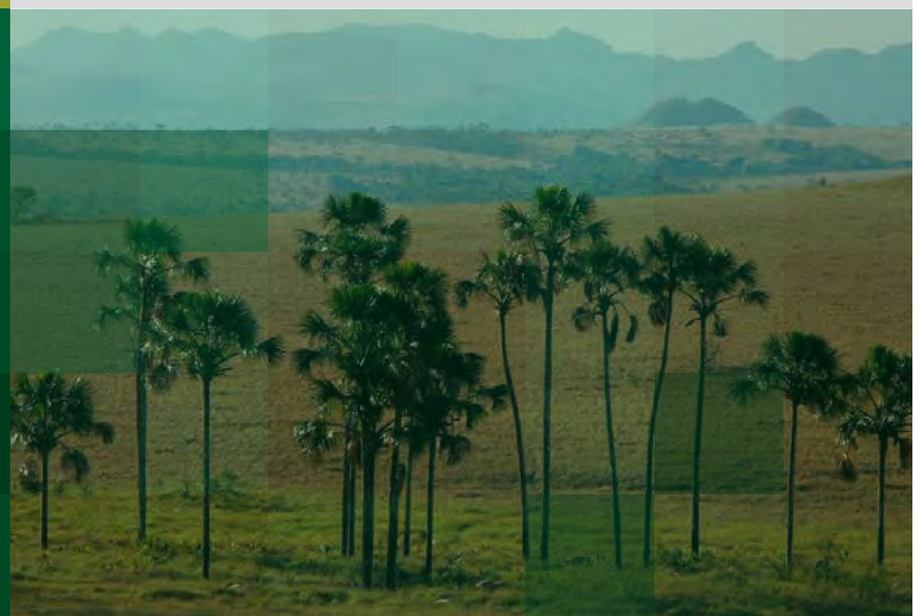
SADA's priority focus includes Agricultural Modernization; Infrastructure and Irrigation Development; Development of Manufacturing and Industrial Zones; Mining and Natural Resource Development; Urban Modernization; Investment Promotion and; Business Facilitation and Environmental Stewardship. SADA as an authority stands ready to support every investor; to work with other state organizations to navigate the necessary regulatory processes to be able to realize their objective of successful investment in the SADA Zone.

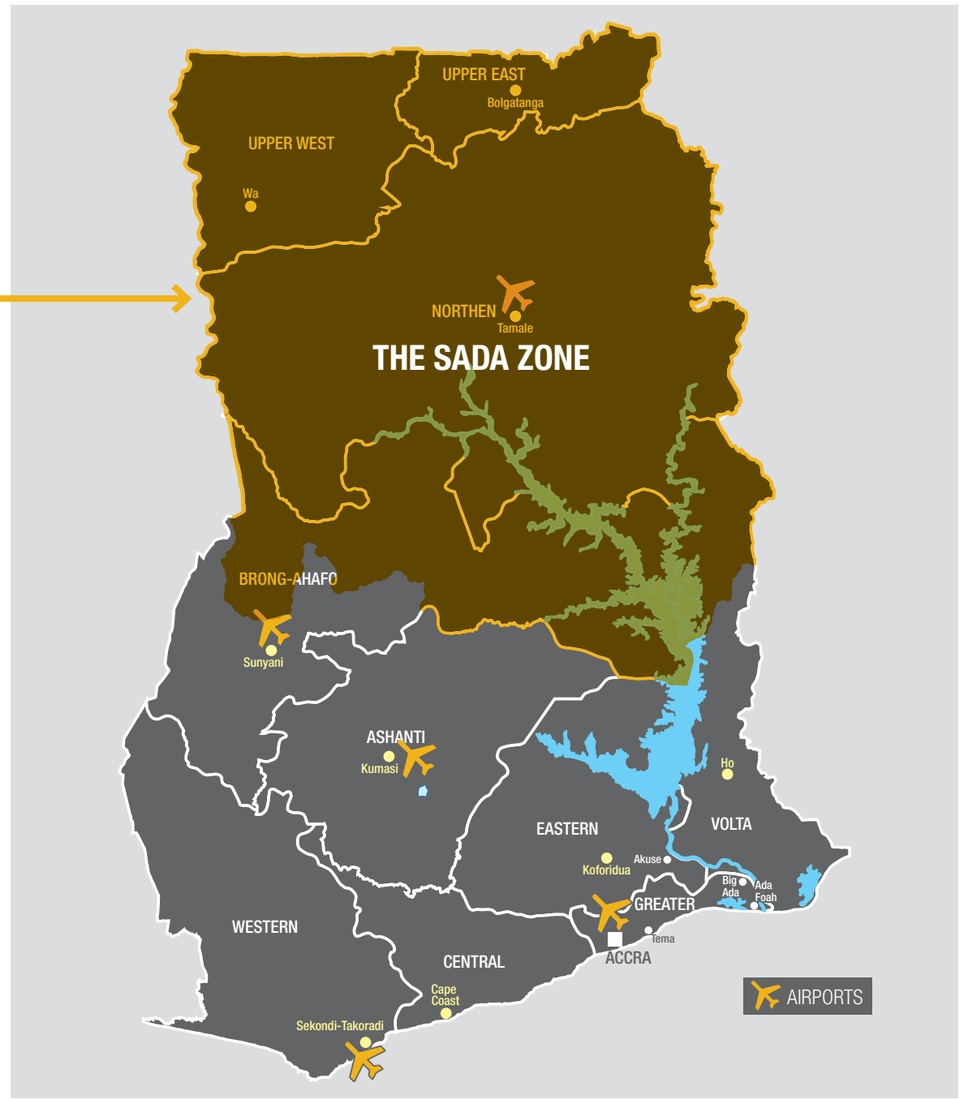
For further information contact SADA through:
www.sadagh.org
info@sadagh.org

We welcome you to explore this Guide.
CHARLES A. ABUGRE, CEO
SADA

EXECUTIVE SUMMARY

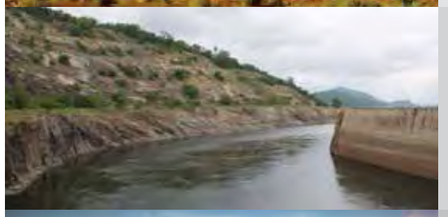
THE SADA ZONE IN CONTINENTAL PERSPECTIVE





THE SADA ZONE IN FIGURES

130,262 km² of surface area
(54.4% of Ghana's surface area)



553 MW of potential hydropower
production in 11 suitable dam sites

With solar radiation in excess of 5 w/m²
and enough unused land, the SADA Zone has
a potential to become a major player in
West Africa's solar energy production pool

Nearly 5,3 million inhabitants
(20% of Ghana's population)

Strategically located to tap into
Lake Volta's transportation capacity, with
539 km from Buipe to Akosombo

An International Airport in Tamale which
makes Europe only 5 hours away and puts
most of West Africa within 1 and ½ hours.

+ US$ 2 billion in annual food imports
that can be substituted with domestic
production, including rice, sugar,
chicken meat and edible oils

National and ECOWAS region-wide
power transmission grid, allowing
for good power export possibilities

Over 8 million hectares of suitable
land for different crops under rainfed
and irrigated conditions

A 340 million people-strong
regional market to be served within
the Economic Community of
West African States (ECOWAS)

41,6 billion m³ of water in annual runoff
from the rivers that cross the SADA Zone

City of Tamale, the fastest growing city
in West Africa with enormous potential
for agro-business

THE SADA ZONE IN FIGURES

At least 23 potential dam sites for irrigation, power and/or multipurpose water projects

Incredible potential for inland fisheries and aquaculture development in rivers, reservoirs (Lake Volta, largest man-made lake in the world) and land (pond-based aquaculture). 10,000 ha of land converted to fish ponds could yield as much as 200,000 metric tons of fish per annum

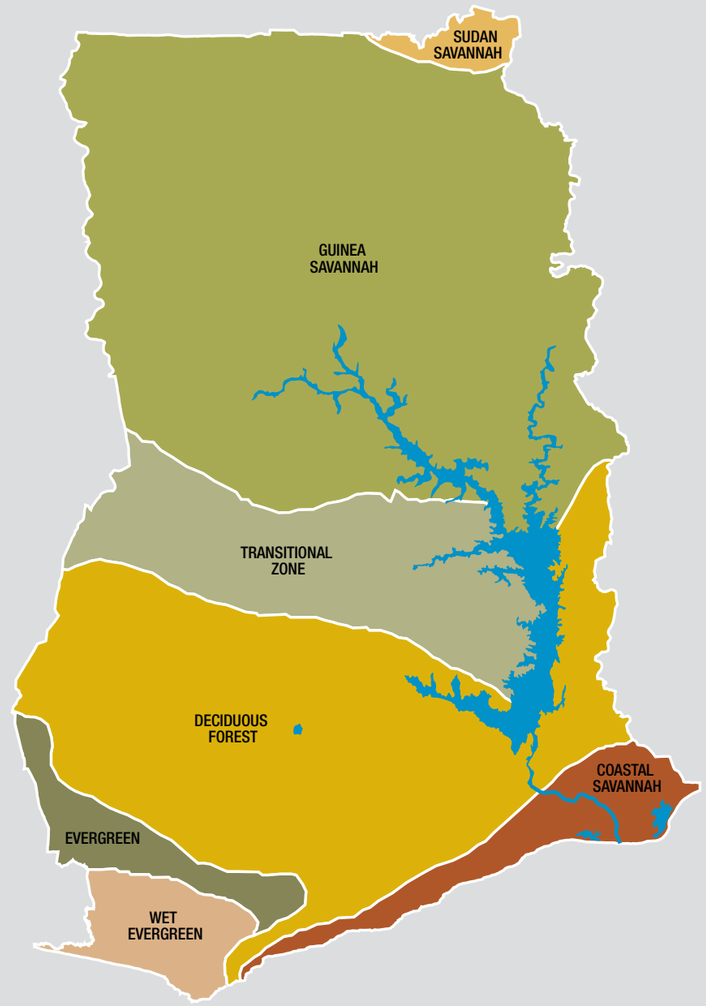
A range of 144,000 ha to 532,000 ha of potential irrigable land in 06 selected irrigation schemes (feasibility studies conducted), to be phased and for which construction could start in 10,000 ha blocs

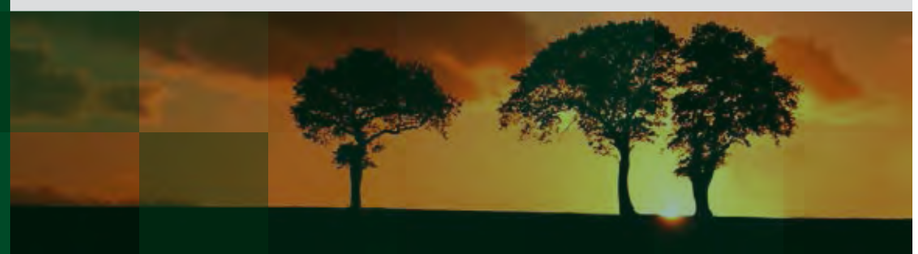
A metropolitan melting pot of cultures – ancient and young – from accross Ghana and West Africa.

POTENTIAL FOR THE RISE OF STRONG AGRO-INDUSTRY VALUE CHAINS, INCLUDING, BUT NOT LIMITED TO:

- Sugar 
- Poultry 
- Fruit juice, carbonated drinks 
- Rice 
- Processed foods (instant noodles, candies) 
- Biofuels 
- Bio-chemicals 
- Biomass power 
- Meat 
- Livestock 
- Vegetable oils and fiber 

GHANA'S ECOLOGICAL ZONES





SADA AT A GLANCE – FACILITATE, CATALYZE, COLLABORATE, COORDINATE AND PLAN

SADA, the Savannah Accelerated Development Authority, was established in 2010 as a vehicle to plan, coordinate and execute development strategies, programs and projects in Ghana's Northern Savannah Ecological Zone – NSEZ for the purpose of accelerating development and transforming the economy of the Zone.

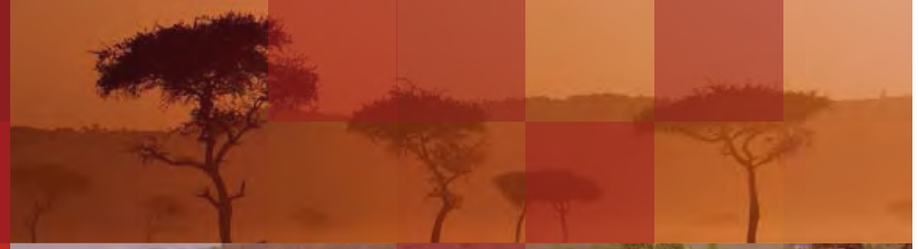
It is, therefore, the key Government Authority in coordinating, facilitating, catalysing and implementing development projects, both with public and private players.

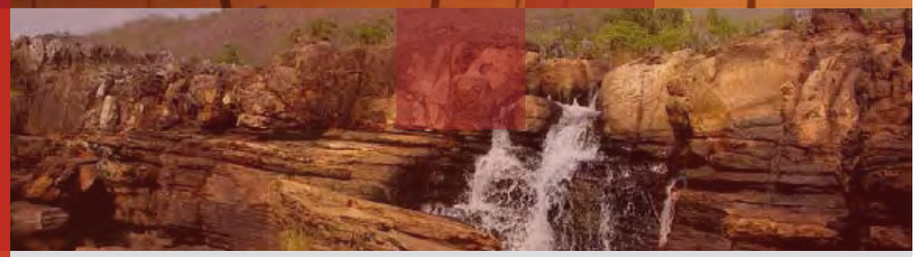
SADA is consolidating its mandate as a one-stop-shop center for investors in the Northern Savannah Ecological Zone and, in that regard, it can play a number of roles including bureaucracy facilitation, land acquisition, engagement with key Government Authorities, and others.

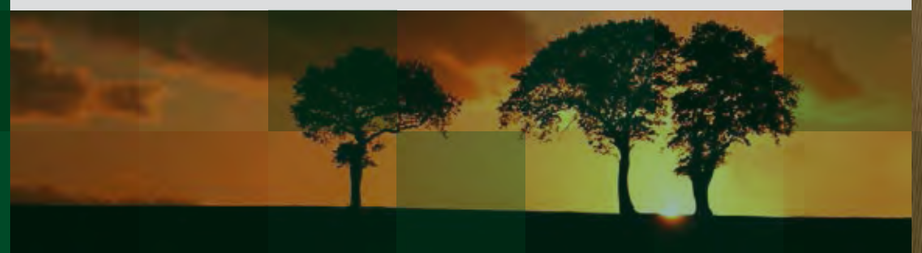
SADA delivers its core objectives by facilitating, catalysing, collaborating, coordinating and assisting any development or private investment projects across its area of influence.

It is a "problem solving institution" and hand-holds its partners to ensure that their investments are successful and beneficial in terms of jobs and social impacts on the people.

SADA is growing its capacity as the place to go for information that might benefit your investment decisions. This guide is an important step in that direction.







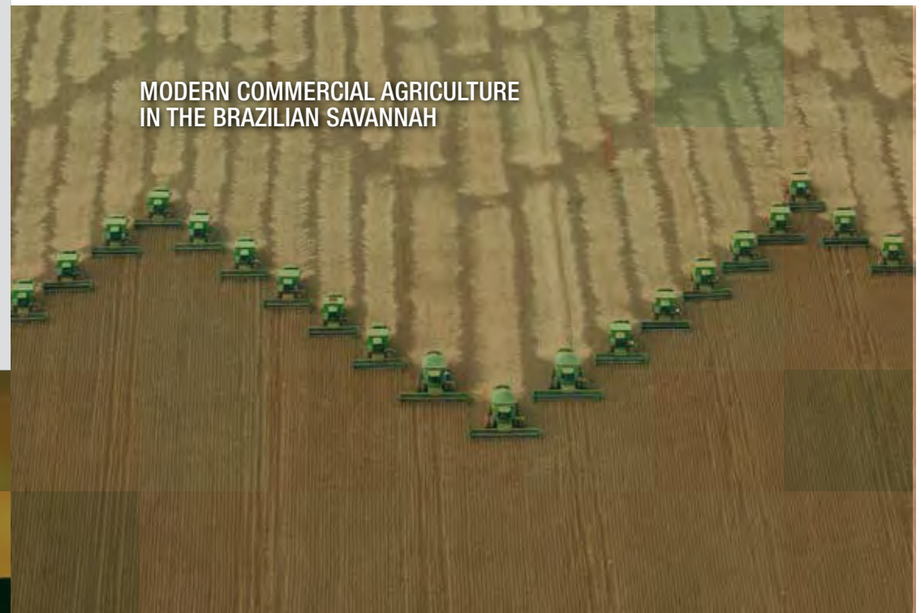
THE SADA ZONE

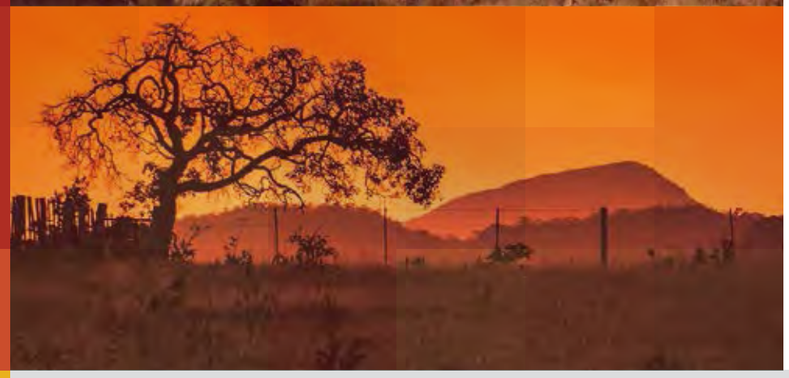
The area under SADA's direct influence spans accross nearly 130,262 km² - 54,4% of Ghana's surface area, coinciding with the stretch of the Guinea Savannah Ecological Zone within the Ghanaian Territory.

It covers the entirety of 3 Ghanaian Administrative Regions – Upper West, Upper East and Northern Regions – in addition to selected districts within the Brong Ahafo and Volta Regions and involves 63 Administrative Districts.

The Savannah Ecological Zone broadly spans across most of Sub-Saharan Africa, but also India, South East Asia, Australia and South America, and in spite of its challenging natural characteristics (rainfall regime, drought and flooding) – what has ultimately led the Government of Ghana to establish a special Authority to deal with the developmental challenges – the Savannah represents a major agriculture development potential worldwide, as the example of Brazil and the accelerated development of its Cerrado region into a major global agriculture powerhouse testifies.

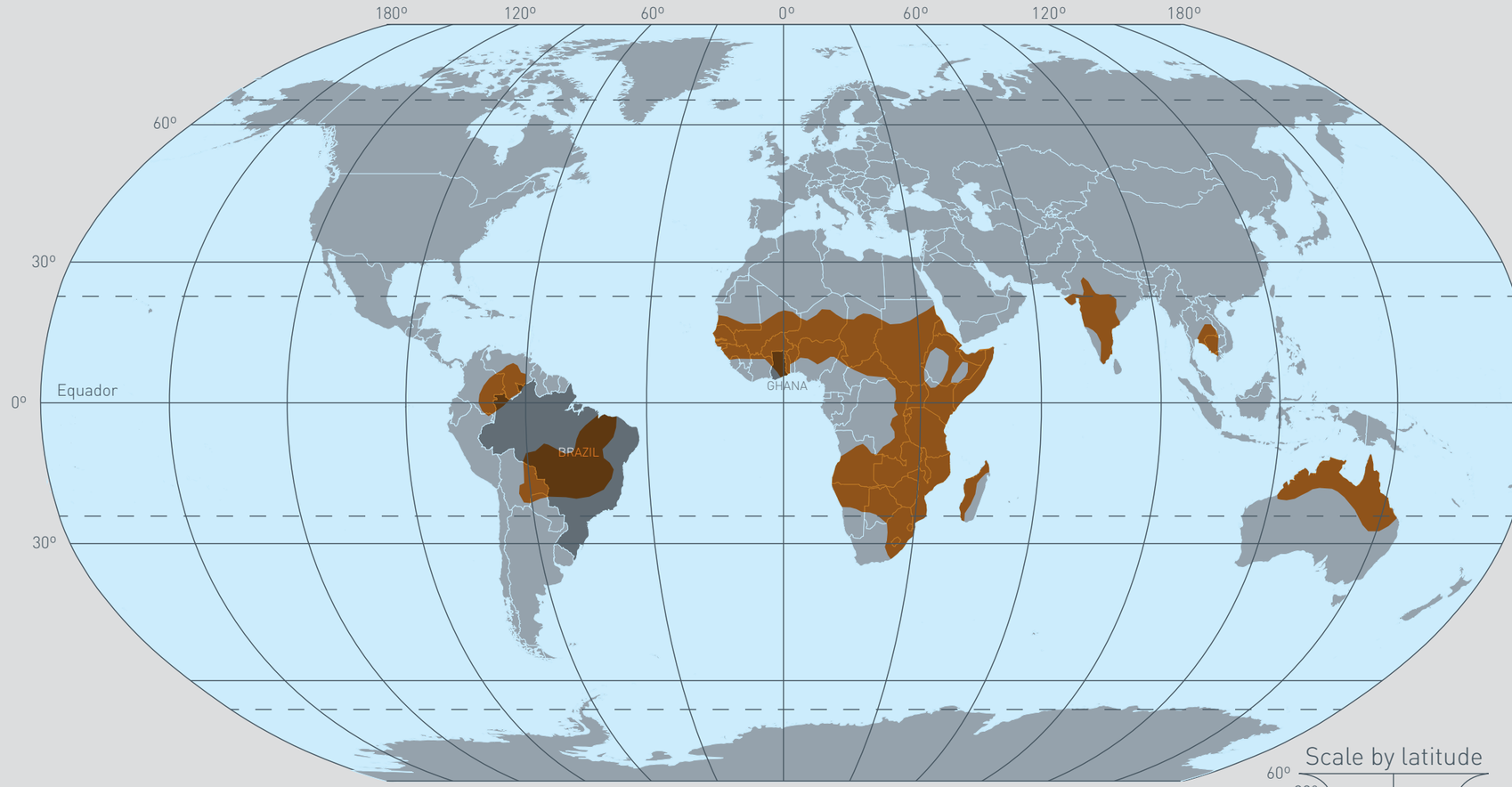
The lessons of the Brazilian Cerrado and other Savannah regions of Asia and Australia provide encouragement for the transformation of the Ghanaian/African Savannah.





THE SAVANNAH ECOLOGICAL ZONE IN A GLOBAL CONTEXT

WORLD MAP SHOWING DISTRIBUTION OF SAVANNAH AGROECOLOGICAL ZONES THROUGHOUT THE WORLD



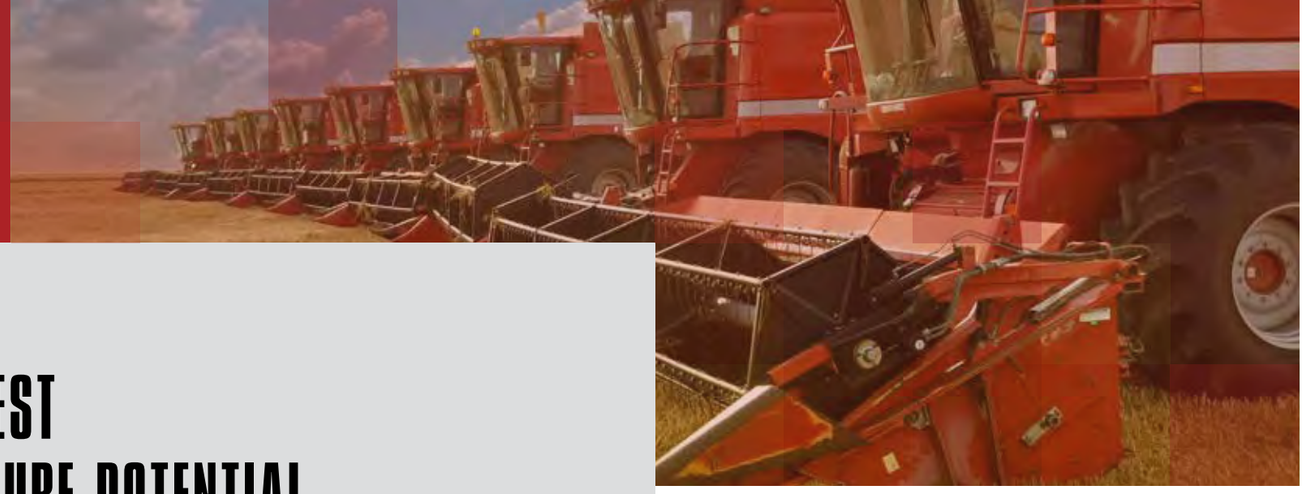
THE AGRICULTURE POTENTIAL

Agriculture is the backbone of the Ghanaian economy, and even more important in the SADA context. It represents 22% of the country's GDP, nearly 44% of nationwide employment, but 74% of the SADA Zone's employment.

Notwithstanding the above, agriculture investment and development in Ghana has largely taken place in the South of the country with the massive farming of tropical (forest) cash crops, like cocoa and oil palm. Therefore, the agriculture potential of the SADA Zone, mainly its large-scale irrigation possibilities, is largely untapped.

The SADA Zone, with at least 8 million unused or underutilized ha of agricultural land with highly suitable soils, is then open for a massive utilization of the region's land and water resources for large-scale irrigated farming, development of modern agri-industry supply chains, including poultry, vegetable oils, rice, sugar, cotton, cassava, shea, high added value tree crops and vegetables, among others.

The vast grasslands provide opportunity for livestock for meat and dairy. The Volta River basins and the Volta Lake are fertile grounds for aquaculture to supply markets North, East and West of the borders and beyond.



10 REASONS TO INVEST IN SADA'S AGRICULTURE POTENTIAL

1. UNPARALLED, UNTAPPED LAND AND WATER RESOURCES

- Estimated 8 million ha of highly suitable agricultural land both for rain-fed and irrigated farming;
- Suitability for a wide range of crops – grains, sugar, rice, tree crops, pasture;
- Astounding 41.6 billion m^3 in runoff from the main river systems within the Volta drainage basin.

2. INCREDIBLE MARKET OPPORTUNITIES

- Ghana has a + 26 million population with positive demographic trends and increasing purchasing power;
- Over US$ 2 billion spent annualy in basic food imports, including rice, chicken meat, edible oils, sugar, that can be produced locally;
- A strong Government commitment to substitute food imports and transform the country into a net food exporter;
- Over 340 million consumers in other highly food-importing countries in the ECOWAS sub-region, in addition to proximity to the World's main consumer markets (Europe, Middle East, USA, Near Asia).

3. WORLD CLASS INFRASTRUCTURE

- A newly developed International Airport in Tamale, in all respects the "capital" of the SADA Zone, with a 3,400 m runway, capacity to handle cargo storage, transportation, in addition to +1 million passengers/annum;
- Extensive paved road network connecting the Zone to the neighboring countries (Burkina Faso, Cotê d'Ivoire, Mali, Togo) and the main consumer markets in the South of the Country (Accra, Sekondi-Takoradi) and neighbours (Nigeria);
- An impressive waterway transportation system through the Volta Lake (world's largest man-made lake) covering as much as 90% of the route to the country's capital and main sea harbour at Tema;
- Contains one of the country's largest hydropower plants (Bui with 400 MW), assessed potential for new hydropower sites in the Zone in excess of 553 MW, extensive transmission and distribution networks connecting the main cities and rural settlements.

4. ONE OF AFRICA'S BEST BUSINESS ENVIRONMENTS

- Ranked 114th in the World Bank's Doing Business Ranking, being 11th in the whole of Sub-Saharan and 1st in West Africa;
- Stable democratic institutions, no major religious, political, ethnical or other sorts of conflicts;
- Culturally vibrant, friendly and tolerant people

5. ABUNDANT, QUALIFIED LABOR FORCE

- In the SADA Zone, over 74% of the labor force is currently engaged in agriculture and other primary industries, compared to 35% of agriculture employment in the rest of the Country.

6. GOVERNMENT COMMITMENT AND INCENTIVES FOR INVESTMENT

- Government has engaged in a number of pro-business reforms and programs, including tax exemptions for periods up to 10 years, a robust public investment program in infrastructure, in addition to targeted incentives to food product import substitution (constraining or limiting imports of food products).

7. INVESTOR-FRIENDLY ONE-STOP-SHOP CENTER FOR INVESTORS (SADA)

- SADA is building capacity to deliver its mandate in investment facilitation. Its Investor Center in Accra can facilitate all kinds of information and data, guide through incorporation and other registration and regulatory procedures.
- Some examples of its business-friendly initiatives are the current involvement in land acquisition facilitation, engagement with key stakeholders and local chiefs, efforts to create a SADA Zone Land Trust for agriculture development, advisory to Government on a number of infrastructure projects necessary to boost production and competitiveness and investment promotion through investment forums and fairs.

8. COMPETITIVE ACCESS TO MAIN FACTORS OF PRODUCTION (LAND AND "WATER")

- Land value can be a constraint to agriculture investment in many parts of the world, mainly due to escalating land prices, accelerated urbanization and especulative trading in farmland.
- As compared to other parts of the world, land values across the whole of the SADA Zone are still tremendously competitive, sometimes many times cheaper than prime locations in the USA, Brazil and many other developing countries.
- Water is also largely available for irrigation, with practically very little formal use of water for agriculture purposes. New storage dams programmed to be built in the coming years shall also significantly increase availability of water for irrigation. Add to this the underground water which is easily available across most of the zone.

9. FINANCIAL INVESTORS (FUND MANAGERS, COMMERCIAL BANKERS) ARE HUNGRY FOR BANKABLE PROJECTS

- A number of consultancies, private equity firms, fund managers, commercial banks, have voiced their growing appetite to fund agriculture projects in Africa. According to a former World Bank Vice President for Africa, Obiageli Esekwesili, "Agriculture is the next thing on the continent".
- Given that these institutions generally believe there are very few bankable projects to be supported at the moment, any new project would likely be of interest. Moreover, Government has established special funds – tax-funded – to support infrastructure development. SADA is also developing a special purpose vehicle to attract and channel funds for long-term investments.

10. GHANA AS A HUB FOR ALL OF SUB-SAHARAN AFRICA AND BEYOND

- Africa is the world's geographic Center, and Ghana, located on the Western corner of Africa, can be seen as a suitable platform for global supply chain linkages in agri-business. Some of the world's largest consumers (Europe, Middle East, Asia) of key agri-business commodities (vegetable oils, poultry meat, sugar) are located closer to Ghana than they are to other major agriculture power houses. Therefore, Ghana is suitably located to become a global agri-business player in the foreseeable future, as it already is in selected tropical cash crops (palm oil, cocoa).

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

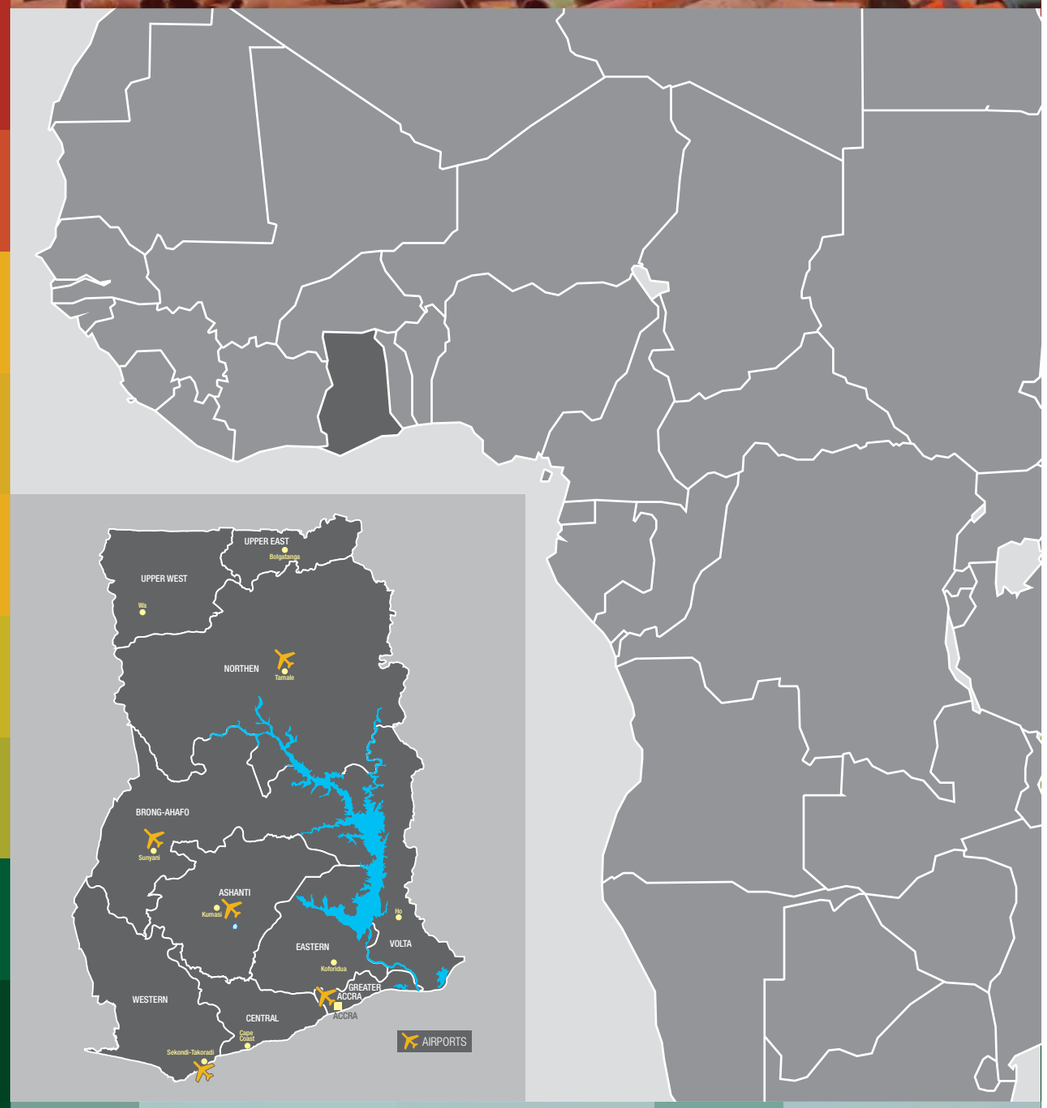
HISTORICAL MAPS DEPICTING
THE GOLD COAST

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

BRIEF HISTORY OF GHANA

The name Ghana derives from the medieval West African "Ghana Empire". The Empire became known in Europe and elsewhere as the Ghana Empire by the title of its emperor, the Ghana. The Empire was dissolved following the 1.076 conquest by the Almoravid General Abu-Bakr Ibn-Umar.

As a matter of fact, Ghana's present-day territory has been inhabited for millennia, with the first permanent state dating back to the the 11th century. From the 15th Century onwards, different European powers claimed the area for trading rights, with the British finally obtaining control of the coast in the late 19th century, with the Northern "territories" remaining a protectorate up until Independence. Ghana's current borders were, after all, established by the 1900's as the British Gold Coast. In 1957, the Country became the first Sub-Saharan African nation to declare independence from European colonisation, serving as a role-model and catalyst for other independence movements throughout the continent.



THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

OVERVIEW OF THE COUNTRY

- The Official name: Republic of Ghana
- Capital city: Accra
- Location: West Africa
- Population: 26.3 million (November 2015 estimate)
- Official language: English
- Currency: Ghana Cedi (GH¢)
- Time zone: Greenwich Meridian Time: (GMT)
- Climate: Tropical
- Average temperature: 26ºC (about 79ºF)
- Independence: 6 March 1957
- Government: Democracy
- GDP: US$38,552 million (2014)
- GDP per capita: US$1,426 (2014)
- Incumbent President: H.E. John Dramani Mahama

(Sources: Ghana Statistical Service/ Central Intelligence Agency – The World Factbook)

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

PEOPLE

Ghanaians are among Africa's most friendly and hospitable people, always eager to help and are gentle to fellow Ghanaians and foreigners in general.

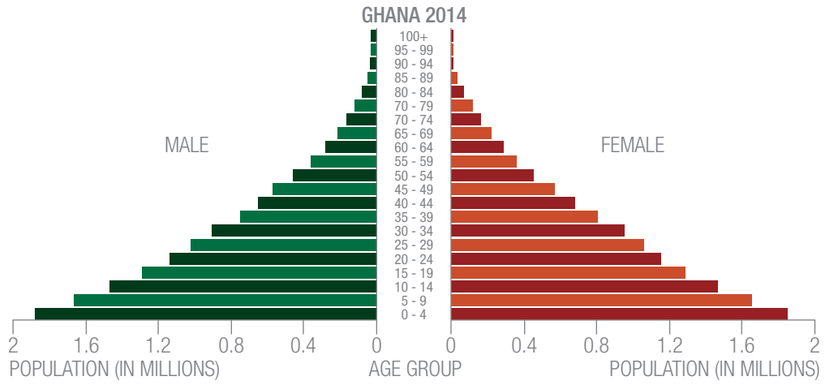
One of the country's strengths lies in the peaceful nature of its people. In spite of major diversity in culture, language and religion, peace prevails and there are no records of major conflicts in the country's post-independence history.

A young, well-educated majority of the population provides prospects of demographic dividends, in view of the following:

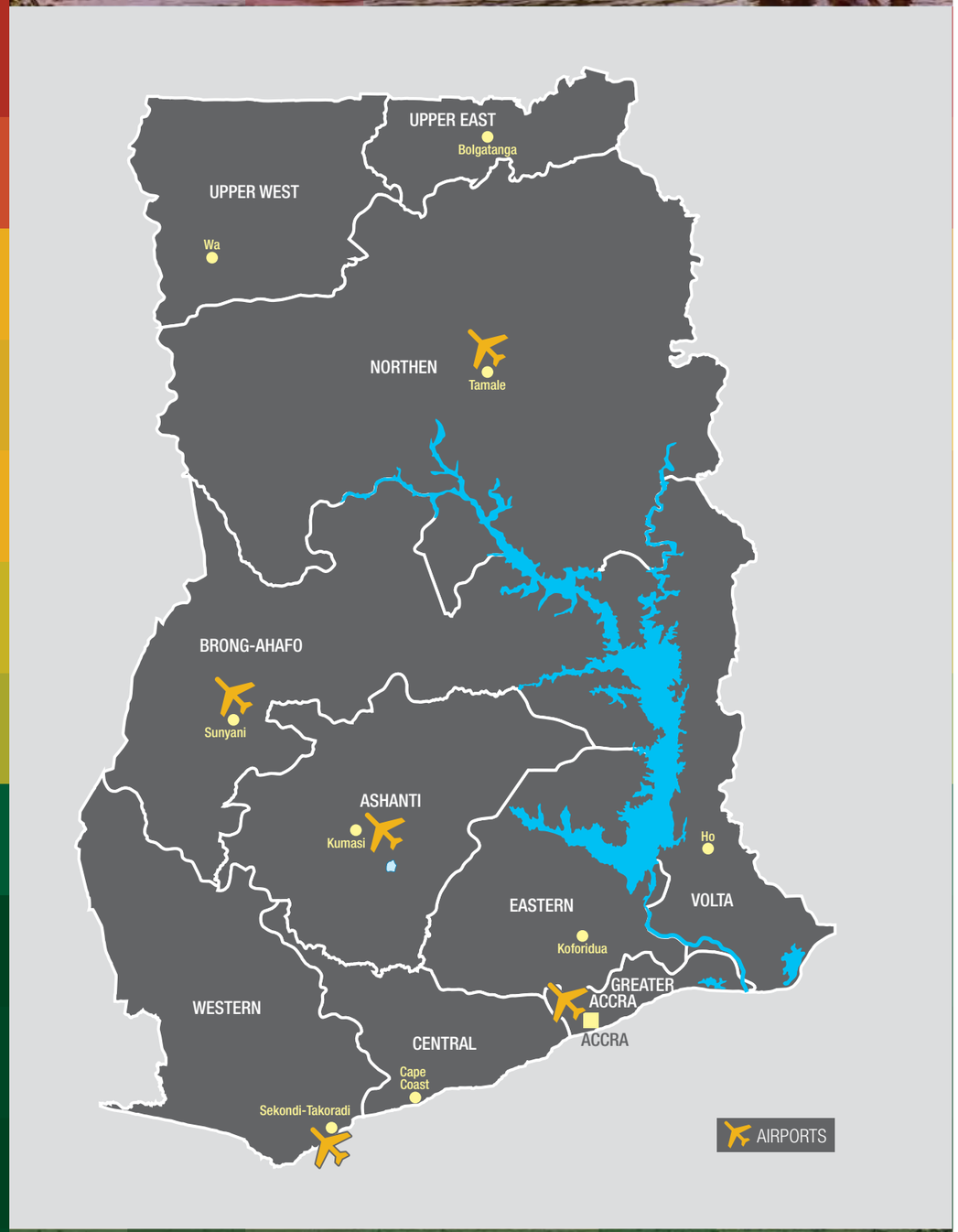
- 91% of the Country's population are below 54 years of age, with a majority of it (nearly 40%) within the 0-14 years of age, and healthy birth rates in excess of 31 births per 1,000 people;
- 57% of the population is in economically-active age;

Literacy is high at 76,6% with also very high school life expectancy of at least 12 years.

POPULATION PYRAMID OF GHANA (2014)



Source: The CIA Factbook



THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

OVERVIEW OF THE COUNTRY

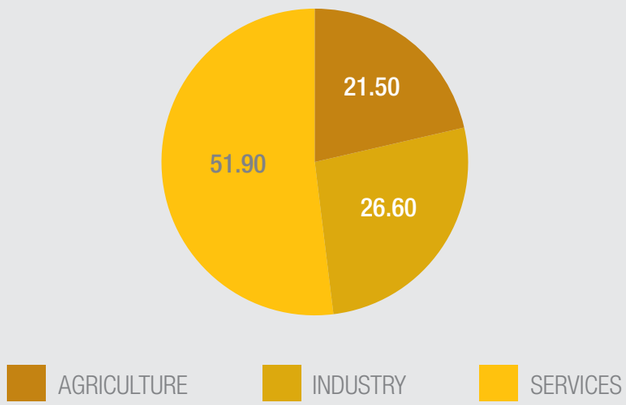
POLITICAL AND ADMINISTRATIVE REGIONS		
REGIONS OF GHANA	AREA (KM²)	REGIONAL CAPITALS
Ashanti Region	24,389	Kumasi
Brong-Ahafo Region	39,557	Sunyani
Central Region	9,826	Cape Coast
Eastern Region	19,323	Koforidua
Greater Accra Region	3,245	Accra
Northern Region	70,384	Tamale
Upper East Region	8,842	Bolgatanga
Upper West Region	18,476	Wa
Volta Region	20,570	Ho
Western Region	23,941	Sekondi-Takoradi

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

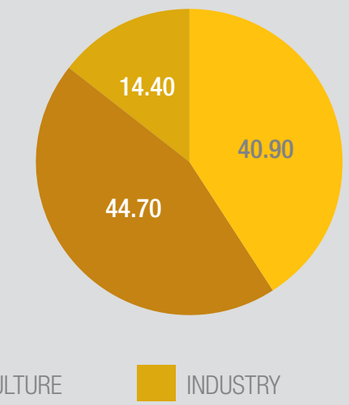
OVERVIEW OF THE COUNTRY

MACROECONOMIC INDICATORS

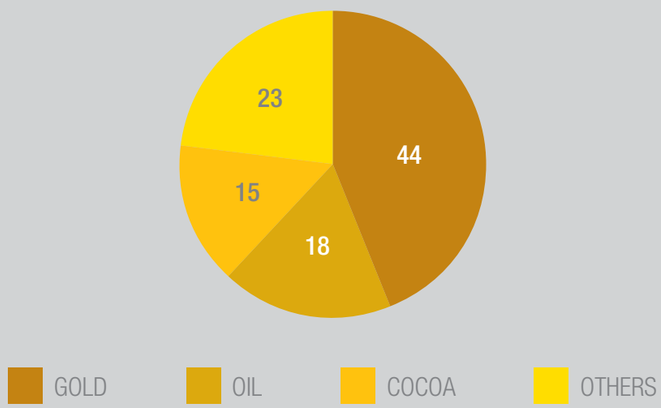
GDP BREAKDOWN IN 2014 (%)



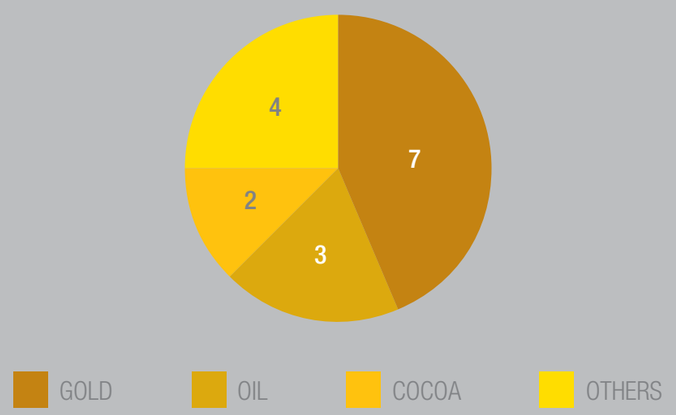
LABOR FORCE OCCUPATION BY SECTOR IN 2014 (%)



MAIN EXPORTS (%)



MAIN EXPORTS (US$ BILLION)



SOURCES: Ghana Statistical Service, CIA, MIT

OIL, GOLD AND COCOA, GHANA'S MAIN SOURCES OF EXPORT REVENUES

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

RECENT ECONOMIC PERFORMANCE

As Africa's 12th largest economy, and ECOWAS region's 2nd, Ghana is perhaps one of the continent's best performing economies, outpacing regional and continental peers in both GDP growth and foreign direct investment attraction.

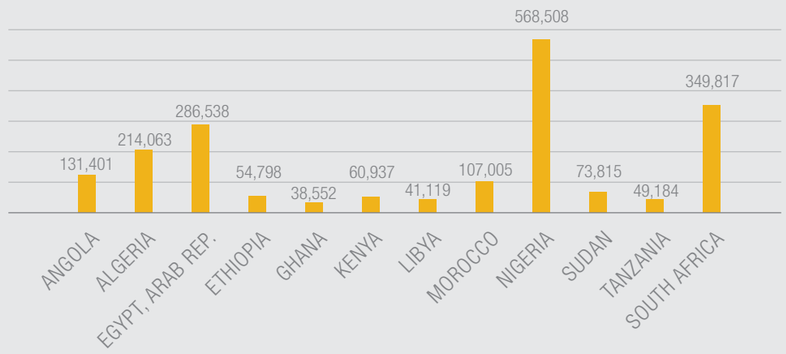
Even though GDP growth has fallen to 4.18% in 2014, from an average above 10% in 2010-2012, Ghana has been one of Africa's and the World's most vibrant economies in the past years, outperforming regional peers such as Nigeria and Angola in terms of economic growth.

Ghana is also by far one of Africa's largest recipient of foreign direct investment in absolute terms and the region's main country defined by the share of foreign direct investment as % of GDP (within the group of Africa's 12 largest economies). This leads to the conclusion that Ghana is already one of Africa's preferred foreign investment destinations.

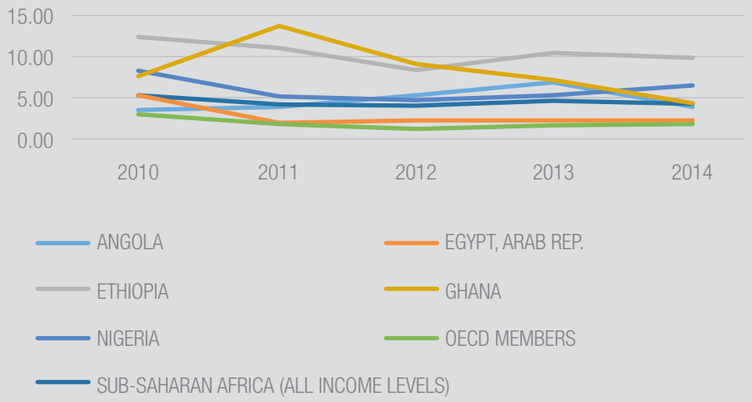
THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

RECENT ECONOMIC PERFORMANCE

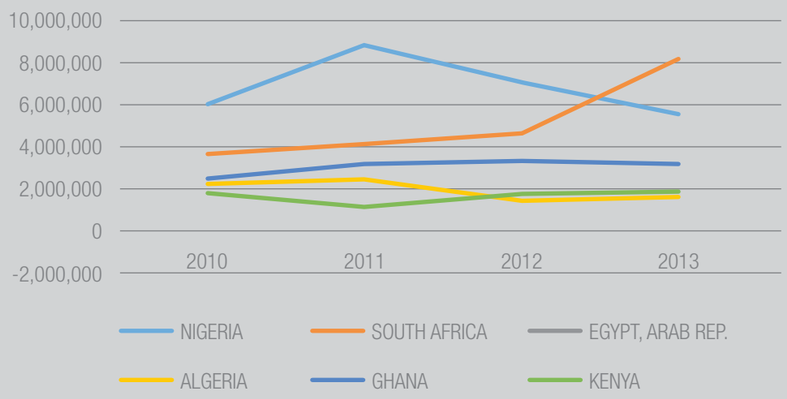
GDP (US$ MILLION) IN SELECTED COUNTRIES 2014



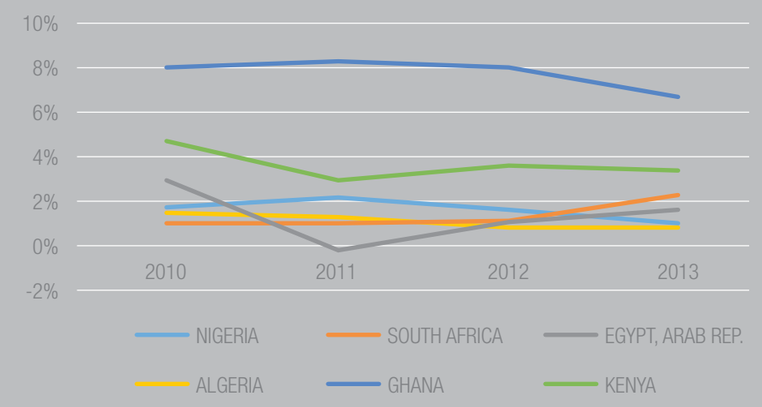
GDP GROWTH RATES (%)

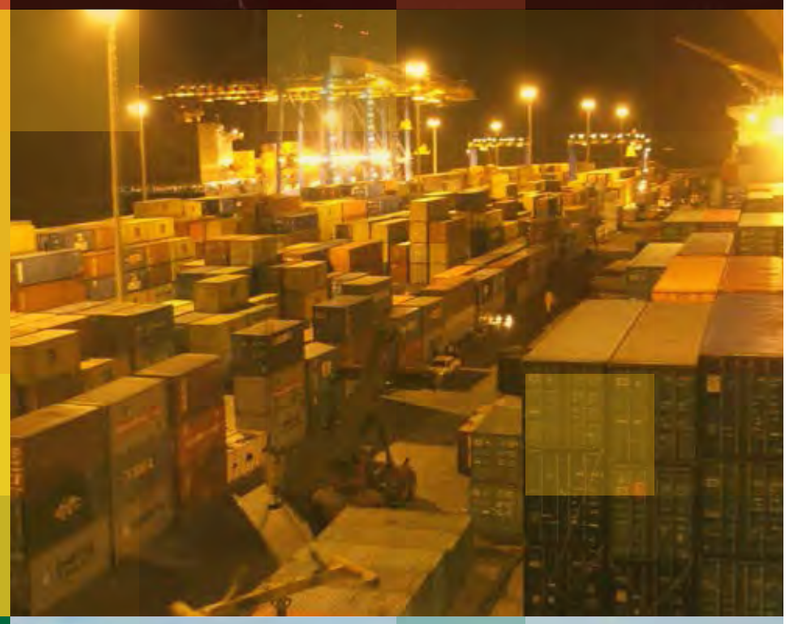


FDI INFLOWS IN SELECTED AFRICAN COUNTRIES (US$ THOUSANDS)



FDI INFLOWS AS % OF GDP





THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

BUSINESS ENVIRONMENT

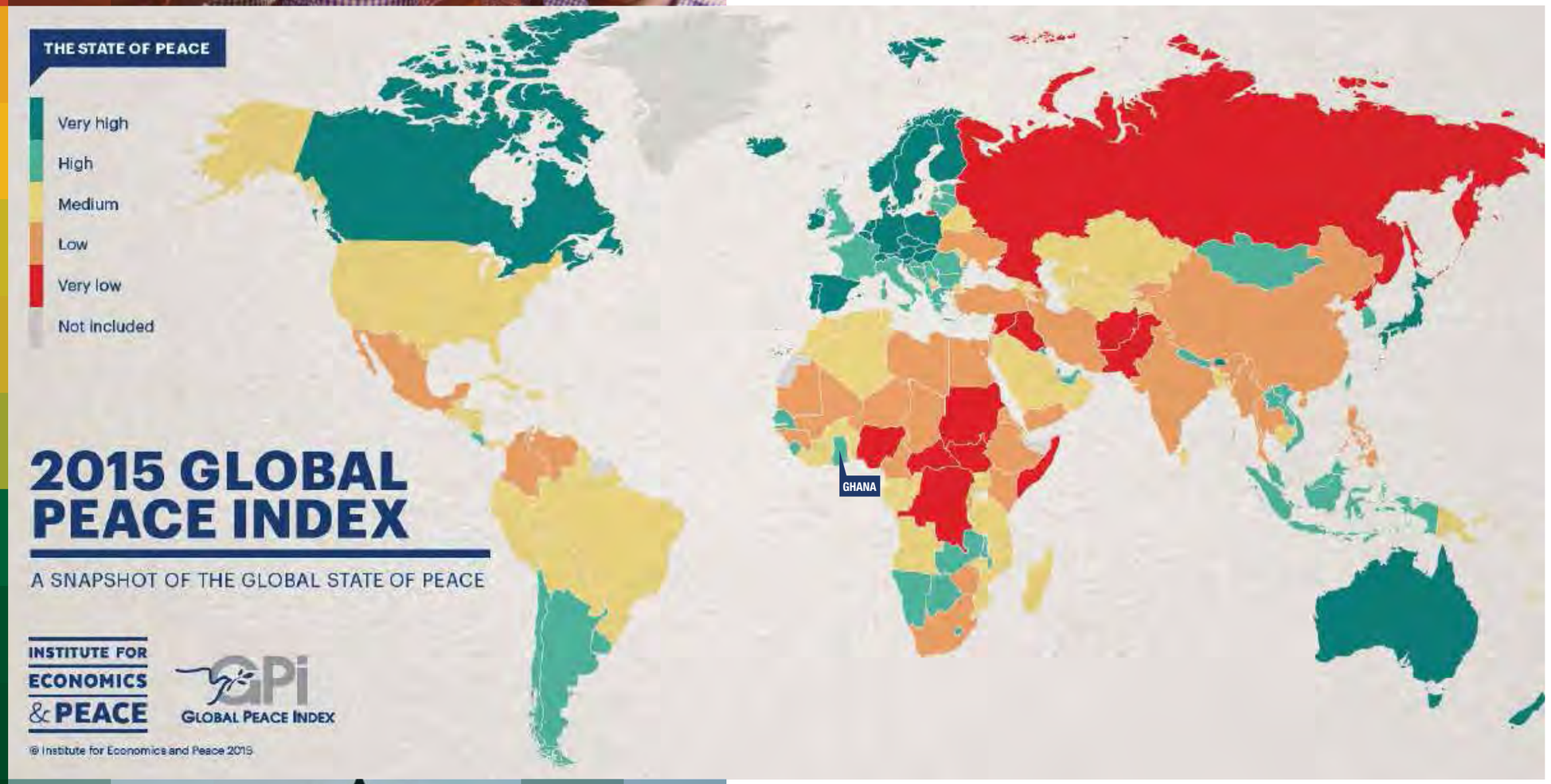
Ghana ranks 11th in the World Bank's 2015 ease of doing business ranking in Sub-Saharan Africa and 1st in West Africa, what makes it one of Africa's most enabling environments for foreign investment, and West Africa's most attractive one. It is also Africa's 06th country in the Global Peace Index (2015), published by the Institute for Economics & Peace, indicating a stable and peaceful country.

WB'S EASE OF DOING BUSINESS RANKING (SUB-SAHARAN AFRICA) 2015	
1st	Mauritius
2nd	Rwanda
3rd	Botswana
11th	**Ghana**

GLOBAL PEACE INDEX (AFRICA) 2015	
1st	Mauritius
2nd	Botswana
3rd	Namibia
4th	Senegal
5th	Malawi
6th	**Ghana**

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

BUSINESS ENVIRONMENT

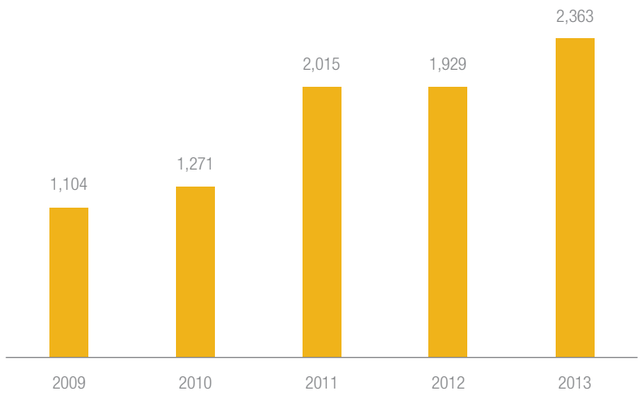


THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

THE FOOD MARKET IN GHANA

With improved living standards and rapidly evolving urbanization, Ghana's food demand is poised to rise year after year, and, as of now, a substantial portion of its food demand is met by imports. Total food import values have increased from nearly US$ 1 billion in 2009 to over US$ 2,3 billion in 2013 (a 16% yoy compounded annual growth rate), with rice, sugar, poultry meat and vegetables representing almost 50% of that import value.

GHANA ANNUAL FOOD IMPORTS (US$ MILLION)

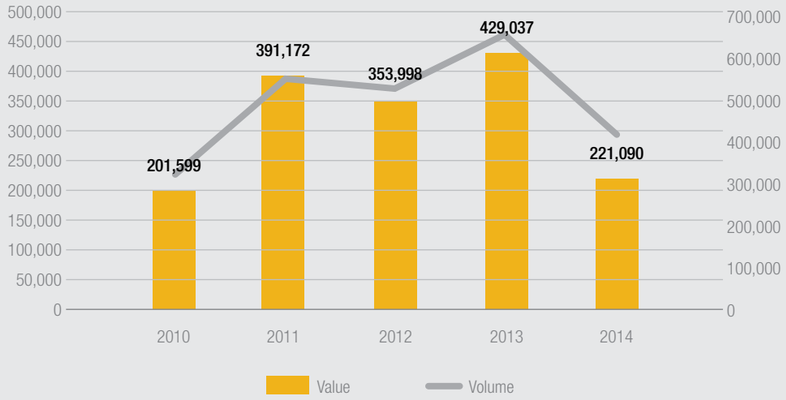


Source: Ghana Statistical Service

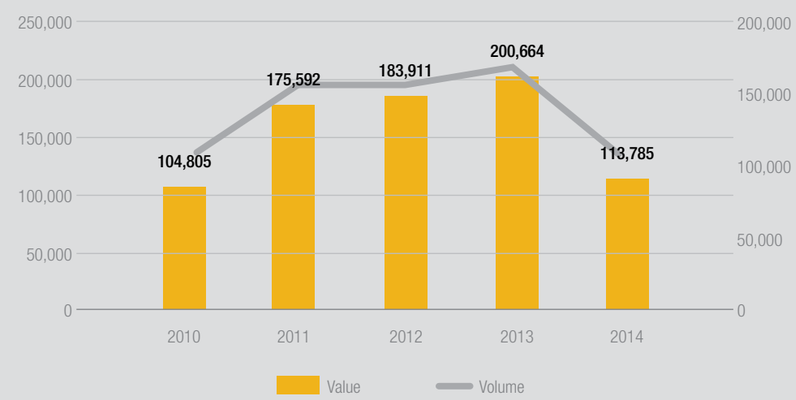
THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

THE FOOD MARKET IN GHANA

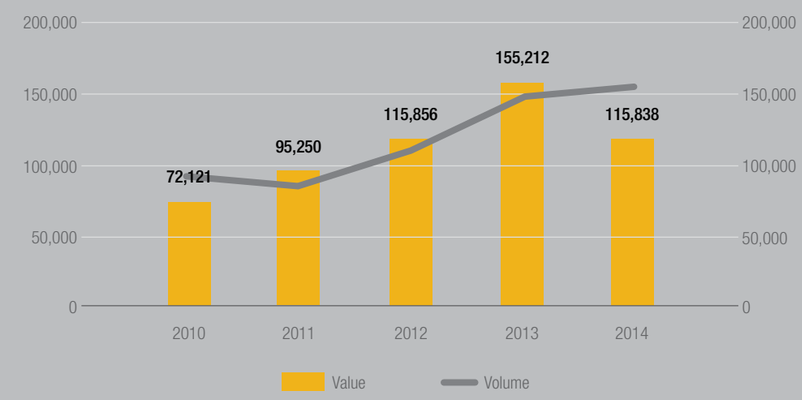
GHANA ANNUAL RICE IMPORTS
(VALUE IN US$ THOUSANDS - LEFT - AND VOLUME IN METRIC TONS - RIGHT)



GHANA ANNUAL CHICKEN MEAT IMPORTS
(VALUE IN US$ THOUSANDS - LEFT - AND VOLUME IN METRIC TONS - RIGHT)



GHANA ANNUAL VEGETABLE OILS IMPORTS
(VALUE IN US$ THOUSANDS - LEFT - AND VOLUME IN METRIC TONS - RIGHT)



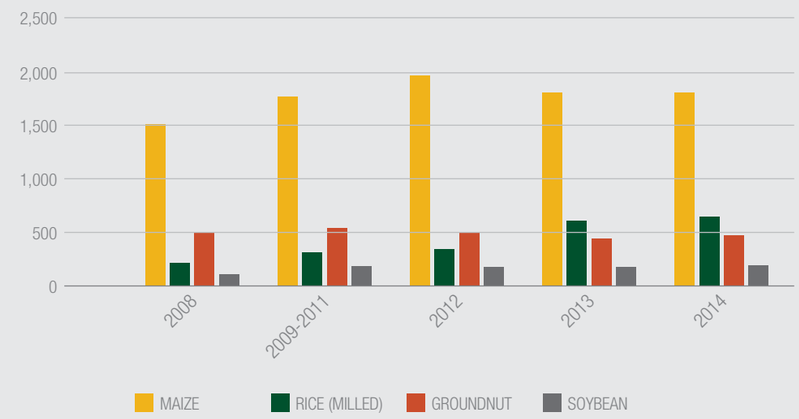
Source: Ghana Statistical Service

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

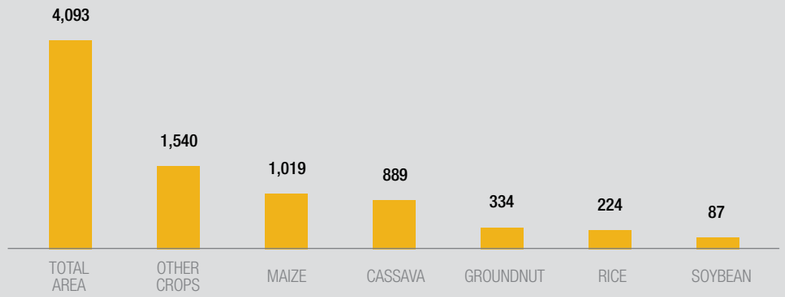
THE FOOD MARKET IN GHANA

Even though Ghana's agriculture sector has seen tremendous improvements in the recent years with increase of both cropped area and yields, growing consumption and demand patterns should continue to provide outstanding opportunities for import substitution in the years to come. In addition to the attractive domestic market, there is also the 340 million-strong ECOWAS market.

PRODUCTION OF MAIN FOOD CROPS
(THOUSAND METRIC TONS) - 2008/2014



CROPPED AREA WITH MAIN FOOD CROPS
(THOUSAND HECTARES) - 2014

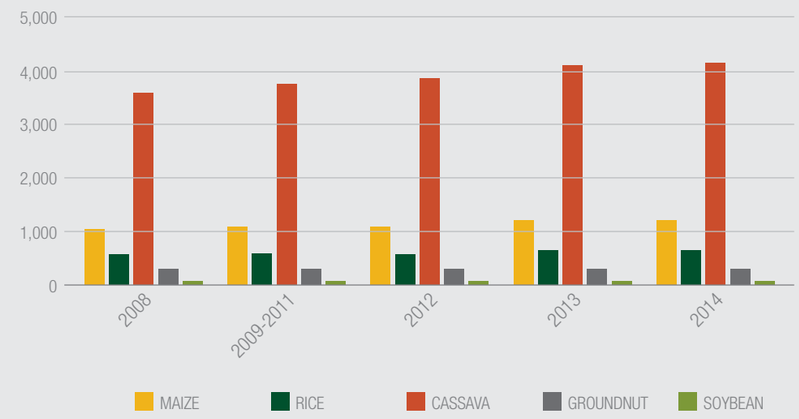


SOURCE: Ministry for Food and Agriculture, Ghana

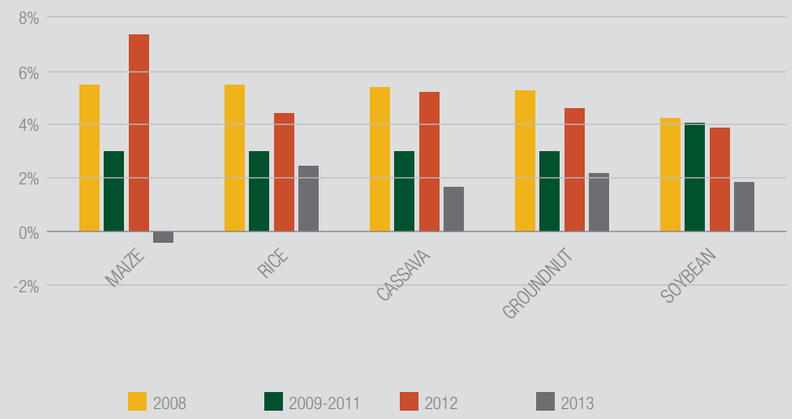
THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

THE FOOD MARKET IN GHANA

CONSUMPTION OF MAIN FOOD CROPS
(THOUSAND METRIC TONS) - 2008/2014



EVOLUTION IN CONSUMPTION OF MAIN FOOD CROPS
(%) - 2008/2014



SOURCE: Ministry for Food and Agriculture, Ghana

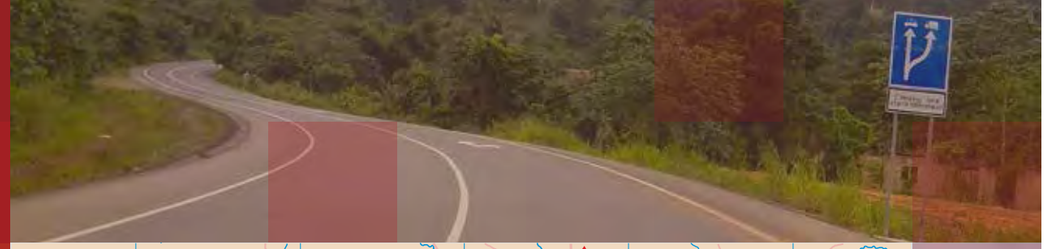
THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

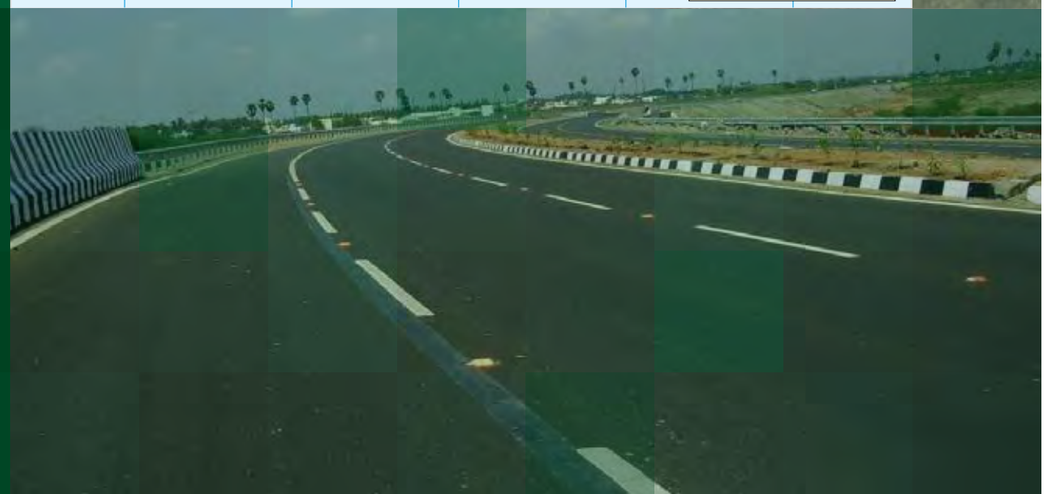
INFRASTRUCTURE

Although additional infrastructure need to be developed by Government and Private Sector (itself a major opportunity for both public works and Public-Private Part¬nerships - PPP's), Ghana has one of Africa's best and most extensive infrastructure network, providing the conditions for global competitiveness for a number of commodities and products produced in Ghana.

As a transit country for a number of West Africa's landlocked countries (most notably Burkina Faso, Mali and Niger), Ghana's roads and maritime harbours are in relatively good conditions. The SADA Zone is connected to the South of the Country through a network of paved roads. The Tema Harbour, approximately 30 km distant from the Nation's capital Accra, is well positioned to serve both imports and exports of a wide array of products. The Takoradi Harbour, a further 300 km west of Accra is an additional asset.

However, The SADA Zone competitiveness lies in the possibility of large-scale usage of the Volta Lake as a major waterway to transport bulk products from agriculture producing areas to both Accra as the main consumer market and for export markets.





THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

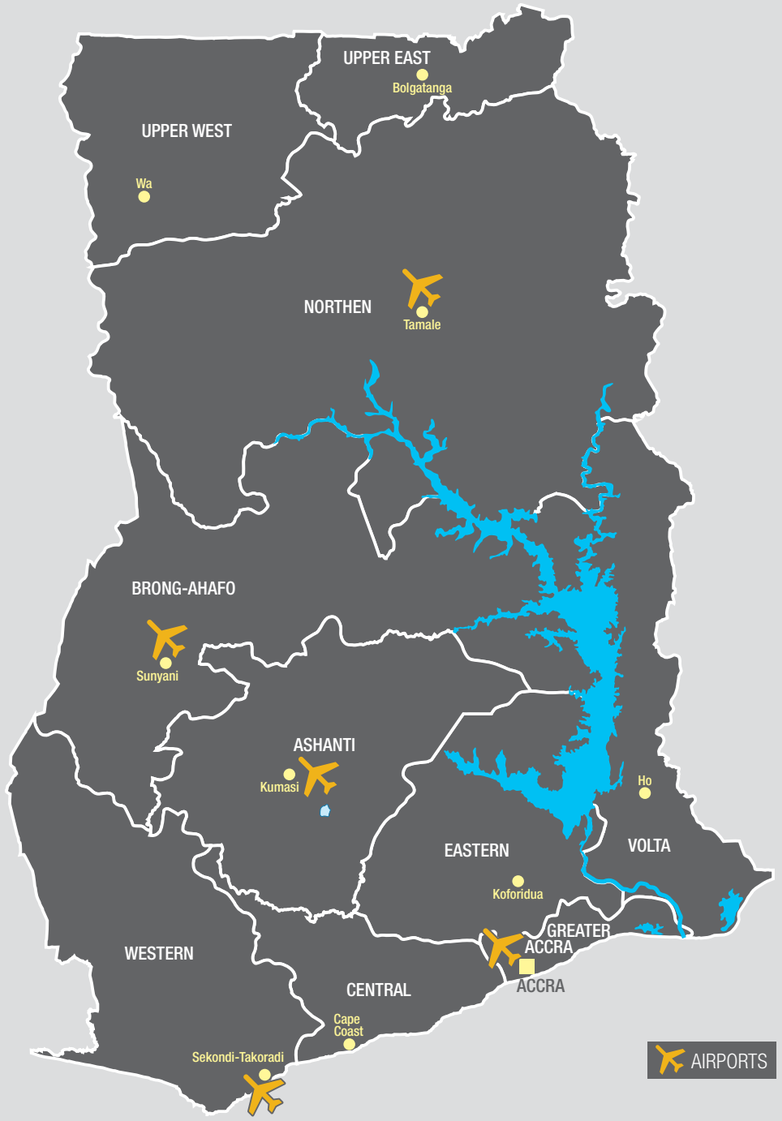
ROAD NETWORK

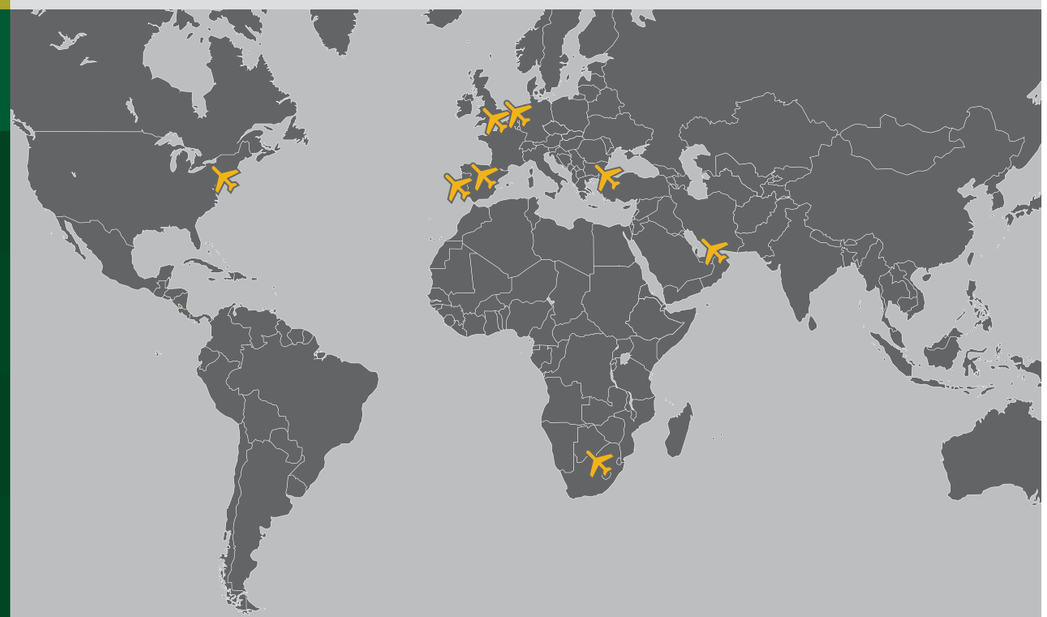
Based on the most up-to-date information, the Country's road network extends approximately over 68,124 km of which nearly 13,000 km are trunk roads, 12,600 km urban roads and 42,210 km feeder roads.

Four major highway corridors are distinguished in the country:

1. The Western Corridor
2. The Central Corridor
3. The Eastern Corridor
   (currently under rehabilitation and upgrading)
4. The East-West Corridor

The SADA Zone captures 40% of the country's road network, with approximately 5,900 km.





THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

AIR TRANSPORT

Ghana has 5 major airports serving the country's major urban centers (Accra, Tamale, Takoradi, Kumasi, Sunyani), with Accra as the main international airport (serving approximately 3 million passengers per annum) and the newly rehabilitated and expanded Tamale International Airport, at the heart of the SADA Zone.

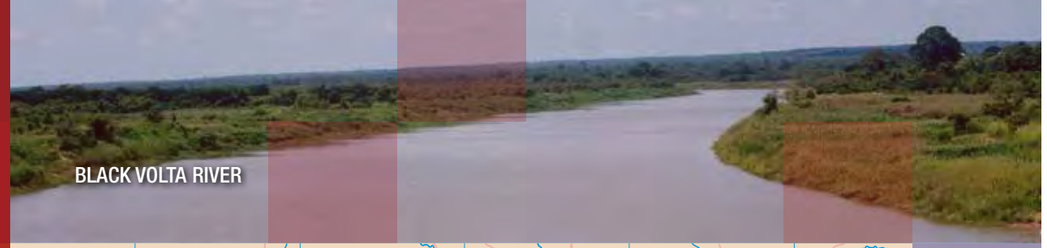
The Tamale International Airport currently has as 3,400 m runway, with capacity to handle over 1 million passengers per annum and a cargo terminal, which will be capable of handling high value-added fresh produce (vegetables, fruits) to export markets.

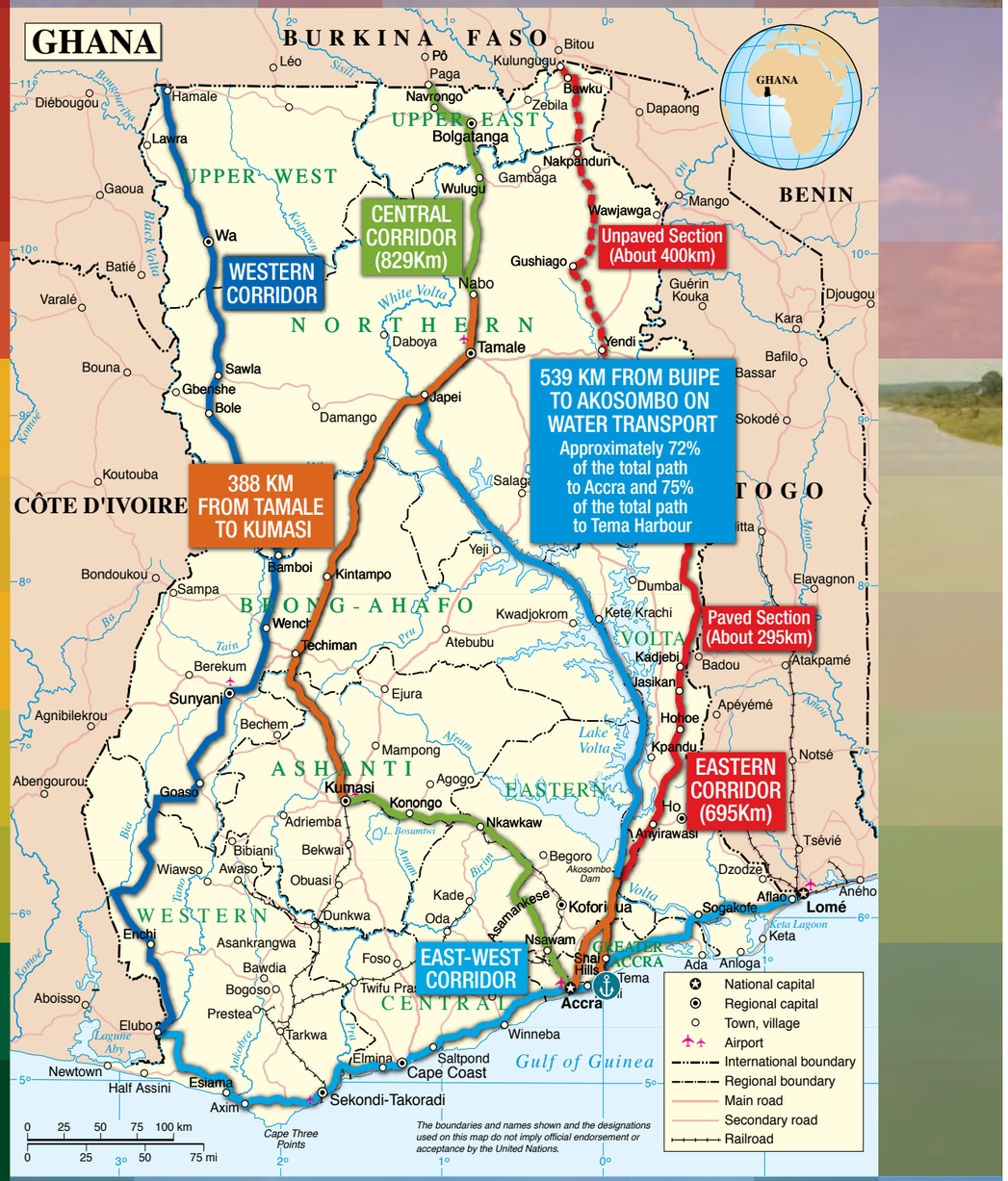
A domestic airport is planned to be constructed in Wa (Upper West Region) shortly. When finished, most of the SADA Zone will be within 250 km to an airport.

HOW TO GET TO GHANA

Arriving in Ghana through air is very easy since the Kotoka International Airport operates in and outbound direct flights to more than 15 countries in 4 continents, including:

- USA (New York);
- UK (London);
- South Africa (Johannesburg);
- Turkey (Istambul);
- United Arab Emirates (Dubai);
- Portugal, Spain, Netherlands, in Europe;
- Nigeria, Ethiopia, Egypt in Africa, and many more.





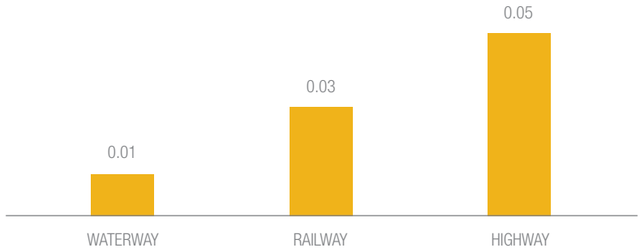
THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

WATER TRANSPORT

By far, the SADA Zone's most attractive logistics asset is Lake Volta, the World's largest man-made lake by area (8,502 km² of surface area) and of the largest in volume (148 km³).

From Tamale to the Tema maritime harbour (approximately 539 km), nearly 71% of the route can be done by waterway. When developed, this will dramatically contribute to the global competitiveness of agriculture production in the SADA Zone.

TRANSPORTATION COSTS PER MODAL (US$/TON/KM)



THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

POWER GENERATION

Ghana has an installed power capacity of 2,800 MW, relying mostly on hydro and thermal (natural gas, oil) generation.

The country is effectively interconnected through a nationwide power grid, which is also connected to the neighbouring countries under the framework of the WAPP (Western African Power Pool). Ongoing works generation, transmission and distribution should contribute to widen the availability and access to electricity throughout the country.

The SADA Zone can play a major role in securing the expansion of power availability through new hydro, biomass and solar projects.

The SADA Zone is also thought to have potential for the production of hydrocarbons, including natural gas. Exploration is ongoing.

THE REPUBLIC OF GHANA AND THE SADA ZONE AT A GLANCE

POWER GENERATION

WESTERN AFRICAN POWER POOL EXISTING AND PROPOSED TRANSMISSION LINES

RESOURCES FOR LARGE SCALE AGRICULTURE IN THE SADA ZONE

BUI RESERVOIR

RESOURCES FOR LARGE SCALE AGRICULTURE IN THE SADA ZONE

AN INTRODUCTION

Natural potential for agriculture is a combination of the right climatological (temperature, solar radiation and water availability in the form of rainfall), geomorphological (adequate topographical conditions – flat or gently undulating slope), soils (texture, chemical and physical properties) and water (availability of surface and/or groundwater to supplement water shortages by rainfall) characteristics/availability of a given region.

After natural requirements of crops are met, a number of other factors will influence a region's competitiveness for agriculture, including access to finance, qualified labour, good business environment, access to inputs and required capital investment (agrochemicals, machinery, implements), an entrepreneurial rural business community, infrastructure, among many others.

While the second set of conditions can be addressed mostly through policy, the first (natural potential) is pretty much a work of nature, and even though minor shortfalls can be fully met through the use of technique and technology (fertilization, irrigation, etc.), the largest portion of it (temperature, geomorphology) is randomly defined by "Mother Nature".

Fortunately, the SADA Zone has been blessed with some of the most advantageous conditions for large-scale agriculture production of many crops and animal species.

THE CLIMATE

SADA's typically tropical climate (Tropical Savannah Climate or Tropical Wet and Dry Climate, according to Koppen-Geiger climate classification), which entails, among other things, annual mean temperatures above 18ºC-20ºC, means the Zone is practically a tropical crops' paradise, with possibilities of all-year-round agriculture production, given irrigation can be provided in the dry season.

Rainfall has a unimodal pattern, with a wet season from May to September and a dry season from October to April. Rainfall volumes range from 1,200 mm/annum along the Southern borders of the Zone to 900 mm along the Northern Border. The rainfall is enough to sustain high yields of the main suitable crops in the region, which include maize, pearl millet, soybeans, sorghum, cowpea, groundnuts, cotton, cashew, among others.

RESOURCES FOR LARGE SCALE AGRICULTURE IN THE SADA ZONE

METEOROLOGICAL DATA

With an extensive operational meteorological agency network (at least 36 working stations with well over 30 years of climatic parameter records in the SADA Zone), there is more than enough quality information to sustain detailed feasibility analysis for rain-fed and irrigated agriculture projects in the region.

The Savannah Accelerated Development Authority can be contacted for access to detailed meteorological information.

SAMPLE METEOROLOGICAL INFORMATION FOR TAMALE STATION (LAT: 9.25 N, LONG: 0.50 W, ALT 183 M)

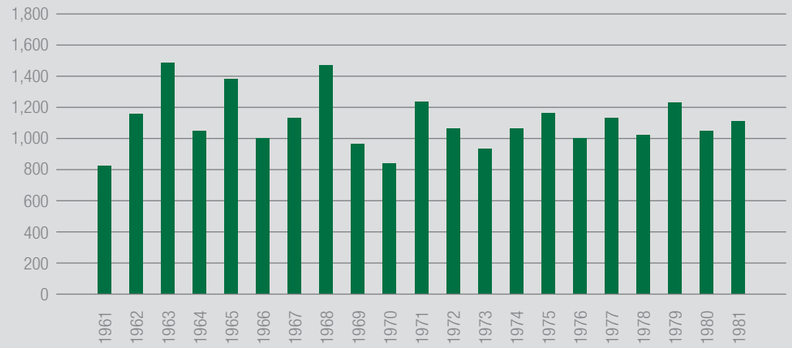
MONTH	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN
Temperature (T) (for 1971-2001)													
Tmean (°C)	27.5	30.1	31.8	31.1	29.4	27.4	26.5	26.3	26.5	27.9	28.4	27.0	28.3
Tmean (°C) - Standard deviation	1.0	0.9	0.7	1.0	0.8	0.5	0.5	0.4	0.5	0.6	0.9	1.1	-
Tmax (°C)	35.7	37.7	38.2	36.5	34.2	31.7	30.3	30.1	30.9	33.4	35.8	35.2	34.1
Tmax (°C) - Standard deviation	0.9	0.8	0.9	1.4	1.0	0.7	0.5	0.5	0.5	0.9	0.8	0.9	-
Tmin (°C)	19.3	22.6	25.4	25.6	24.5	23.1	22.8	22.5	22.2	22.4	21.1	18.7	22.5
Tmin (°C) - Standard deviation	1.5	1.2	0.8	0.9	0.6	0.5	0.7	0.4	0.5	0.4	1.3	1.5	-
Precipitation (P) (for 1971-2001)													
P (mm)	2.6	8.5	44.1	80.9	128.6	148.3	164.0	183.9	222.3	88.9	7.3	3.1	1082.5
Relative humidity (%) (for 1971-2001)													
RHmax (%)	39.3	41.0	58.6	76.9	85.5	91.7	93.4	94.2	95.8	94.0	82.4	57.9	75.9
RHmax (%) - Standard deviation	7.8	10.7	13.0	5.0	3.1	1.9	1.5	1.5	0.8	1.2	5.6	8.0	-
RHmin (%)	15.7	17.5	27.0	42.2	53.6	62.9	67.7	69.4	67.9	56.4	33.8	20.9	44.6
RHmin (%) - Standard deviation	3.4	4.8	6.4	4.7	4.6	3.4	2.8	3.2	2.2	4.4	4.7	4.3	-
Sun hours (h) (for 1971-2001)													
n (h)	7.8	8.0	7.2	7.7	7.9	7.4	5.9	5.2	6.0	7.8	8.7	7.6	7.3
n (h) - Standard deviation	1.2	1.1	1.1	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	1.2	-

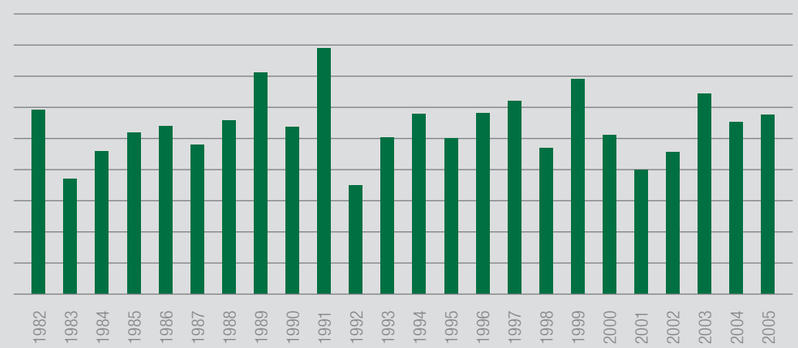
SOURCE: Hydrogeological Assessment Project of the Northern Regions of Ghana, WRC, 2011

RESOURCES FOR LARGE SCALE AGRICULTURE IN THE SADA ZONE

METEOROLOGICAL DATA

RAINFALL RECORDS AT TAMALE STATION (LAT: 9.25 N, LONG: 0.50 W, ALT 183 M)





SOURCE: Hydrogeological Assessment Project of the Northern Regions of Ghana, WRC, 2011

MAPS AVAILABLE FROM PAGES **06** TO **12** IN THE APPENDIX VOLUME

RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

PHISIOGRAPHY AND RELIEF

Three broad physiographic regions can be distinguished in the SADA Zone:

1. Savannah high plains covering all of Upper East and Upper West regions and the western part of the Northern Region;
2. Voltaian sedimentary basin (VSB) covering most of the remainder of the Northern Region;
3. Scarps bordering the VSB, also found within the Northern Region.

The whole country is generally classified as lowland, with less than 10% of the country above 300 m above sea level (Hydrogeological Assessment Project of the Northern Regions of Ghana, HAP, Final Technical Report, Volume I).

The region is predominantly flat and/or with gently undulating slopes, with a fair portion of the region under 0-2% slopes, with the majority of it not exceeding 12%.

Mechanized farming depends very heavily on flat areas for feasibility, once sowing, harvesting and other sorts of agricultural machinery have slope-related operational limitations.
The predominantly flat slopes of the SADA Zone make it, therefore, very suitable for commercial, mechanized farming.

MAPS AVAILABLE
FROM PAGES **13** TO **14** IN
THE APPENDIX VOLUME

RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

THE SOILS

In the north of Ghana (SADA Zone), weathered products of bedrock generally constitute the parent materials from which the soils are formed. The mineralogy of the parent rock, the degree of weathering and the different hydrological conditions encountered (e.g. along slopes) have a significant influence on the texture of the soils.

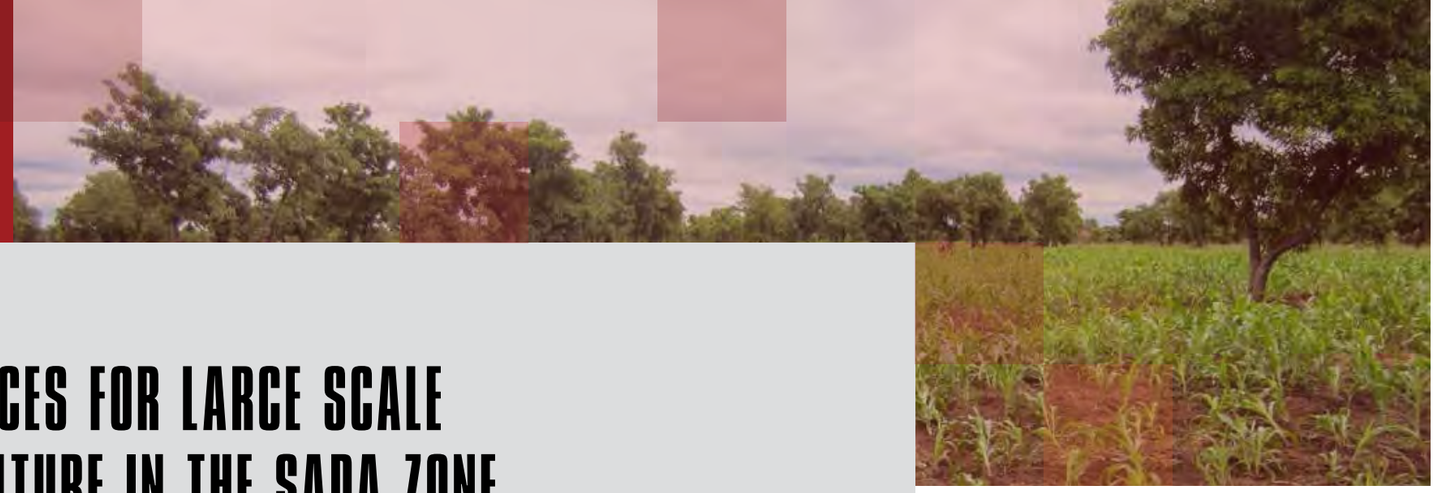
Over granites and sandstones, soils will tend to develop relatively coarse textures (from coarse sands to loams) while phyllites, shales and mafic rocks will weather into finer material such as silts and fine sands.

Soils developed in valley bottoms and floodplains also tend to have finer textures that can vary from sandy loams to clays (Hydrogeological Assessment Project of the Northern Regions of Ghana, HAP, Final Technical Report, Volume I).

The Zone has an ample proportion of very good soils for both rain-fed and irrigated agriculture (lixisols, acrisols, luvisols, planosols, among others), which should fit many crops among annual and perennial.

The availability of good quality and extensive soil research information in Ghana is quite impressive. Detailed soil maps at a 1 : 250,000 scale are available for the entire country. Countless surveys have been undertaken under the framework of hydrobasin and irrigation feasibility studies over the last 60 years, contributing to the creation of a rich bibliography on the matter. The Soil Research Institute of Ghana also has its own laboratory for soils analysis, and is, therefore, well equipped to deal with any soil research and analysis required for investment decision.

MAPS AVAILABLE FROM PAGES **15** TO **17** IN THE APPENDIX VOLUME



RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

BRIEF DESCRIPTION OF VERY SUITABLE AND SUITABLE SOILS IN THE SADA ZONE

SUMMARY DESCRIPTION OF LUVISOLS

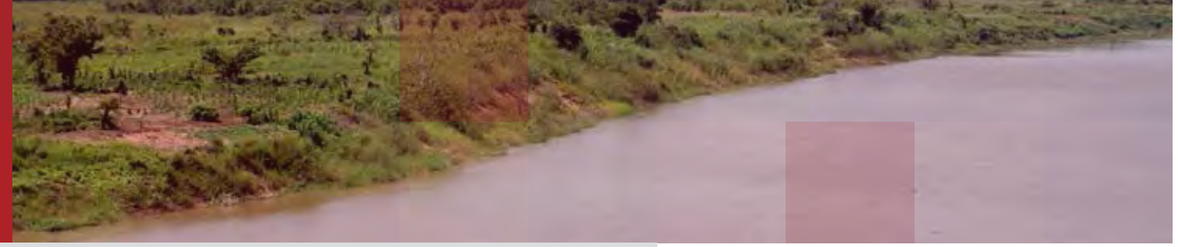
- **Connotation:** soils in which clay is washed down from the surface soil to an accumulation horizon at some depth; from L. luere, to wash.
- **Parent material:** a wide variety of unconsolidated materials including glacial till, and aeolian, alluvial and colluvial deposits.
- **Environment:** most common in flat or gently sloping land in cool temperate regions and in warm (e.g. Mediterranean) regions with distinct dry and wet seasons.
- **Profile development:** ABtC profiles; intergrades to Albeluvisols having an albic eluviation horizon above the argic subsurface horizon are not rare. The wide range of parent materials and environmental conditions led to a great diversity of soils in this Reference Soil Group.
- **Use:** Luvisols with a good internal drainage are suitable for a wide range of agricultural uses because of their moderate stage of weathering and high base saturation.

SUMMARY DESCRIPTION OF LIXISOLS

- **Connotation:** strongly weathered soils in which clay is washed down from the surface soil to an accumulation horizon at some depth; from L. lixivia, washed-out substances.
- **Parent material:** unconsolidated, strongly weathered and strongly leached, finely textured materials.
- **Environment:** regions with a tropical, subtropical or warm temperate climate with a pronounced dry season, notably on old erosional or depositional surfaces. Many Lixisols are (surmised to be) polygenetic soils with characteristics formed under a more humid climate in the past.
- **Profile development:** ABtC-profiles. On slopes and on other surfaces subject to erosion, the argic accumulation horizon may be exposed or at shallow depth.
- **Use:** most ‘unreclaimed’ Lixisols are under savannah or open woodland vegetation. Such areas are often used for low volume grazing. Perennial crops or forestry are suitable land uses, as well as arable farming with good management practices (fertilization and application of lime).

SUMMARY DESCRIPTION OF VERTISOLS

- **Connotation:** churning heavy clay soils; from L. vertere, to turn.
- **Parent material:** sediments that contain a high proportion of smectitic clay, or products of rock weathering that have the characteristics of smectitic clay.
- **Environment:** depressions and level to undulating areas, mainly in tropical, semi-arid to (sub)humid and Mediterranean climates with an alternation of distinct wet and dry seasons. The climax vegetation is savanna, natural grassland and/or woodland.
- **Profile development:** A(B)C-profiles. Alternate swelling and shrinking of expanding clay results in deep cracks during the dry season, and formation of ‘slickensides’ and wedge-shaped structural elements in the subsurface soil.
- **Use:** Vertisols become very hard in the dry season and are sticky in the wet season. Tillage is difficult, except for a short period at the transition between the wet and dry seasons. Vertisols are very productive soils if properly managed.



RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

THE WATER RESOURCES

The SADA Zone is drained by the “Giant” Volta, one of Africa’s main drainage basins. The Volta River Basin, covers an estimated area of 400,000 km². The basin stretches from approximately latitude 5º30’ N in Ghana to 14º30’ N in Mali. The widest stretch is from approximately longitude 5º30 W to 2º00 E but the basin becomes more narrow towards the coast of the Gulf of Guinea. The Volta basin is spread over six West African countries (43% in Burkina Faso, 42% in Ghana, and 15% in Togo, Benin, Cote d’Ivoire and Mali).

Even though a transnational river, Ghana is a downstream country, which means that it shouldn’t be constrained by any transboundary limitations on water abstractions for different uses, including irrigation.

In Ghana, different (major and minor) sub-basins can be found, of which the main ones are the Black Volta, the White Volta and the Oti River Basin. Other minor important sub-basins are the Kulpawn, Sissili, Nasia, Nabogo, Daka, and many others.

The Volta River System produces an impressive amount of annual runoff of approximately 41,6 billion m³ (38,7 billion m³ from the Ghanaian portion of it).

Source: Water, Climate, Food and Environment in the Volta Basin.

BLACK VOLTA RIVER

THE BLACK VOLTA RIVER

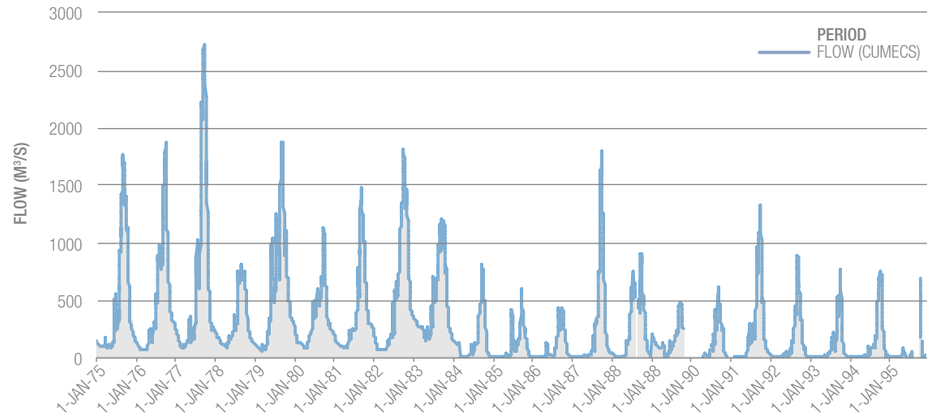
The Black Volta basin lies between Latitude 7º00’00”N and 14º30’00”N and Longitude 5º30’00”W and 1º30’00”W, and covers an estimated area of about 130,400 km². In Ghana, the basin covers an area of about 18,384km², constituting 14% of the basin. The Black Volta river basin is a trans-national river system that stretches from North to South through Mali, Burkina Faso, Ghana and Cote d’Ivoire, and from Burkina Faso, Cote d’Ivoire and Ghana from West to East.

One of the Black Volta’s main uses is hydropower generation, with an estimated potential installed capacity of 682 MW at 5 major power stations (installed capacity ranging from 64 to 400 MW – Bui hydropower dam, already built), what would yield 2,850 GWh/annum.

However, irrigation potential is also massive in several portions of the basin, specially downstream of the main potential hydropower sites, with a lot of studies already developed downstream of Bui, with estimated potential of gross irrigable area approaching 200,000 ha.

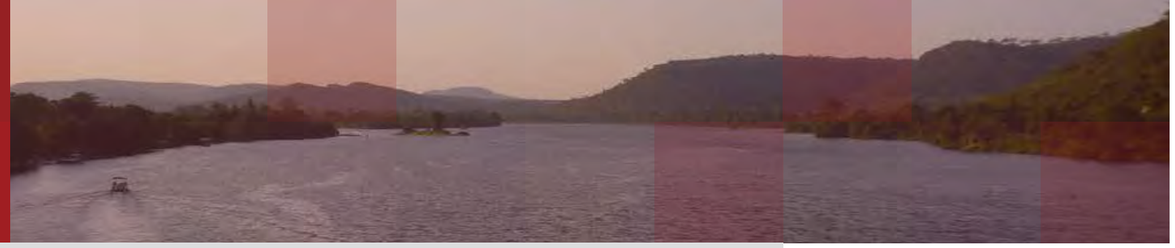
The mean annual inflow of the Black Volta River at the Bui Gauging station is 207 m³/s (VOLTA RIVER AUTHORITY, BUI HYDROELECTRIC PROJECT FEASIBILITY STUDY).

STREAMFLOW DATA (M³/S) FOR THE BLACK VOLTA AT THE BUI GAUGING STATION – WITH DATA GAPS



Source: Water Resources Commission of Ghana.

MAPS AVAILABLE FROM PAGES **18** TO **19** IN THE APPENDIX VOLUME



RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

THE WHITE VOLTA RIVER

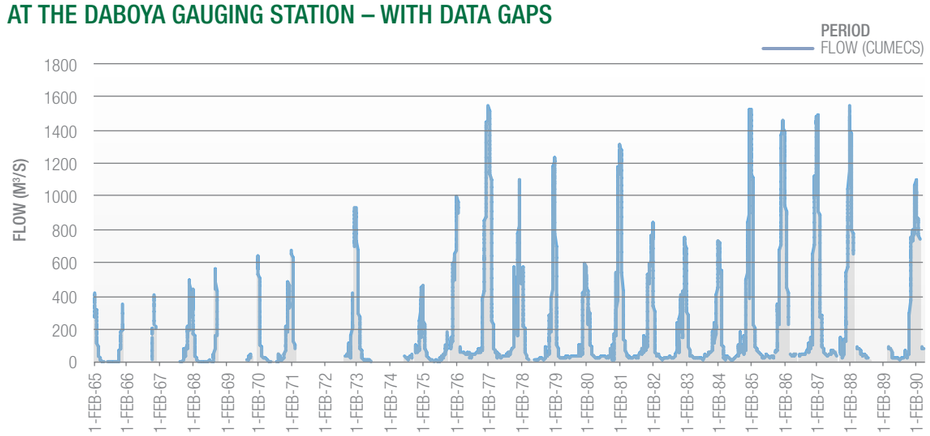
The White Volta River Basin in Ghana is located between latitudes 8°50'N - 11°05'N and longitudes 0°06'E - 2°50'W. The basin is bounded to the east by the Oti River Basin, to the west by the Black Volta River Basin and to the south by the Main/Lower Volta sub-basins. Burkina Faso forms i ts northern boundary.

The drainage area of the Ghanaian part of the basin is about 50,000 km² (a good 20% of Ghana's total land area), and constitutes about 44% of the total area of the White Volta River Basin (named Nakanbé River in Burkina Faso). The White Volta River and its main tributaries in the northern part, the Red Volta (Nazinon) and the Kulpawn/Sissili rivers, take their sources in the central and north-eastern portions of Burkina Faso (Water Resources Commission, White Volta River Basin Integrated Water Resources Management Plan).

With a moderate hydropower potential, and with a topographical condition considered less adequate for hydropower development than the Black Volta (since the predominantly flat characteristics of the basin would require extensive inundation for reservoir formation, thus increasing resettlement and environmental costs), the White Volta's main usefulness is for irrigation.

The mean annual flow of the White Volta at Daboya Gauging Station is in the range of 190 to 200 m³/s.

STREAMFLOW DATA (M³/S) FOR THE WHITE VOLTA AT THE DABOYA GAUGING STATION – WITH DATA GAPS



Source: Water Resources Commission of Ghana.

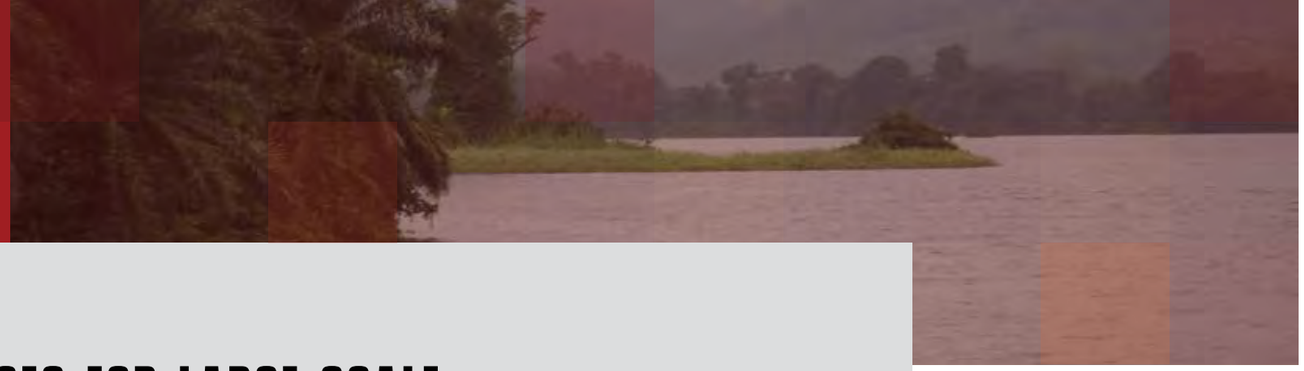
IRRIGATION POTENTIAL

Extensive survey works carried out throughout the last 60 years have identified millions of hectares of soils with good capability for irrigation in the basin. One of these surveys is the Land and Water Survey in the Upper and Northern Regions of Ghana, published in 1968 by the United Nations Development Program and the Food and Agriculture Organization of the UN.

Currently, the Pwalugu Multipurpose Dam, which is planned to be built in the coming years, should provide enough storage and flood control to irrigate as much as 100,000 ha downstream of the dam, with the bulk of the area in the range of 100 km downstream of the dam site.

Other sub-basins of the White Volta, both on the righ and left bank, also present potential for storage and flood control dams, of which the main examples are the Tono, Sissili and Kulpawn rivers on the right bank, and the Nasia and Nabogo rivers, on the left bank.

MAP AVAILABLE
AT PAGE **20** IN
THE APPENDIX VOLUME



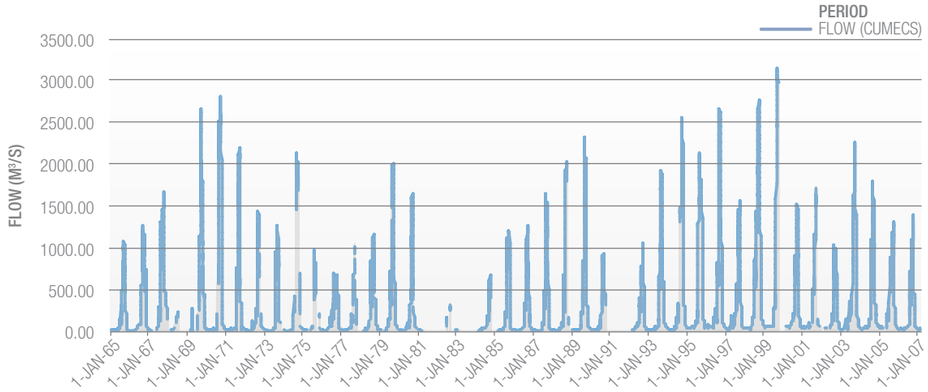
RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

THE OTI RIVER BASIN

The Oti River, with only about 18% of the total catchment area of the Volta Basin, contributes between 30% and 40% of the annual flow of the Volta River System. This is due to the steep topography and high rainfall in the Oti sub-basin. Oti River begins in the Atakora hills of Benin at an altitude of about 600 m A.S.L. and flows through Togo and Ghana. In Benin, Oti River is referred to as Pendjari River. Tributaries include the Koumongou, Kéran, Kara, Mô, Kpanlé, Wawa, Ménou, and Danyi.

Due to flow control by the Kompienga Dam in Burkina Faso, the Oti River has a permanent flow with an annual average flow of 100 to 300 m³/s, and can reach more than 500 m³/s. Virtually all the tributaries stop flowing during the dry season, however, and their annual average flows are only in the range of 5 m³/s. In Ghana, the Oti is one of the rivers, along the Black and the White Volta, that join to form Lake Volta, created by the construction of the Akosombo Dam.

STREAMFLOW DATA (M³/S) FOR THE OTI RIVER AT THE SABOBA GAUGING STATION – WITH DATA GAPS



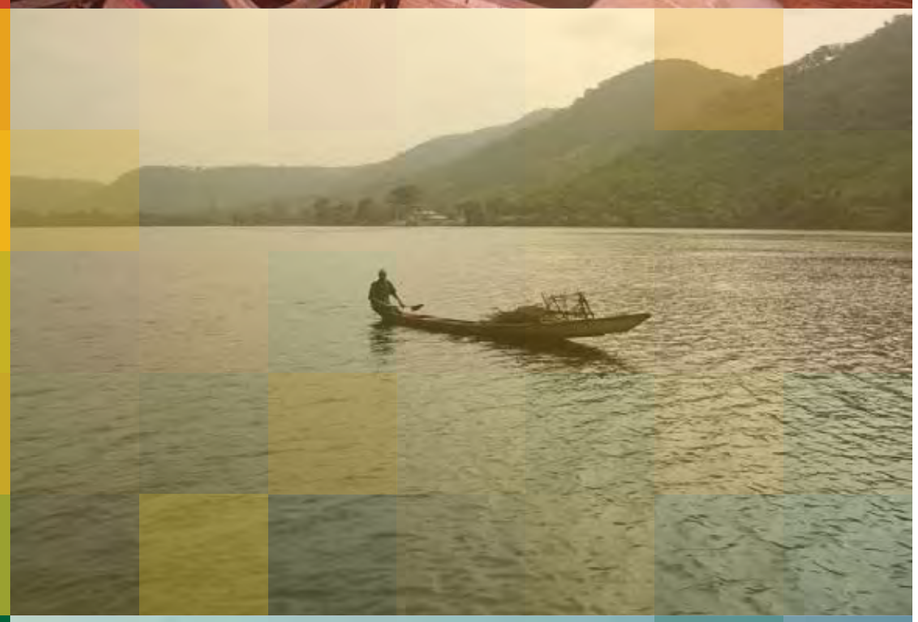
Source: Water Resources Commission of Ghana.

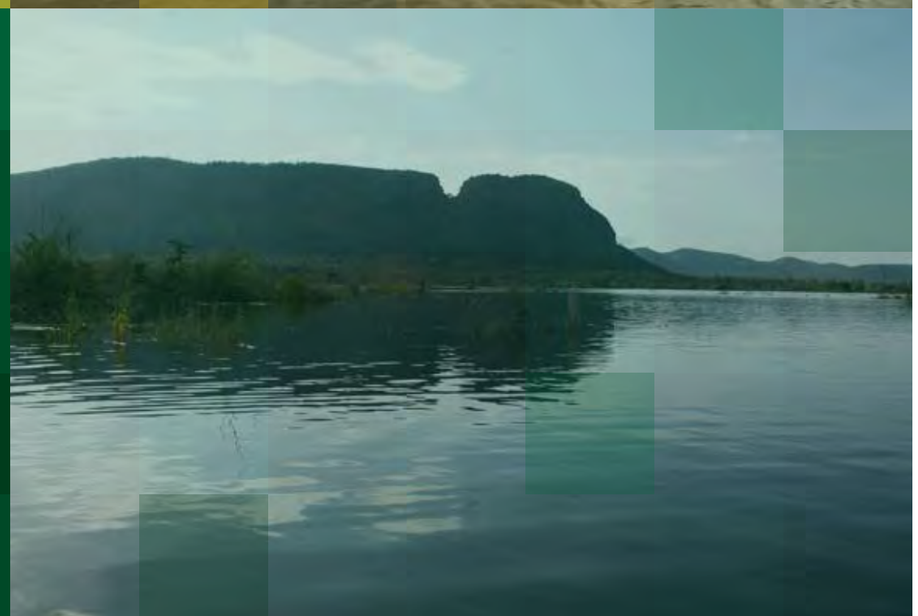
IRRIGATION POTENTIAL

The Oti River is one of the least surveyed in terms of its irrigation potential, but mostly because its potential major reservoir, Juale, would not offer many gravity (preferred) irrigation possibilities since the high potential areas would be upstream of the dam site and would, therefore, require pumping.

However, pockets of highly suitable soils between the Oti River and the border with Togo, with well over 100,000 ha, present very good or good suitability for a wide array of crops, including maize, soybean, tree crops, and many others.

MAP AVAILABLE
AT PAGE **21** IN
THE APPENDIX VOLUME





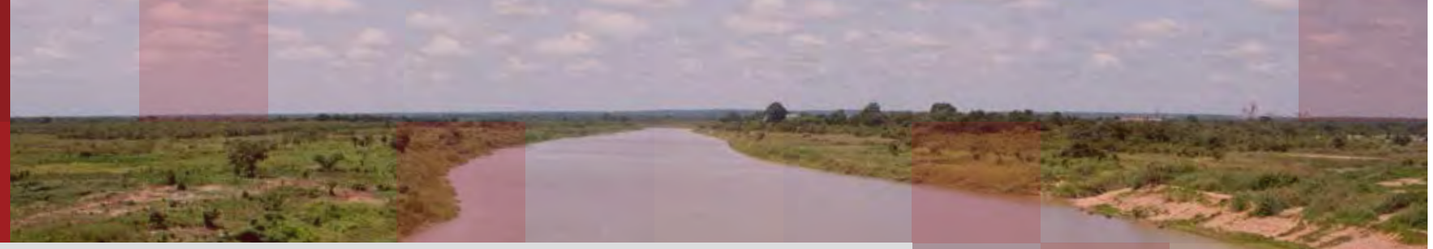
RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

OTHER WATERSHEDS

Smaller watersheds within the main river systems (Black and White Volta, Oti River) also present outstanding potential for irrigation, large, medium and small-sized.

95 potential wier sites have been identified in the minor basins and could irrigate as much as 104,000 ha in small to medium-sized patches (257,000 acres).

The most relevant smaller basins are presented in the pages following.



RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

OTHER WATERSHEDS

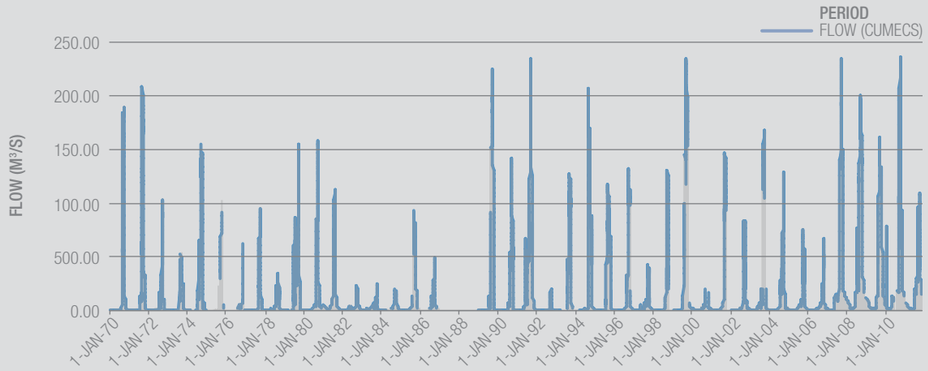
NABOGO RIVER BASIN

The Nabogo River basin is a sub-basin of the White Volta River basin and is located approximately 40 km north of Tamale, between latitudes 9°32'N and 10°01'N and longitudes 0°59'W and 0°15'W.

It drains an area of about 2,900 km² and includes many small streams, most of which join with the Nabogo River upstream of the Nabogo gauging station, located near the town of Nabogo. Elevation within the basin ranges from 106 to 269 m above sea level, with an average of 152 m. The basin overlies a part of the Voltaian sedimentary basin where the most common rocks intercepted by the available wells consists of shale, mudstone and sandstone.

Mean annual flows at the Nabogo river are in the range of 8 to 12 m³/s.

STREAMFLOW DATA (M³/S) FOR THE NABOGO RIVER AT THE NABOGO GAUGING STATION – WITH DATA GAPS



Source: Water Resources Commission of Ghana.

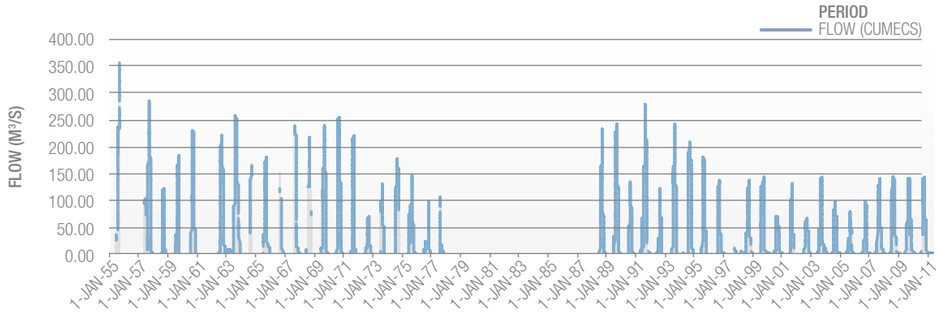
NASIA RIVER BASIN

The Nasia River basin is a sub-basin of the White Volta River basin and is located approximately 85 km north of Tamale, between latitudes 10°20'N and 10°01'N and longitudes 0°59'W and 0°14'W.

It drains an area of about 5,400 km² and includes many small streams, such as the Nabogo basin. Elevation within the basin ranges from 122 to 190 m above sea level, with an average of 130-140 m.

Mean annual inflows at the basin are in the range of 17 to 20 m³/s.

STREAMFLOW DATA (M³/S) FOR THE NASIA RIVER AT THE NASIA GAUGING STATION – WITH DATA GAPS



Source: Water Resources Commission of Ghana.

MAPS AVAILABLE FROM PAGES **22** TO **23** IN THE APPENDIX VOLUME

RESOURCES FOR LARCE SCALE AGRICULTURE IN THE SADA ZONE

OTHER WATERSHEDS

DAKA RIVER BASIN

The Daka River catchment has an area of about 9,174 km² and is located in the eastern/south-eastern portion of the SADA Zone, between latitudes 10°00'N and 8°00'N and longitudes 0°35'W and 0°01'W.

The terrain has a long linear portion that emerges abruptly into the foot slope and ends in the Daka valley. In some places, the long linear portion has impermeable shale or iron pans as close as 0.5 m depth.

This results in flash flows that augment flooding of foots lopes. The nature of geology results in flake-like sediments that accumulate within the river bed. When the sediment is excessive, it blocks the channel when the Daka is at low flows.

This creates stagnant pools of water along the channel from December to June. These pools of water are used by the communities along the Daka River for domestic purposes and as water for livestock and fishing.

Estimated annual runoff in the basin is in the range of 1 billion m³, with mean annual flow of 28 m³/s.

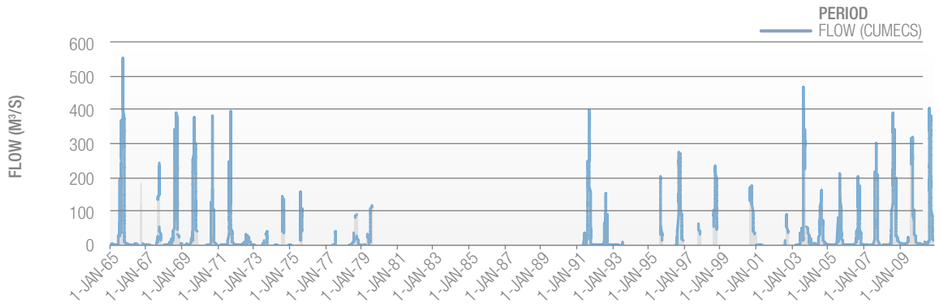
KULPAWN RIVER BASIN

The Kulpawn River catchment has an area of about 9,310 km² and is located in the northwestern portion of the SADA Zone, between latitudes 10°59'N and 9°43'N and longitudes 2°45'W and 1°50'W.

It is with one of the rivers that present good possibility of water storage for irrigation purposes, as the combination of waters from the Kulpawn, Sissili and Tono Rivers could contribute to irrigate as much as 80,000 ha of land in the Fumbisi Valley located in the Northern Region of Ghana.

The estimated annual runoff is approximately 950 million m³, with mean flows within the range of 28 to 33 m³/s.

STREAMFLOW DATA (M³/S) FOR THE KULPAWN RIVER AT THE YAGABA GAUGING STATION – WITH DATA GAPS



Source: Water Resources Commission of Ghana.

MAPS AVAILABLE FROM PAGES **24** TO **25** IN THE APPENDIX VOLUME

AGRICULTURE POTENTIAL IN THE SADA ZONE

AGRICULTURE POTENTIAL IN THE SADA ZONE

LAND CAPABILITY ASSESSMENT

AGROECOLOGICAL ZONING

Funded by the World Bank and DANIDA (Danish International Development Agency, and executed by the Council for Scientific and Industrial Research (CSIR) of Ghana, one of the outputs of the Ghana Environmental Resource Management Project (GERMP) was a Land Suitability Assessment (agro-ecological zoning) for the entire territory of Ghana, covering 33 crop species, 51 crop types (3 types of Maize, 2 types of soybeans, etc.), making up 153 Land Utilization Types (at high, intermediate and low inputs), under rain-fed conditions.

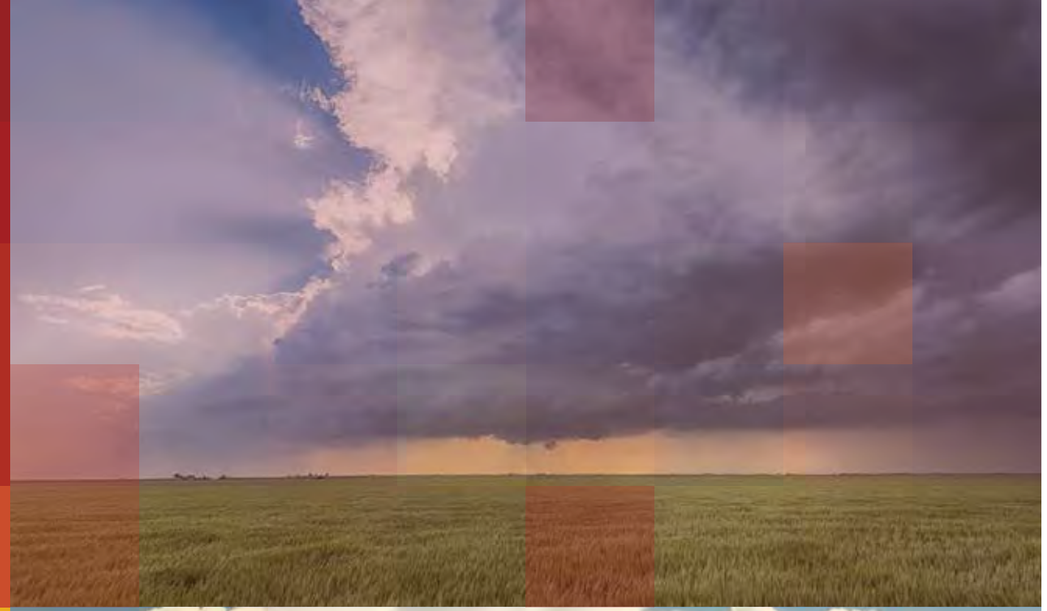
SADA, assisted by Queiroz Galvão Construction and the Soil Research Institute of Ghana, tapped into this database to create a specific SADA Zone land suitability assessment. The maps have been produced within the boundaries of the SADA Zone and in addition to rain-fed, the project team has also developed a land suitability assessment under irrigated conditions.

Since agro-climatic suitability is a combination of, most importantly, the right thermal and soil moisture requirements (rainfall, potential evapotranspiration, etc.) – in addition to solar radiation – and also taking into account that the only major constraint to all-year-round agriculture in the SADA Zone would be soil moisture availability, land suitability under irrigation presents enormous opportunities for both the Country in general and private investors from all over the world.

Irrigation can strongly contribute to transforming the Zone into an agriculture powerhouse, mostly by:

- Improving yields of crops that are already suitable under rain-fed conditions, in addition to providing the possibility of double and tripple cropping;
- Crops that would not be suitable or only marginally suitable without irrigation, include:
  - Sugar cane;
  - Rice;
  - Citrus;
  - Robusta coffee;
  - Cocoa and oil palm.

MAPS AVAILABLE FROM PAGES **28** TO **64** IN THE APPENDIX VOLUME



AGRICULTURE POTENTIAL IN THE SADA ZONE

LAND CAPABILITY ASSESSMENT

AGROECOLOGICAL ZONING

EXTENTS OF LAND VARIOUSLY SUITED FOR CROPS UNDER RAIN-FED CONDITIONS AT HIGH INPUTS (IN HECTARES)						
	CROPS	VERY SUITABLE	SUITABLE	MODERATELY SUITABLE	MARGINALLY SUITABLE	NOT SUITABLE
1	BUNDED RICE	0	22,825	229,050	615,640	9,449,261
2	SUGAR CANE	0	0	6,463	212,683	10,097,630
3	MAIZE	425,075	751,385	1,198,120	5,574,681	2,367,515
4	SOYBEAN	411,589	837,938	1,072,023	4,696,348	3,298,878
5	GROUNDNUT	610,120	571,941	1,259,146	4,686,442	3,189,128
6	SORGHUM	704,527	1,119,409	3,332,674	3,291,006	1,869,160
7	PEARL MILLET	267,529	1,582,984	3,632,013	2,902,971	1,931,279
8	COTTON	422,830	475,024	715,302	2,171,939	6,531,681
9	CASSAVA	182,730	614,389	1,271,103	3,485,956	4,762,598
10	SWEET POTATO	512,606	279,532	689,182	2,212,622	6,622,835
11	WHITE YAM	9,537	215,871	371,501	902,456	8,817,412
12	MANGO	256,911	460,269	424,843	1,917,857	7,256,897
13	CASHEW	625,678	753,741	855,973	4,338,458	3,742,926
14	PINEAPPLE	12,931	151,042	654,069	542,214	8,956,520.4
15	CITRUS	11,115	4,269	186,920	207,969	9,906,503.1
16	SHEA BUTTER	220,500	1,363,800	1,857,854	3,854,821	3,019,802.2

OBS: Land suitability classes indicate land capability in percentage of maximum attainable yields (MAY) which can be potentially reached for each crop (Very Suitable: 100%-80% of MAY; Suitable: 80%-60% of MAY; Moderately Suitable: 60%-40% of MAY; Marginally Suitable: 40%-20% of MAY and Not Suitable: 20%-0% of MAY)

AGRICULTURE POTENTIAL IN THE SADA ZONE

LAND CAPABILITY ASSESSMENT

AGROECOLOGICAL ZONING

EXTENTS OF LAND VARIOUSLY SUITED FOR CROPS UNDER IRRIGATED CONDITIONS AT HIGH INPUTS (IN HECTARES)

	CROPS	VERY SUITABLE	SUITABLE	MODERATELY SUITABLE	MARGINALLY SUITABLE	NOT SUITABLE
1	BUNDED RICE	3,621,147	373,519	1,851,432	1,526,040	2,944,638
2	SUGAR CANE	974,976	2,199,924	3,716,013	2,306,596	1,119,268
3	MAIZE	1,108,519	1,949,559	2,231,572	4,323,123	704,003
4	SOYBEAN	728,918	1,224,806	2,656,341	4,973,500	733,212
5	GROUNDNUT	1,337,874	1,395,392	2,361,395	4,245,524	976,591
6	SORGHUM	1,665,240	1,911,495	4,302,879	2,063,790	373,372
7	PEARL MILLET	1,406,757	2,261,742	4,214,919	1,928,599	504,760
8	COTTON	1,092,722	1,899,508	1,652,449	4,692,449	979,648
9	CASSAVA	900,723	573,616	3,597,568	3,786,738	1,458,130
10	SWEET POTATO	610,231	716,214	1,665,754	5,605,778	1,718,799
11	WHITE YAM (GREATER, YELLOW)	609,259	715,553	1,096,574	5,897,468	1,997,923
12	COCOYAM	900,723	569,057	3,601,399	3,787,467	1,458,130
13	MANGO	1,274,702	1,680,044	1,280,238	4,645,942	1,435,850
14	CASHEW	1,278,925	1,694,430	1,774,968	4,334,995	1,233,458
15	PINEAPPLE	1,049,479	1,760,239	1,469,598	4,600,718	1,436,742
16	CITRUS	266,890	2,013,010	1,633,486	2,083,804	4,319,586
17	PLANTAIN/BANANA	431,140	1,210,198	2,240,014	5,358,883	1,076,541
18	ROBUSTA COFFEE	101,937	67,729	128,790	412,676	9,605,645
19	COCONUT	206,428	1,809,806	1,448,037	3,784,866	3,067,639
20	COCOA	223,743	920,714	2,241,822	2,536,740	4,393,757
21	OIL PALM	264,416	2,004,765	1,640,349	5,209,791	1,197,457

OBS: Land suitability classes indicate land capability in percentage of maximum attainable yields (MAY) which can be potentially reached for each crop (Very Suitable: 100%-80% of MAY; Suitable: 80%-60% of MAY; Moderately Suitable: 60%-40% of MAY; Marginally Suitable: 40%-20% of MAY and Not Suitable: 20%-0% of MAY)

AGRICULTURE POTENTIAL IN THE SADA ZONE

VALUE CHAINS TO BENEFIT FROM CROP PRODUCTION

As just exposed, the SADA Zone provides the perfect environment (either rain-fed or irrigated) for the creation of verious agri-industry value chains derived from a steady inflow of competitive raw material (farm produce). Some of the value chains with the highest potentials include

UPSTREAM

Maize, soybean, groundnuts, shea tree, cotton

Fruit crops such as citrus, pineapple, banana, plantain, coconut, cashew

MIDSTREAM

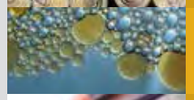
Vegetable oils, animal feed, fiber

Fruit juice and concentrate, essential oils, processed fresh fruit, animal feed

DOWNSTREAM

Poultry

Processed food



Oil-chemical

Cosmetics and beauty

Textile

Processed juice

Sweets

Jams

Nuts

AGRICULTURE POTENTIAL IN THE SADA ZONE

VALUE CHAINS TO BENEFIT FROM CROP PRODUCTION

UPSTREAM

Sugar cane

Rice

Cassava

MIDSTREAM

Sugar, power and alcohol

Processed rice, power

Flour

DOWNSTREAM

Processed candy and biscuits

Carbonated drinks

Bio-chemicals

Animal feed

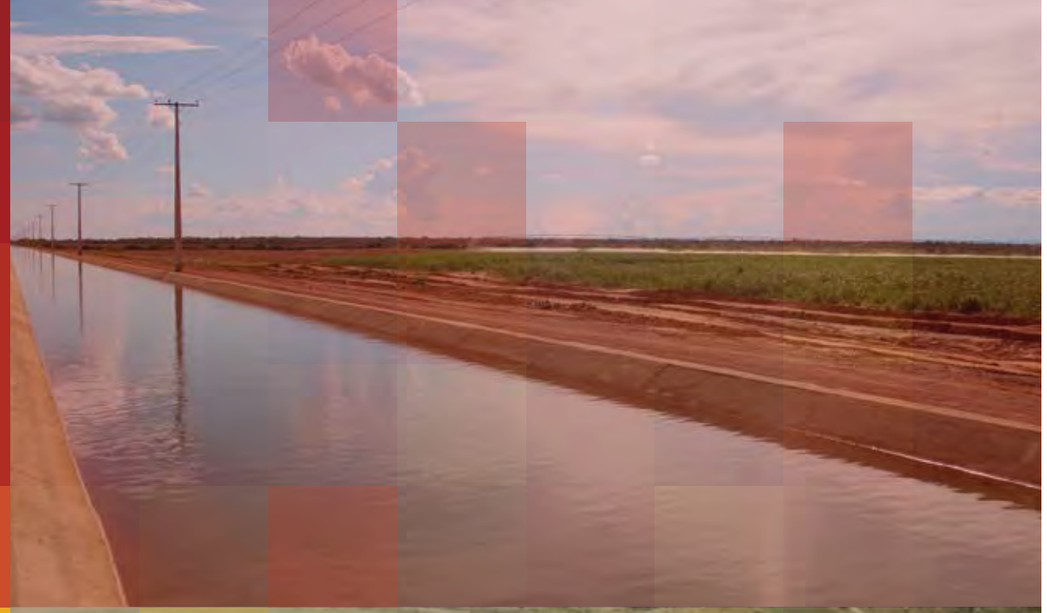
Flour

Brewery

Vegetable oils

Substitute of other raw materials for beer manufacturing

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO



IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

IRRIGATION SCHEME PROJECT PORTFOLIO

Of the various areas suitable for irrigation, a number of them present a compelling status of readiness for project implementation. Located in several regions within the Zone, the most advanced projects (at some level of feasibility study completion, detailed engineering design and fund raising) are:

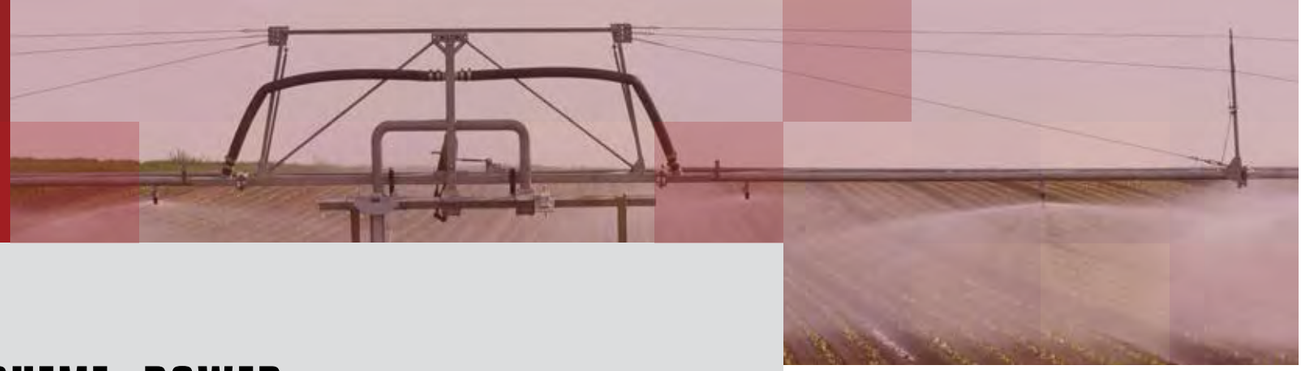
- Nasia-Nabogo Irrigation Scheme Project (NIS) – Starting at 10,000 hectares, the project has a capacity to expand beyond 70,000 hectares with a combination of both gravity and pumped irrigation;

- Bui Irrigation Scheme Project (BIS) – one of the most compelling cases, since the required reservoir has already been built and, therefore, only the head works and water conveyance are still pending. Starting at 5,000 ha, the region has a potential to reach well beyond 100,000 ha;

- Daka Valley Irrigation Scheme Project (DIS) – located in a region highly suitable mostly for rice and “neighbour” to one of Ghana’s most valuable soil stripes (Haplic Luvisols), the project could be put under irrigation with the construction of small-to-medium-sized reservoirs that could also be phased. Starting at 10,000 ha, the region presents potential for up to 90,000 ha.

- Pwalugu Irrigation Scheme Project (PIS) – The northernmost of all, Pwalugu is a giant with suitability to start with 20,000 ha and possibilities to reach 100,000 ha and beyond. Developing its whole potential requires the construction of a multi-year storage reservoir (over 4 billion m^3), but the first phase of the project with 10,000 ha could start as of now;

- Fumbisi Valley Irrigation Scheme Project (FIS) – the Valley benefits from the confluence of 3 rivers (Kulpawn, Sissili and Tono) and has a total gross irrigable area of 242,395 ha, according to the “Report of Site Survey – Agricultural Irrigation Project”, from January 2012, published by the Ghana Irrigation Development Authority (GIDA). Suitable soils for a wide range of crops are plentiful, and water for irrigation can be provided either directly from the White Volta River (through the “Northern Canal” conceived under the Pwalugu Multipurpose Dam Project – Feasibility Study Report) or through water from reservoirs to be created in the Kulpawn, Sissili and Tono Rivers.



IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

NASIA-NABOGO IRRIGATION SCHEME PROJECT

Located accross 4 districts in the Northern Region of Ghana (Savelugu Nanton, Tolon-Kumbungu, Karaga and West Mamprusi), the Nasia-Nabogo Irrigation Scheme, named after 2 of the main White Volta sub-basins in the project area, will start with a minimum of 10,000 ha with potential to reach over 30,000 ha in a combination of gravity and pumped irrigation sites.

The Scheme is perhaps the best located in terms of existing logistics and transportation infrastructure, since its location is:

- On the axis of one of the country's main tarred roads, connecting the Capital Accra to major cities like Kumasi, Tamale, Bolgatanga and Burkina Faso;
- 34 km from the Region's capital and largest city, Tamale;
- 20 Km from the revamped International Airport of Tamale, 6 hours from major European capitals by air. The New International Airport at Tamale will house a number of export-oriented ware and cold storage houses to support the establishment of a fresh fruit and vegetable export route to Europe and beyond;
- 143 km (on good quality ashphalt road) from the region's most important lake Port, at Buipe.

Other highlights of the project include:

- Source of water at the Nabogo and Nasia rivers (dam irrigation) and White Volta (pumping);
- Very good soils including dystric planosols (very suitable for rice), haplic lixisols (very suitable for a wide range of crops including maize, tree crops).

SCHEME MAIN CHARACTERISTICS

- At least 8 suitable dam sites, of which 4 have been selected for dam construction to be provide water to at least 30,000 ha of gross irrigable area;
- 2 pumping-based irrigation sites, with water abstraction from the White Volta River, near Janga North (site 1) and Diari West (site 2), and total estimated gross irrigable area of 40,000 ha;
- Phase 1 will start with at least 2 dam irrigation sites, at Tamaligu (11,600 ha) and Zoggo (2,500 ha);
- Crops with thermal and soil suitability include rice, maize, soybeans and fresh vegetables;
- The project could support the creation of poultry/edible oils and rice value chains, since maize and soybeans could be the basis for poultry feed;

IRRIGATION SITES AT NASIA NABOGO

IRRIGATION SITE	GROSS IRRIGABLE AREA (HA)	TYPE OF HEAD WORKS
Tamaligu	11,600	Dam
Zoggo	2,500	Dam
Nasia	20,000	Dam
Janga North	30,000	Pumping
Diari West	10,000	Pumping
TOTAL	**74,100**	

MAP AVAILABLE AT PAGE **68** IN THE APPENDIX VOLUME

BUI RESERVOIR

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

BUI IRRIGATION SCHEME PROJECT

Fertile land downstream of the Bui Dam site has been under assessment and surveys for at least 55 years. It was first proposed as a major irrigation site in the 1960's in the Land and Water Survey of the Upper and Northern Regions of Ghana Report, implemented by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Fund (UNDP). At the time, a gross area of nearly 55,000 ha was identified with potential for irrigation. Since then, feasibility studies were overtaken in the 1970's and 1990's.

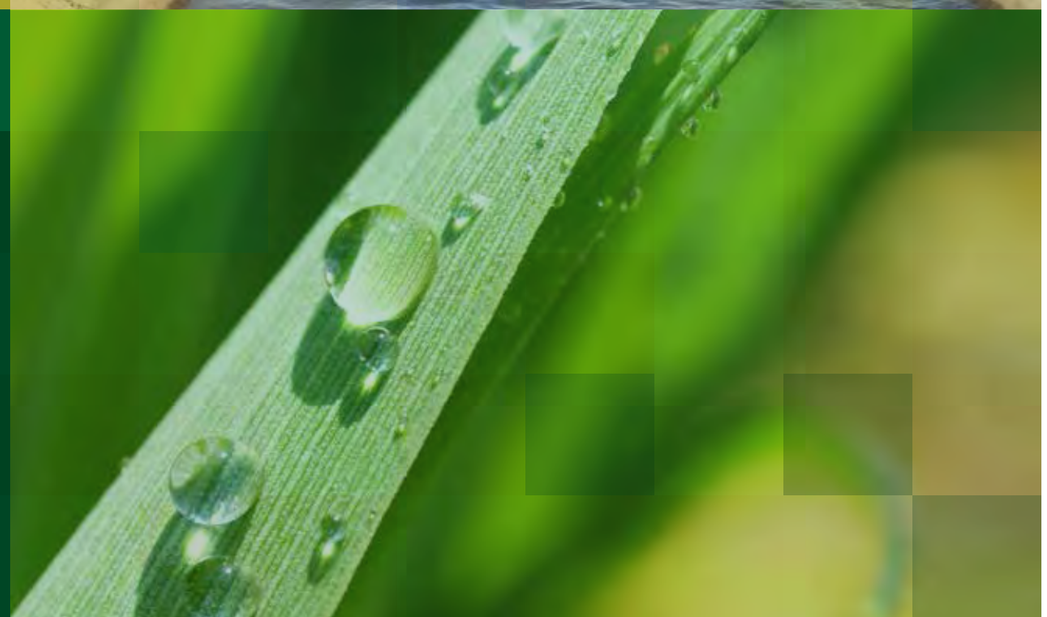
The Bui Dam got finally under construction in the 2000's and is now fully commissioned with an operational powerhouse with 400 MW. In 2013, the Bui Power Authority undertook a new feasibility study which earmarked 30,000 ha of gross irrigable area for development, with a first phase for 5,000 ha.

The proposed irrigation site is approximately 90 km downstream of the dam, in the Bole District of Northern Region, near the settlements of Bamboi, Babator and Tinga.

MAIN HIGHLIGHTS OF THE PROJECT

- Access to regularized, all-year-round water outflows from the Bui Dam at the Black Volta River;
- Highly suitable soils including eutric fluvisols (rice), dystric planosols (rice) and haplic lixisols (wide range of crops including maize, soybeans, tree crops, etc.).
- In addition to rice, the region presents suitability for tree crops such as cashew, citrus and mango;
- From a logistical standpoint, the project site is close to the intersection of the West and Central corridors, with quick connection to the main cities North (Tamale, Wa) and south of the area (Techiman, Sunyani, Kumasi and Accra);
- The project site is also very close to Lake Volta's main port at Buipe, with 131 km-distance by road.

MAP AVAILABLE AT PAGE **69** IN THE APPENDIX VOLUME



IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

DAKA VALLEY IRRIGATION SCHEME PROJECT

The Daka Valley and a number of smaller valleys in its surroundings have been earmarked as one of the preferred sites for Ghana's breadbasket strategy, developed between the Government of Ghana and the Alliance for a Green Revolution in Africa (AGRA). AGRA's board was chaired (Board Chair Emeritus) by the UN former Secretary General Kofi A. Annan (a Ghanaian).

The region has very fertile soils, mostly located along the river banks which include eutric fluvisols, naturraly fertile soils with suitability for most crops, dystric planosols (very suitable for rice) and some of the world's most suitable soils for various crops in its surroundings (Haplic Luvisols).

The irrigable areas stretch across 4 districts of the Northern Region, Gonja East, Kpandai, Namumba South and Namumba North. The main settlements in the project's area of influence include Salaga, Makango and Bimbila.

Since the region is prone to flooding in the rainy season, the developments require a combination of storage and flood control dams. 3 dam sites have been identified, being a main storage dam upstream on the main Daka River, and 2 smaller, flood control dams on tributaries downstream of the main dam. As identified, the main source of water for the project will be the Daka River, one of the last untapped rivers in Ghana.

Various surveys have also been carried out throughout the region, and the most accurate estimates of the total potential irrigable area with water resources from the dams range from 50,000 to 95,000 ha. The main crops would be rice and sugarcane (both on eutric fluvisols, rice also on dystric planosols), but the region offers potential for a wider range crops on both fluvisols and luvisols.

In terms of logistics and transport infrastructure, the project will directly benefit from the upgrading of the Eastern Corridor, one of the Country's 3 main North-South connections, with the closest access to the main road at Bimbila. Another major upside of the Project is the existence of a small landing site and ferry crossing at Lake Volta at Makango, few kilometers away from the project site. The landing could be upgraded to a larger lake port that could serve as a hub for storage, processing and transportation of various agricultural commodities for both domestic market and export.

MAP AVAILABLE
AT PAGE **70** IN
THE APPENDIX VOLUME

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

PWALUGU IRRIGATION SCHEME PROJECT

Pwalugu first emerged as a suitable site for a major multipurpose dam (power, flood control, water supply, irrigation and fisheries) in 1964 within the Interim Report on Land and Water Survey in the Upper and Northern Regions of Ghana, developed by the . The idea was then refined and published into recommendation in the Land and Water Survey in the Upper and Northern Regions of Ghana (final report issued in 1968 by UNDP and FAO) and the White Volta Basin Development Project in the Northern Regions of Ghana (by Nippon Koei).

A brand new detailed feasibility study was concluded in 2015 and provides for the construction of a major flood control dam, associated powerhouse and irrigation scheme.

Main characteristics of the project include:

- A 50 m-tall, 2,150 m-long dam embankment along the White Volta River;
- Total storage volume in the reservoir of 4,2 billion m^3;
- A 20,000 ha

The irrigation scheme is entirely located in the West Mamprusi District of the Northern Region of Ghana, and the area benefits from a number of infrastructure assets, including:

- The main trunk road (tarred, and in very good conditions) connecting Bolgatanga to Tamale, Kumasi and Accra;
- Proximity to neighbouring markets such as Burkina Faso, Mali and Niger;
- Power infrastructure, including the Pwalugu Hydropower Project (70 MW, 210,000 MWh per annum);

Proximity to the Lake Volta waterway as a competitive logistics modal to reach Southern Ghana and export markets (Tema Harbour) and large neighbours such as Nigeria.

The irrigation scheme will be supplied with water from a diversion weir approximately 49 km downstream of the dam site and water will be conveyed through a 79 km-long network of main and primary canals.

Good soils are present in the irrigable area, including haplic lixisols, eutric fluvisols and dystric planosols, providing suitable conditions for cultivation of most crops, including rice, maize, soybean, vegetables, sugar cane, tree crops such as cashew, citrus, and many others.

MAP AVAILABLE AT PAGE **71** IN THE APPENDIX VOLUME

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

FUMBISI VALLEY IRRIGATION SCHEME PROJECT

The Fumbisi Valley stretches along two of Ghana's regions, Northern and Upper East, encompassing the Mamprugu Moagduri (Northern Region) and the Builsa South (Upper East region) districts. It is a close neighbour of the Pwalugu Irrigation Scheme, since most of its irrigable area is found in approximate latitude on the right banks of the White Volta River.

The total potential irrigable area is 242,395 ha, and although a detailed water balance model still needs to be undertaken to match available water resources with potential irrigable land, 99,000 ha are estimated by the Ghana Irrigation Development Authority to be potentially covered for irrigation through existing water resources.

A number of options could be pursued as water sources for the project, including:

- A "Northern Canal" starting at the diversion weir of the Pwalugu Irrigation Scheme and strechting along the right banks of the White Volta River;
- Construction of up to 3 reservoirs on the Kulpwan, Sissili and Tono rivers. Each of these reservoirs has at least 2 options for dam sites surveyed in different moments of history.

The project would also benefit from infrastructure advantages just like the Pwalugu Irrigation Scheme, including the trunk road, available power and proximity to neighbouring markets through road or international markets through Lake Volta waterway and Tema Harbour.

MAP AVAILABLE
AT PAGE **72** IN
THE APPENDIX VOLUME

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

HYDRO POWER PROJECTS PORTFOLIO

A consequence of the Zone being criss-crossed by a number of major and minor rivers is the associated hydropower production capacity that comes with it. An inventory of decades-old and recently developed feasibility studies and reports has resulted in 24 potential dam sites across the SADA Zone, of which at least 11 of them have high or moderate hydropower potential. They are:

	DAM	RIVER	INSTALLED CAPACITY (MW)	ANNUAL ENERGY GENERATION (MWH)
1	Koulbi	Black Volta	68.0	392,000.0
2	Ntereso	Black Volta	64.0	257,000.0
3	Lanka	Black Volta	95.0	319,000.0
4	Jambito	Black Volta	55.0	180,000.0
5	Pwalugu	White Volta	70.0	210,000.0
6	Kulpawn	White Volta	36.0	166,000.0
7	Daboya	White Volta	43.0	194,000.0
8	Juale	Oti	87.0	405,000.0
9	Sissili 1	Sissili	22.0	96,000.0
10	Kanyambia	Kanyambia	6.0	25,000.0
11	Kulpawn 1	Kulpawn	7.0	32,000.0
TOTAL			**553.0**	**2,276,000.0**

THERMAL POWER PROJECT PORTFOLIO

With huge agricultural potential also comes thermal power production potential from the use of residual biomass, through first or second generation technologies. Some of the crops that have good levels of suitability in the SADA and that could yield high to moderate biomass-based power generation include:

MAP AVAILABLE AT PAGE **73** IN THE APPENDIX VOLUME

IRRIGATION SCHEME, POWER AND AQUACULTURE PROJECT PORTFOLIO

INLAND FISHERIES AND AQUACULTURE

Rivers, reservoirs and land resources (land-based aquaculture) can also trigger the awakening of the SADA Zone's potential for inland fisheries and aquaculture development. Possibilities are limitless since the availability of agricultural produce could also provide opportunities for the large scale manufacturing of fish and prawn feed.

A modest area of 10,000 ha converted to fish pond could conservatively yield 200,000 tons of tilapias per annum, a very significant figure corresponding to:

- 20% of total fish consumption estimated in 2014 at 1 million tons;
- 50% of Ghana's current production from catches and aquaculture;
- 33% of Ghana's current annual imports of fish, estimated at 600,000 metric tons per annum.

HOW TO DO BUSINESS IN GHANA

HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

LAND TENURE AND LAND OWNERSHIP

There are four categories of land ownership in Ghana governed by both customary practices and enacted legislation. These are:

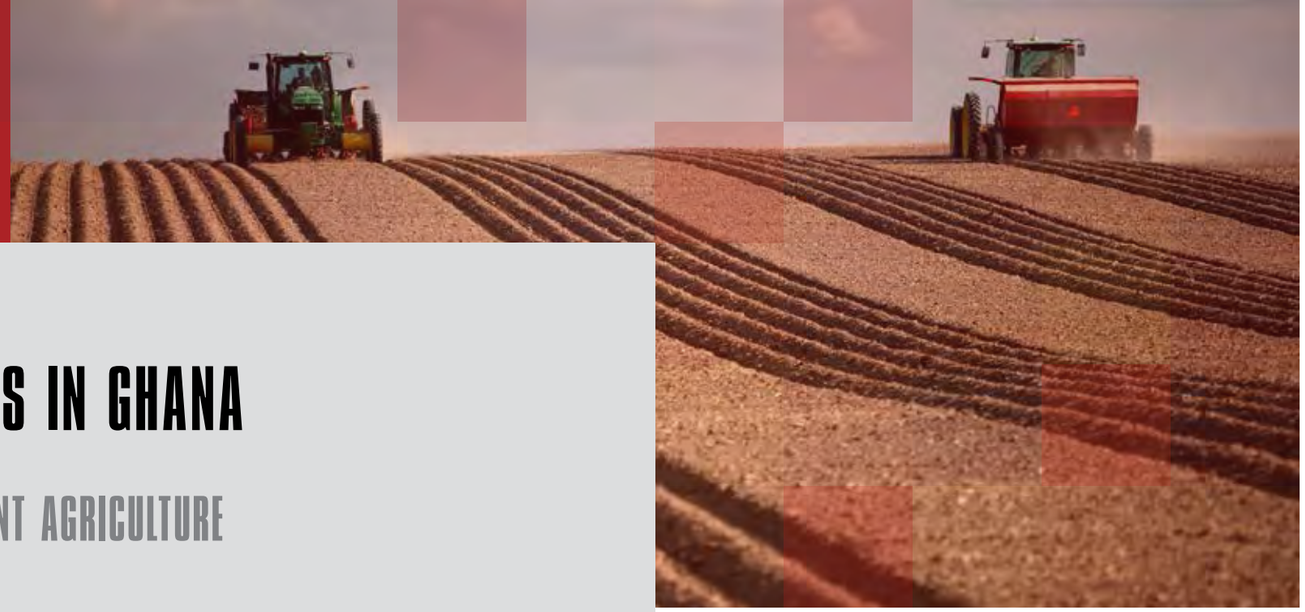
1. State lands, compulsorily acquired by the government through the invocation of appropriate legislation and held in trust for the entire people of Ghana;
2. Vested lands, belonging to traditional authorities (stools or skins) but vested in the state in trust for the people of the stool or skin or family from which it was vested;
3. Private lands belonging to stools, skins or family communities and held in trust on their behalf by chiefs, tendana, family heads; and
4. Private lands given or sold as freeholds by stools, skins and families to individuals, corporations and institutions (only freehold private ownership obtained prior to the enactment of the 1992 Constitution is legally recognized as Act 267 (5) bars creation of freehold interests in land out of stool land and by implication skin land as well).

Access to land in Ghana for agricultural purposes can be obtained through two main manners:

1. **Customarily owned land.** State land comprises a relatively small percentage of land in Ghana - approximately 80 percent of land is owned by traditional authorities (stools or skins) and families. Customary ownership is predominant in the SADA Zone, in the form of skin land (the 'skin' being the symbol of traditional authority, analogous to the 'stool' in other parts of the country). For such land to become available for commercial investment, a number of possible mechanisms have been considered:
    1. Direct leasing agreements between customary owners and commercial investors. In this case, title holders may enter into formal leasehold agreements of up to 99 years with other Ghanaians or up to 50 years with non-Ghanaians.
    2. Conversion of land into state land, through the exercise of compulsory acquisition, followed by the state leasing the land to investors.
2. **State land (in the case of land previously owned by the State).** In some instances, it is anticipated that land previously acquired by the state can be leased by the government to private investors.

In the case of most of the opportunities presented in this Investment Guide (predominantly publicly developed irrigation schemes), the State, through SADA, has expressed preference for land acquisition so that land can be leased, by the State, to commercial farmers.

3. **SADA Land Trust and Land Trust Fund.** SADA is seeking to simplify land acquisition for commercial agriculture by: 1) encouraging communities to establish legally binding Land Trust which pools land and transactions regulated by Trustees; 2) Establish its own Land Trust to acquire or encourage land ceding; 3) To establish a Trust Fund to encourage investment in land.



HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

ENVIRONMENTAL IMPACT ASSESSMENTS

The Environmental Protection Agency (EPA) is responsible for regulating the environment and ensuring the implementation of government policies on the environment. The EPA reviews ESIA documentation to ensure compliance with the Ghana environmental assessment requirements and procedures. Using its regional and district based staff, EPA can monitor implementation of environmental management plans (EMP). As necessary, EPA conducts monitoring to verify compliance with given approval or permit conditions, required environmental standard and mitigation commitments.

Most relevant pieces of legislation are:

The Environmental Protection Agency Act

The Environmental Protection Agency (EPA) Act, 1994 (Act 490) grants the Agency enforcement and standards setting powers, and the power to ensure compliance with the Ghana EA requirements/procedures. Additionally, the Agency is required to create environmental awareness and build environmental capacity as relates all sectors, among others. The Agency (including its Regional and District Offices) is also vested with the power to determine what constitutes an 'adverse effect on the environment' or an activity posing 'a serious threat to the environment or public health', to require Environmental Assessments (EAs), Environmental Management Plans (EMPs), Annual Environmental Reports (AERs), etc. of an 'undertaking', to regulate and serve an enforcement notice for any offending or non-complying undertaking.

Environmental Assessment Regulations 1999, Legislative Instrument 1652

Legislative Instrument 1652 follows in broad terms, the procedures for the preparation of an environmental assessment report. It provides a graduated system for determining what will be demanded from a proponent on the basis of the size and likely impacts of a particular project. On receipt of an application, including such information as may be required; the Agency will carry out an initial screening exercise taking into consideration factors such as:

Location, size, and likely output of the undertaking;

- Technology intended to be used;
- Concerns of the general public, if any, and in particular concerns of immediate residents if any;
- Land use and other factors of relevance to the particular undertaking to which the application relates.

The construction and operation of a landing site is required to be subject to detailed environmental impact assessment in line with the LI 1652.

WATER PERMITS

The Water Resources Commission (WRC) regulates and manages the country's water resources and co- ordinate government policies in relation to them. The WRC administers the Water Use Regulations and is responsible for issuing permits to major water users.

The approval of water permits is governed by Legislative Instrument 1692, Water Use Regulations, 2001, which can be obtained with SADA and the Water Resources Commission.

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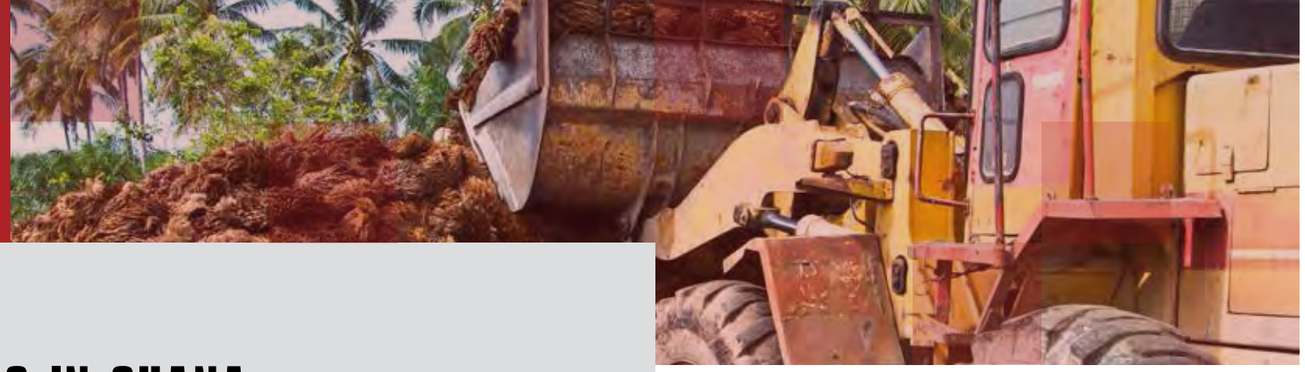


HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

COST AND EASE OF LABOUR

Ghana is endowed with a young, well-educated and relatively cheap labor force eager for opportunities in the market place.

The Labour Act (Act 651) of 2003 regulates employer-employee relationships and provides a stable, easy and flexible framework for working relationships, which include the possibility of fixed term contracts for permanent tasks and no limits for the maximum length of a single fixed-term contract.

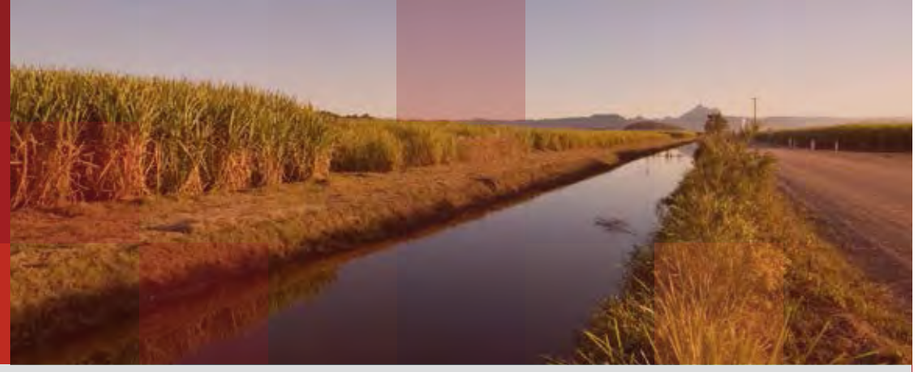
AVERAGE OF COST OF LABOR IN GHANA (2013/2014)		
CATEGORY OF WORKER	AVERAGE MINIMUM ANNUAL SALARY/US$	AVERAGE MAXIMUM ANNUAL SALARY/US$
UNSKILLED	1,799.59	5,709.27
SEMI-SKILLED	1,981.82	6,886.01
SKILLED	5,008.55	27,467.50

AVAILABILITY OF FINANCE

Ghana's financial market is one of the most developed in Sub-Saharan Africa by all standards.

Some of the country's strengths related to its financial market and availability of credit for agricultural projects include:

- A well consolidated National Stock Exchange (Ghana Stock Exchange) with a diversity of listed companies from different market segments (mining, banking, agriprocessing and trade);
- A diversified portfolio of banks operating in the market place, including banks with national, regional and global reach. A number of major global banks from the USA, Europe and Asia have at least representative offices in Ghana;
- Private equity and other institutional investors which have demonstrated long-term interest in Ghana-based assets in various market segments.



CORPORATE TAX HOLIDAYS	
Free Zone Enterprise	First ten years of opertion
Enterprises that pre-finance real estate	First ten years of opertion
Tree Crops	First ten years from 1st harvest
Livestock, Fish and Cash Crops	First five years from commencement
Cattle	First ten years from commencement
Agro-Processing Business established after 1/1/2004	First five years
Production of Cocoa By-Products from cocoa waste or substandard cocoa beans	First five years
Companies processing waste including recycling of plastic and polytheme material for agriculture or comercial purposes	First seven years

HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

TAXES AND INVESTMENT BENEFITS

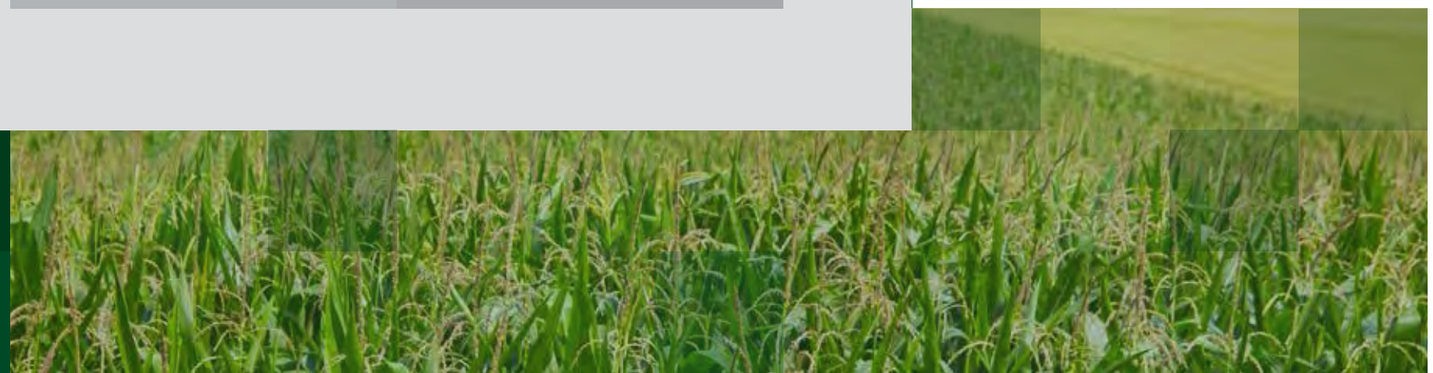
Ghana's tax system and legislation is pretty straightforward, with clarity on VAT, corporate tax, dividends, and all other branches of the tax law.

Corporate tax holidays (0% tax rate) are available to agriculture and agriprocessing projects for defined periods of time (5 to 10 years).

For projects located in the capital and other cities within the SADA Zone regions (Norther, Upper East and West, Brong Ahafo and Volta), after the exemption period ends, tax holidays remain based on their location and efforts by Government to spread investment projects throughout the whole of the country.

Locations that benefit from 0% tax rate after completion of the tax holiday period:

- Norther, Upper East and Upper West;
- Outside other regional capitals.



HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

SCIENTIFIC KNOWLEDGE – RESEARCH INSTITUTES AND UNIVERSITIES

Ghana has a number of research institutes and universities that have provided the bulk of the scientific and research knowledge for different market segments (agriculture included) for decades.

The Council for Scientific and Industrial Research (CSIR) was founded in 1968 and has various specialized research institutes, which include:

- Animal Research Institute;
- Soil Research Institute;
- Crops Researchs Institute;
- Soil Research Instute;
- Savannah Agricultural Research Institute;
- 8 more.

More than 50 universities are present in Ghana, with at least 5 of them within Africa's top 100 universities ranking, of which University of Ghana is the best positioned Ghanaian institution (22nd position). The Tamale-based University for Development Studies is Africa's 97th best positioned university.

HOW TO DO BUSINESS IN GHANA

QUICK ANSWERS FOR RELEVANT AGRICULTURE INVESTMENT-RELATED ISSUES

PLANT PROTECTION AND REGULATORY SERVICES

Questions regarding the use of seeds, pesticides, fertilizers and other agrochemicals can be adequately addressed with the Ministry of Food and Agriculture's Plant Protection and Regulatory Services.

The PPRSD was established in 1965 by an Act of Parliament: Prevention and Control of Pests and Diseases OF Plants Act, 307 now replaced by "Plants and Fertilizer Act, 2010 (Act 803). The PPRSD is the National Institution with the mandate and capacity to organize, regulate, implement and coordinate the plant protection services needed for the country in support of sustainable growth and development of Agriculture. The national plant protection policy is Integrated Pest Management, IPM (1992)

The Directorate is structured into four Divisions:

- Crop Pests and Disease Management
- Seed Inspection and Certification
- Pesticides and Fertilizer Regulatory
- Plant Quarantine

AVAILABILITY OF AGROCHEMICALS, INPUTS AND MACHINERY

Some of the world's main suppliers of inputs, agrochemicals and machinery for agriculture, including irrigation equipment (Yara, Louis Dreyfus, John Deere) are present in Ghana either directly or through authorized dealerships.

SADA can also provide information on how to access these suppliers.

OTHER RELEVANT INFORMATION

OTHER RELEVANT INFORMATION

WHY DO BUSINESS IN GHANA?

The government is committed to implementing policies that reduce the general cost of doing business in Ghana and to promote investor confidence in the country. With a stable multi-party government that is committed to market liberalisation, Ghana has been ranked as one of the most attractive locations for doing business in Africa. Other factors that make Ghana a competitive investment destination include:

- A sound macroeconomic environment
- Immediate access to all markets of the Economic Community of West African States (ECOWAS)
- 100% foreign ownership is permitted
- On-going privatisation in key economic sectors
- On-going infrastructure development
- Expanding stock market
- Competitive labour force
- Availability of skilled and trainable labour
- Quota-Free access to USA & European Union markets.
- Export-free zones where goods traded with other countries are exempt from customs duties and some laws
- Fast developing financial infrastructure
- High degree of personal safety and
- Warm and friendly people

STARTING A BUSINESS IN GHANA- PROCESS, TIME AND COST

DOMESTIC LAWS

Laws governing the establishment of business in Ghana are in accordance with the provisions made in the following legal legislations:

- The Companies Code, 1963 (Act 179)
- The Incorporated Private Partnership Act, 1962 (Act 152)
- The Business Name Act, 1962 (Act 151)

The investor, whether Ghanaian or a foreigner, who desires to establish a resident business entity has to register with the Registrar General's Department (RGD) under one of the Acts named above except where the entity is to operate in the country as a representative of a non –resident business entity. In that case it does not go through the process of incorporation under Act 179 but simply submits the required documents to the Registrar General who registers them in the register of external companies.

INVESTMENT LEGISLATION

The legal framework for investment in Ghana is regulated by different agencies in the country.

These are:

- Registrar General's Department
- Ghana Investment Promotion Centre (GIPC) • Ghana Immigration Service (GIS)
- Ghana Revenue Authority (GRA)
- Environmental Protection Agency (EPA)
- Ghana Free Zones Board
- Petroleum Commission
- Minerals Commission.

INVESTMENT PROCEDURES

The first step for an investor wishing to invest in Ghana is to register with the Registrar General's Department. The department charges a fee of 0.5% of the company's stated capital. The official processing time varies between three to five days, after which the company will receive the certificate of incorporation and certificate to commence business.

After incorporation, companies that are partly or fully owned by foreigners have to register with the GIPC. Registration is completed after companies have met the minimum equity requirements depending on their structure as shown below.

The required equity can be brought into Ghana either in money or in kind (goods, plant and machinery, vehicles or other tangible assets). Money can be brought in cash or transferred into the account of the incorporated company at a Ghanaian commercial bank. The bank must confirm the transfer to the Bank of Ghana, which subsequently informs the GIPC. Equity in kind are generally supported by relevant documents such as bills of lading, invoices and others and are generally confirmed by the Customs Division of GRA prior to being presented to the GIPC.

REGISTRAR GENERAL'S DEPARTMENT

The Registrar General's Department is the organisation that registers all companies, societies and institutions in Ghana and issues certificates of incorporation and to commence business to newly formed companies.

GHANA INVESTMENT PROMOTION CENTRE (GIPC)

Ghana Investment Promotion Centre was set up to initiate and maintain a favourable environment for both Ghanaian and foreign investments in Ghana. The GIPC was established under the GIPC Act as the government agency responsible for overseeing investments in all sectors of the economy except mining, petroleum, free zones and portfolio investments. Investments in the mining and petroleum sectors are licensed by the Minerals Commission and the Ministry of Mines and Energy respectively while that for Export Processing and portfolio investments are administered by the Ghana Free Zones Board and Ghana Stock Exchange.

GHANA IMMIGRATION SERVICE

Ghana Immigration Service is the governmental authority that grants work and/or residence permit. It also handles re-entry visas, extension of visitors permit and visa on arrival to visitors in Ghana where there is no Ghanaian Embassy or consulate abroad.

GHANA REVENUE AUTHORITY (GRA)

The Ghana Revenue Authority is the agency responsible for administering all the tax laws in Ghana. Hitherto, revenue collection in the country was done under the Internal Revenue Service (IRS), Value Added Tax Service (VATS) and the Customs Excise and Preventive Service (CEPS). These agencies operated as autonomous

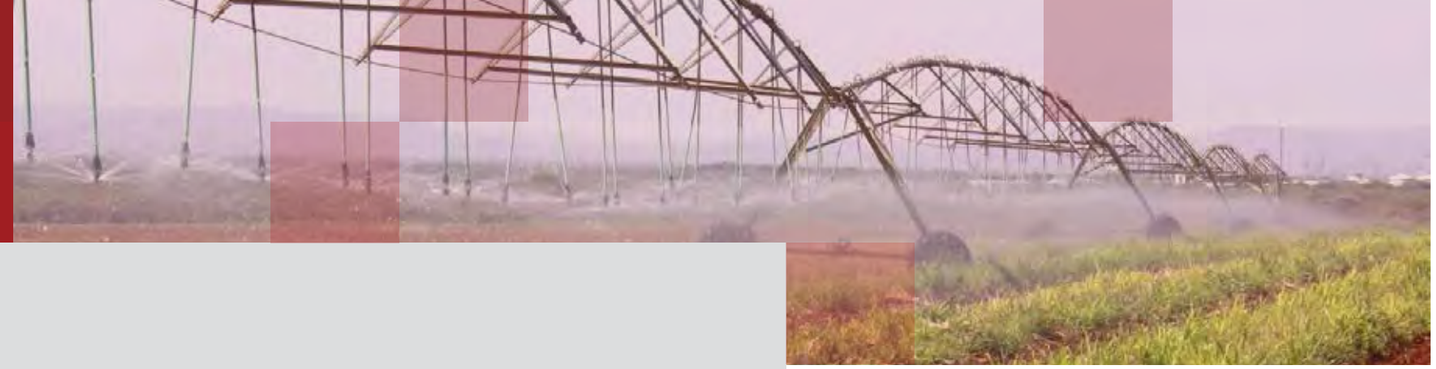
bodies with a Revenue Governing Agency Board playing monitoring and supervisory roles. Currently, all the above agencies have been merged into one body called the Ghana Revenue Authority (GRA). The Ghana Revenue Authority has three divisions, namely, Domestic Tax Revenue Division, Customs Division, and the Support Services Division.

The Customs Division is responsible for collecting customs and excise duties whereas the Domestic Tax Revenue Division takes care of income tax, value added tax and national insurance levy. The Support Services Division is responsible for all internal functions such as finance and administration, legal, human resource, etc of the Authority. Each of the three divisions is headed by a Commissioner who reports to the Commissioner- General.

Any investor in Ghana will necessarily have to register at one of the GRA offices to pay one tax type or another.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

Environmental Protection Agency is the body responsible for issuing environmental permits to companies operating in various fields. The investor will often be required to submit an environmental impact assessment report.



FREE ZONES BOARD

The Ghana Investment Promotion Centre keeps track of all investments in the country whiles the Ghana Free Zones Board regulates enterprises that operate in the Free Zone enclave. These enterprises are required to export at least 70 percent of their products and should be registered as free zone enterprises.

Any investor who will be producing to export at least 70 percent of its total output can take advantage of the Free Zones Act and locate their businesses within the Free Zone Enclaves at Tema or Sekondi. Boankra in the Ashanti Region is being developed as a third free zone enclave. This generally happens after going through the registration processes described above and having the relevant applications to be a free zone enterprise approved by the Free Zones Board. Some of the privileges available to free zone enterprises are the exemption from tax on imports into the free zone as well as exemptions from duty and other taxes on exports to foreign countries. Free zone enterprises are exempt from corporate income tax for a period of ten (10) years, and thereafter, the corporate tax shall not exceed 8 percent of applicable taxable incomes.

Depending on the field of operation, additional registrations may be necessary with other regulatory bodies.

PETROLEUM COMMISSION

This is a body set up under the Petroleum Commission Act, 2011 (Act 821), to regulate and manage the utilisation of petroleum resources and to co-ordinate policies in relation to them.

The Petroleum Commission has the following responsibilities, among others:

- Recommending to the Minister responsible for petroleum national policies relating to petroleum activities
- Monitoring petroleum activities and carrying out relevant inspections and audits related to such activities
- Receiving applications and issuing permits for specific petroleum activities as required under relevant petroleum laws and regulations
- Promoting local content and local participation in petroleum activities as prescribed in the Petroleum Exploration and Production Law, 1984 (PNDCL84) and other applicable laws and regulations to strengthen national development, etc.

GHANA NATIONAL PETROLEUM CORPORATION (GNPC)

The Ghana National Petroleum Corporation was established by the Ghana National Petroleum Corporation Act, 1983 (PNDCL 64).

The Mandate

GNPC was established as a state-owned entity and given legal backing “to undertake the exploration, development, production and disposal of petroleum”. The PNDCL 84 establishes the legal framework governing the contractual relationship between the state, GNPC and prospective investors in upstream petroleum operations.

The Corporation was established with the following objects:

- To accelerate the promotion of petroleum exploration activities to ensure early commercial discovery and production
- To undertake the appraisal of existing petroleum discoveries to ensure production to meet national requirements
- To ensure that Ghana obtains the greatest possible benefits from the development of its petroleum resources
- To obtain the effective transfer to Ghana of appropriate technology relating to petroleum operations
- To ensure the training of citizens of Ghana and the development of national capabilities in all aspects of petroleum operations, and
- To ensure that petroleum operations are conducted in such a manner as to prevent adverse effects on the environment, resources and people of Ghana.

With the establishment of the Petroleum Commission, GNPC ceased to exercise the advisory functions relating to the regulation, management and utilisation of petroleum resources and the coordination of policy in relation to that function.

MINERALS COMMISSION

This is a government agency established under Article 269 of the 1992 Constitution and the Minerals Commission Act, 1993 (Act 450) as the main promotional and regulatory body for the minerals sector. The Commission is responsible for regulating and managing the utilisation of the mineral resources in the country and implementing policies relating to mining. It also has responsibility for ensuring compliance with the various minerals and mining laws.

Investors seeking to invest in the minerals sector have to register with the Minerals Commission after completing the necessary registration or incorporation requirements at the Registrar General's Department.

EXPATRIATES

Foreign investors are given immigrant quotas depending on the level of equity capital invested in the business. However, there are opportunities to apply for increases in automatic quota depending on one's circumstances. After registration with the GIPC, companies can apply for immigrant quotas.

The table below shows the amount of capital against which automatic quota can be obtained:

Investment Incentives and Guarantees

Investment incentives are used by the government to attract investors to sectors of the economy that require stimulation to grow. Some geographical areas of the country are also targeted for investments to generate employment. Such incentives are found in various legislations such as the GIPC Act, Free Zones Act, and the Petroleum and Mining Laws. Investment incentives can also be found in the revenue laws.

The GIPC Act protects the businesses of investors from nationalisation or appropriation by any government. Where such a step has to be taken, it can only be

done by law and should be in the national interest. In such a case, adequate compensation will be paid. No individual can also be compelled to cede his interest in any investment to any other person. Transfer of profits, interests or dividends from these investment are also guaranteed by the GIPC Act.

GHANA'S TAX SYSTEM

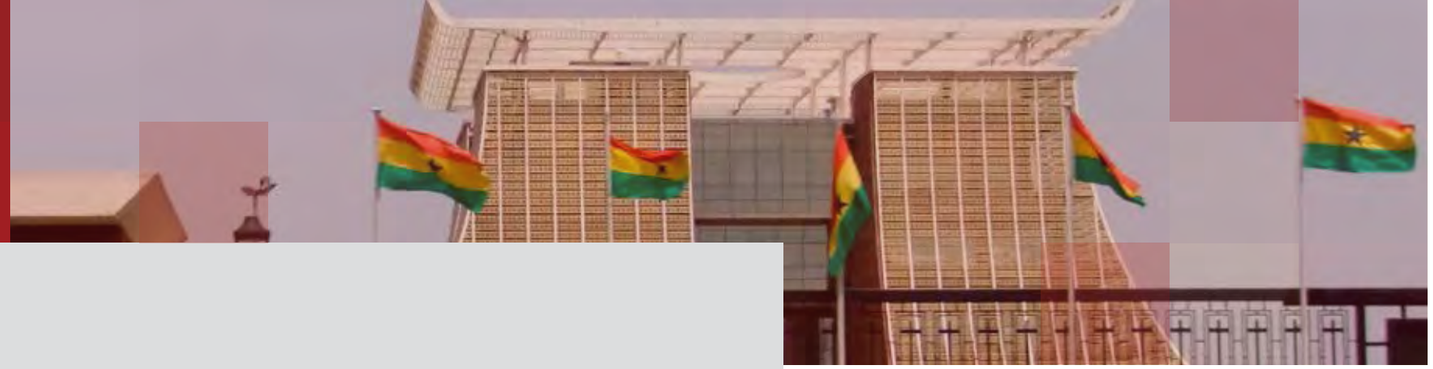
GHANA REVENUE AUTHORITY

The tax types that investors will encounter in Ghana are Corporate Tax, Withholding Tax, Capital Gains Tax, Value Added Tax, National Health Insurance Levy, Employment Tax, Dividend Tax, Customs and Excise Duties and Communication Service Tax.

CORPORATE TAX

The general corporate income tax is twenty-five percent (25%). Companies in the mining sector have a corporate tax rate of thirty-five percent (35%), while those in the hospitality industry pay corporate income tax at twenty percent (20%).

Income tax incentives are provided under the Internal Revenue Act, 2000 (Act 592). Depending on the sector and location in which an entity operates, it may be liable to pay tax at rates lower than the general corporate tax rate.



WITHHOLDING TAX

All companies are generally obliged to withhold tax from payments made to persons for the supply of goods and services. The withholding tax does not apply in cases where the value of the contract does not exceed GH¢500 for a year of assessment. The rate varies from five percent to 15 percent depending on whether the person is resident or a non-resident, and on the type of transaction.

CAPITAL GAINS TAX

Capital gains tax of 15 percent is payable on gains

from the realisation (disposal) of chargeable assets. Chargeable assets include business and business assets, buildings, lands, rights or interests in stocks or shares, class 3 depreciable assets which are in relation to mining and petroleum operations or other assets declared

as taxable for capital gains tax purposes. Gains from agricultural land and securities of companies listed on the Ghana Stock Exchange are not taxable. The following are also exempt from capital gains tax:

- Gains up to GH¢50
- Gains derived by a company out of a merger, amalgamation or re-organisation where there is continuity of underlying ownership in the asset of at least 25 percent
- Gains resulting from transfers of ownership of asset to close relatives or to former spouses as part of a divorce settlement or separation agreement, and
- Gains used to acquire assets of the same nature within one year.

VALUE ADDED TAX (VAT) / NATIONAL HEALTH INSURANCE LEVY (NHIL)

A VAT rate of 15.5% and NHIL rate of 2.5 % are chargeable on the supply of goods and services made in Ghana, the importation of goods into Ghana and the supply of imported services.

Persons who deal in taxable supplies must register with the Domestic Tax Revenue Division of the Ghana Revenue Authority in order to charge the tax. Registered taxable persons are obliged to file a tax return and pay VAT/NHIL every month.

Goods and services exempted from VAT/NHIL are:

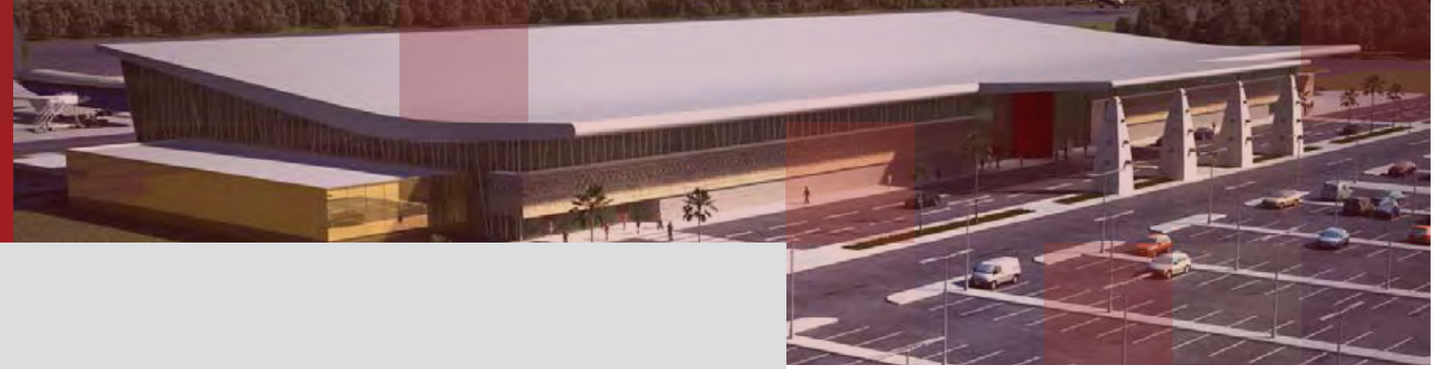
- Food produced in Ghana and brought in its raw state
- Petrol, diesel and kerosene
- Equipment for agriculture and fishing
- Housing (ownership and rental). However, houses sold by real estate companies, and rental of properties for commercial purposes are taxable
- Domestic transportation of passengers by road, rail and water.

CUSTOMS DUTY

Agricultural and industrial plant, machinery and equipment imported for investment purposes are exempted from customs import duty. All import duty- exempted goods, however, attract processing and/or other related fees or levies ranging between 0.5% and 1.0%, with the exception of goods imported specifically for the educational, health and agricultural sectors.

Commercial buses with seating capacity of above thirty passengers, workshop vans, breakdown vehicles, mobile showrooms, ambulances, hearse and motor bikes are also exempted from the payment of import duty.

However, certain types of vehicles attract both import duty and VAT/NHIL. Import duties range between 0% and 20%.



DOMESTIC TAX

TAXATION OF INDIVIDUALS

Resident individuals pay tax on their income at graduated rates with 25% being the highest rate. Sole Proprietorships and partners of partnerships also pay tax at the graduated rates up to an upper limit of 25 percent.

Individuals enjoy tax reliefs such as child education relief, old age relief, aged dependent relief, marriage or responsibility relief, and disabled relief. Individuals who have life insurance policies get reliefs for the premiums paid for the policies. Those who pay social security

and national insurance trust get reliefs for amounts contributed. Employers also get relief for additional contributions they make on behalf of their employees.

The income tax of Ghana is based on the source principle, which explains why persons are taxed on income derived from Ghana and accrued in Ghana.

In addition to the source rule an individual should be resident in Ghana to have income received in Ghana or brought into Ghana, for such amounts to become taxable in Ghana.

An individual is considered resident in Ghana where she/he has lived in Ghana for at least 183 days in any 12 month period.

The income tax rate for a non-resident individual is 20% flat on the income derived from Ghana.

CORPORATE TAX

Resident companies in Ghana pay corporate tax at 25% on their taxable profits. By the Internal Revenue Act,

(Act 592), a company is considered a resident company in Ghana for a year of assessment if it is either incorporated under the laws of Ghana, or has its management and/ or control exercised in Ghana at any time during the year of assessment.

GhanaThe table below shows the tax rates applicable to various industries in Ghana

After tax holidays, agro processing enterprises and manufacturers of cocoa by-products attract different corporate tax rates depending on their location as shown below.

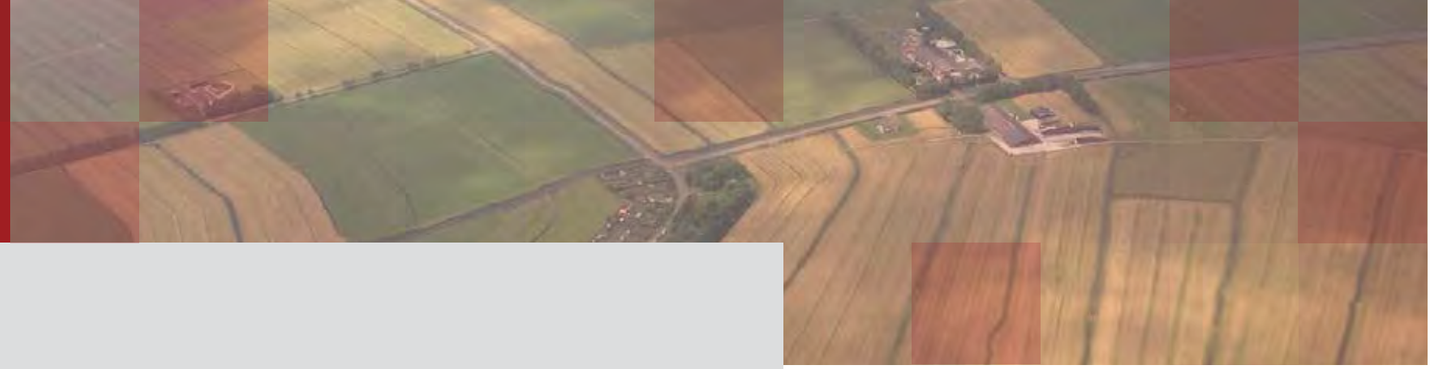
CORPORATE TAX RATES	
General	25%
Hotels	20%
Non-traditional exports, Rural Banks and Free Zone Enterprises after their 10 years tax holidays	8%
Free zones enterprise after tax holiday - Sales Outside Domestic Market - Sales to the domestic Market	 15% 25%
Income of financial institutions from loans granted for farming and leasing enterprises	20%
Petroleum Operations	Not Exceeding 50%
Mining Operations	35%

- Accra and Tema - 20%
- Other Regional capitals except Northern, Upper East and Upper West - 10%
- Northern, Upper East and Upper West- 0% • Outside Other Regional Capitals - 0%.

TAX INCENTIVES

Tax holidays

Companies operating in different sectors of the economy are granted tax holidays as shown next.



TAX HOLIDAYS	
Free Zone Enterprise	First ten years of operation
Enterprises that pre-finance real estate	First ten years of operation
Tree Crops	First ten years from 1st harvest
Livestock, Fish and Cash Crops	First five years from commencement
Cattle	First ten years from commencement
Agro-Processing Business established after 1/1/2004	First five years
Production of Cocoa By- Products from cocoa waste or substandard cocoa beans	First five years
Companies processing waste including recycling of plastic and polythene material for agriculture or commercial purposes.	First seven years

LOCATION INCENTIVES

Companies operating in the manufacturing sector are entitled to tax rebates, depending on their location.

The income tax rebate allowable to manufacturing business operating in regional capitals other than Accra and Tema is 25% of the applicable income tax rate, while those in other locations other than Accra and Tema enjoy 50% of the applicable tax rate.

CAPITAL ALLOWANCES

Capital allowances are granted on depreciable assets owned by a person at the end of its basis period. The asset pooling system is used in the computation of capital allowance. Based on this system, the assets are grouped into six classes of depreciable assets. Each class of assets has its own depreciation rate. Classes one, two and four assets are depreciated on a reducing balance basis. Classes three, five and six are depreciated on straight line basis.

The applicable capital allowance rates are as follows:

CORPORATE TAX RATES		
CLASS	QUALIFYING ASSETS	DEPRECIATION RATE
1	Computers and data handling equipment	40%
2	Motor vehicles, construction & earth-moving equipment, heavy duty trucks, manufacturing plant and equipment, capital expenditure on long term crop planting	30%
3	Mineral and petroleum exploration and production rights, building and structures used in connection with mineral or petroleum operations, plant and machinery used in mining or petroleum operations	20% on straight line basis
4	Railroad cars, locomotives and equipment; water transportation vessels and equipment; aircraft; office furniture fixtures and equipment	20%
5	Building structures and works of a permanent nature, other than those used for mining or petroleum operations	10%
6	Intangible assets Petroleum Capital Allowances	Life of asset 20% Straight- Line

Taxpayers are obliged to notify the Commissioner-General of any new assets acquired within one month after the assets have been put to use in the business. Un-utilised capital allowances can be carried forward indefinitely but cannot be transferred either separately or together with a depreciable asset, i.e. upon the sale or transfer of the asset.

CARRY FORWARD LOSSES

Losses from farming, mining, and manufacturing mainly for export, agro-processing, tourism and information and communication technology (software development) can be carried forward for five years.

INSURANCE AGAINST NON-COMMERCIAL RISKS

Ghana is a signatory to the World Bank's Multilateral Investment Guarantee Agency (MIGA) Convention. This Convention guarantees coverage (insurance) against non- commercial risks such as transfer restrictions, breach of contract, expropriation, war and civil disobedience.

INTERNATIONAL AGREEMENTS

These international agreements are signed to promote business transactions between Ghana and the other parties to the agreements.

DOUBLE TAXATION AGREEMENTS

Ghana has signed Double Taxation Agreements (DTAs) with some countries to facilitate cross-border trade and investment and to create an enabling environment for foreign direct investment in Ghana and the respective countries. Currently, it has such agreements with France, the United Kingdom (UK), Belgium, Italy, Germany, South Africa, Switzerland and the Netherlands.

INVESTMENT PROMOTION AND PROTECTION AGREEMENTS

Ghana has signed Bilateral Investment Protection Treaties with twenty one countries. Currently, countries with whom the agreements have been signed and ratified are UK, China, the Netherlands, Denmark, Germany, the Swiss Confederation and Malaysia. The countries with whom agreements have been signed but awaiting ratification are La Cote d'Ivoire, Egypt, The United States of America (US), France, Zambia, Cuba, Yugoslavia, Mauritania, Guinea, South Africa, Mauritius, Romania, Bulgaria, and Burkina Faso.

Countries with agreements pending are South Korea, Canada, Pakistan, Ethiopia, Israel, Turkey, Jamaica, Nigeria, Belgium, Indonesia, Philippines, The Czech Republic, Australia, Singapore, Morocco, Togo, Finland and Spain.

FINANCIAL SERVICES

FREE ZONE EXPORT

In line with government's vision to boost economic growth through the private sector, it set up the Free Zones Programme in 1996 to promote processing and manufacturing of goods through the establishment of Export Processing Zones (EPZs). Two export processing zones (one in Tema near Accra and the other in Sekondi near Takoradi, the capital of the Western Region) have been established by the government of Ghana. A third one in Boankra in the Ashanti Region is being developed. The Ghana Free Zones Board (GFZB) was established under the Free Zone Act, 1995 (Act 504) to promote, facilitate, monitor and regulate investments under the programme.

Every company can apply for a status of a single free zone company, provided it sells up to 30% of its products to the local market and exports no less than 70% of its products.

INCENTIVES

Companies in the Free Zone are totally exempted from payment of duties and levies on all imports for production and exports from free zones. There is also an exemption from income tax for the first

ten years of operation and thereafter income tax rate is either 15% or 25% for sales made outside the domestic market and within domestic market respectively. Furthermore, they are not required to obtain import licenses, are totally exempted from payment of withholding taxes on dividends and are relieved from double taxation for foreign investors and employees.

IMPORT AND EXPORT RULES

EXPORTS

Procedures and requirements for exporting goods from Ghana depend on the kind of goods exported. Exports are categorised into traditional and non- traditional exports. Traditional exports include cocoa, timber, gold, minerals and electricity. Non-traditional exports include agricultural products, fish, aluminium products and textiles. Exporters are required to register their companies with the Registrar General's Department and GIPC to obtain a number.

Exporters are also obliged to complete foreign exchange forms issued by the Bank of Ghana, Customs Entry forms and certificates of origin from the Customs Division of the Ghana Revenue Authority. Permits or certificates must also be obtained from relevant institutions like the Ghana Standards Board.

Prohibited exports are narcotics, parrots and Ghanaian currency in excess of GH¢ 5,000. There are also restrictions on the export of antiques, precious minerals and live plants. Permits to export these must be obtained from the relevant regulatory agencies such as the Museums and Monuments Boards, Precious Minerals Marketing Corporations and Ministry of Agriculture respectively.

General documents required for exports include:

- Original Bill of Lading/Airway Bill
- Attested Invoice (Customs # C.61)
- Packing List
- Import Declaration and Valuation Report (FCVR)
- Tax Clearance Certificate (Domestic Tax Division of Ghana Revenue Authority)
- Taxpayers Identification Number (TIN)
- Permits and Licenses from Relevant Institutions

IMPORTS

In Ghana, all imported goods attract an import duty and VAT/NHIL (See Domestic Tax System for details). Goods such as aircraft and aircraft parts, advertising materials, infant food and machines or plant for agricultural purpose are exempted from import duty.

Prohibited imports are narcotics, animals and dangerous weapons. These are only allowed if the relevant competent Ghanaian Authorities have issued the necessary permits or certificates. For drugs, permit must be obtained from the Ministry of Health; for animals, the Ministry of Food and Agriculture and for weapons, the Ministry of Interior.

Three additional fees and levies are paid on imported goods. These are an inspection fee of 0.5% of the value of the imported goods, a 1% ECOWAS levy and a 0.5% fee payable to the Ghanaian Export Development and Investment Fund (EDIF).

DUTY DRAWBACK

This gives an exporter the opportunity to receive a refund on import duties after he has re-exported previously imported products (same-state drawback) or import duties paid on raw materials used in the production

of finished goods and exported (material drawback). The drawback process commences when goods have been duly re-exported and a Ghana Customs export document endorsed by the Customs authorities in both the exporting and importing countries or a "landing certificate" from the importing country (where required) is produced. An application form must be accompanied with the following documents:

- Certified copies of the import documents
- Import duty payment receipts (certified copies)
- Drawback Debenture Form (Form C3)
- Statement of Composition Form (Form C2A) in case of Material drawback.

There is a twelve-month time frame beginning from the date of the first export within which the duty drawback can be claimed. It is advised that claims are put in quarterly. The Government of Ghana has established an escrow account with the Bank of Ghana into which monies are paid for the purpose of satisfying the duty drawback needs of exporters.

TEMPORARY IMPORTATION OF GOODS

Certain goods imported into Ghana can be conditionally relieved from the payment of import duties. Such goods must be imported for a specific purpose and must be intended for re-exportation within three months, either in the state in which they were imported or after having undergone specific processing or repair. Conditions to be met for the tax relief on temporary importation of goods include:

- Goods must be declared at importation that they are imported only temporarily and will be subsequently re-exported
- A Form C59 must be filled
- A cash deposit or a bond to cover the potential duty and tax liabilities (if any) must be given
- Goods must be exported within three months or such further period as the Customs Officer may allow
- Goods must not be disposed of in the country without prior permission of the Commissioner - General.

ITEMS THAT FALL UNDER THE TEMPORARY IMPORTATION REGIME

- Goods imported in to the free zones
- Goods imported and stored in a bonded warehouse.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