Leveraging Economic Opportunities for the Six Coastal Districts of Ghana's Western Region

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WRCF
WESTERN REGION COASTAL FOUNDATION

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Acronyms and Abbreviations

CAM	Competitiveness Appraisal Matrix
CHPS	Community-Based Health Planning and Services
CSI	corporate social investment
DFID	U.K. Department for International Development
FAO	Food and Agriculture Organisation of the United Nations
FPSO	floating production storage and offloading
GDP	gross domestic product
GH₵	Ghanaian cedi (currency)
ha	hectare
HHI	Herfindahl-Hirschman Product Concentration Index
HS	Harmonised System (commodities code)
IOC	international oil company
km	kilometer
LEAP	Livelihood Empowerment Against Poverty
MDG	Millennium Development Goal
MT	metric ton
MTA	Mahogany, Teak, and Akasa (oil field)
OCTP	Offshore Cape Three Points
OGP	oil, gas, and power
PPP	purchasing power parity
SAM	Social Accounting Matrix
SME	small and medium-sized enterprise
STMA	Sekondi-Takoradi Metropolitan Area
TEN	Tweneboa, Enyenra, and Ntomme (oil field)
TVET	technical and vocational education and training
UNDP	United Nations Development Programme
WRCF	Western Region Coastal Foundation

Executive Summary

The mandate for the Western Region Coastal Foundation (WRCF) is to promote the social and economic development of the six coastal districts of Ghana's Western Region. In some respects, the region and its six coastal districts represent a microcosm of the country's overall economic performance. After two decades of robust and broadly inclusive growth, the economy has slowed recently. The twin deficits, fiscal and current account balance, have undermined the potential for sustained growth. The slowdown has been accompanied by high inflation. Inflation has particularly affected the Western Region, where demand often exceeds supply. One response at the regional level is to focus on boosting the capacity of the supply side to respond to increasing demand, especially from investments and operations in the oil, gas, and power (OGP) sector.

National policy priorities set the framework for efforts to accelerate development at the regional and district levels. In addition to macroeconomic stability, diversification and social inclusion are shaping national policies. Any strategy to support social and economic development for the six coastal districts needs to reflect these twin objectives. In line with recent development thinking, the WRCF has adopted an approach to focus on selected value chains that have the potential to achieve both social inclusion and diversification. That strategy calls for a systematic process to evaluate a range of value chains and choose a few that show the most promise. This process must reflect both the current economic context and the opportunities for growth, in particular those stemming from OGP investments and operations both off-shore and on-shore in the six coastal districts.

The appraisal of the economic context is hampered by data limitations for the economies of the districts. Even so, it is possible to distinguish a few salient points. Agriculture, fishing, and forestry dominate the local economy. Efficiency in agricultural production lags behind national averages, often behind the corresponding metrics for the region (except for cassava). Excessive exploitation of resources has led to a slump in both fisheries and wood and timber products. And regional suppliers as a rule lack the capabilities to respond to demand emanating from OGP investments and operations. But there are significant exceptions. Local businesses are participating in responding to OGP opportunities, ranging from catering to engineering. Some small businesses understand the quality requirements for procurements by international oil companies. The development challenge includes building on that experience to promote greater diversification of the local economies in addition to providing targeted support for value chains with nearly universal participation.

To explore emerging opportunities from the OGP sector in some detail, DAI has developed a quantitative model. The Tangha model is designed to translate assumptions about demand patterns associated with OGP investment and operations, and assumptions about the local capacity to respond to that demand into estimates of the local economic impact, such as employment and domestic added value. Using preliminary estimates of key parameters, the model identified opportunities for local suppliers in construction, transport and logistics, and support services (catering, security, etc.). As the model assumptions are validated in discussions with OGP representatives, the model can help identify where targeted support will have the greatest impact on raising local content.

Both the review of the economic context in the six coastal districts and the preliminary runs of the Tangha model established a basis for identifying some 39 candidate value chains in agriculture, manufacturing, and services. Using a participatory approach to an appraisal of these candidates, a WRCF-sponsored workshop relied on stakeholders from the region and industry to rank the potential of these value chains with respect to their economic and social potential. The stakeholders used a series of criteria, summarised in a Competitiveness Appraisal Matrix (CAM)

to look at both economic potential and social impact, using a score of 1 (poor) to 7 (excellent). This exercise yielded a list of 10 value chain "finalists" for the targeted support strategy.

The WRCF team analysed each of these 10 finalists in greater detail with respect to trends in end markets, capacity for upgrading and growth, and likely impact on poverty as a proxy for social inclusion. Based on that analysis, the team selected the following five value chains as the initial focus for any support granted:

- Fish.
- Cassava.
- Transport and logistics.
- Oil seeds and palm oil.
- Catering supply chain.

A series of detailed studies will develop the framework of a competitiveness strategy for each of these target value chains.

Opportunities and Challenges

The discovery of commercial quantities of oil and gas off the coast of Ghana's Western Region in 2007 greatly changed the country's development calculus. Production started in 2010, and exceeded 100,000 barrels per day in 2014. The development or other oilfields will raise that level significantly in the coming years. People in the Western Region, especially in the six coastal districts, expect to benefit from this national treasure. Investments and operations in the OGP sector bring new resources and create new opportunities for the local economy. But, they also bring new challenges. Oil-driven growth in the urban areas has already raised the cost of living, affecting primarily the urban poor. Moreover, emerging opportunities are attracting migrants from other parts of Ghana who then compete with residents for jobs. Missed opportunities, higher costs of living, and dashed expectations have raised the risks of tension and conflict. Little is being done to address these risks, partly because there are few paths to a dialogue on these issues to raise concerns and provide effective solutions.

To help mitigate these risks through dialogue, the U.K. Department for International Development (DFID) is supporting the creation of the WRCF. Its mission is to organise and encourage an effective dialogue between the oil companies, communities and government agencies, and to pursue opportunities for economic development by promoting development of promising value chains. It will encourage the effective use of corporate social investment (CSI) funds that private companies may have set aside for promoting socioeconomic development, and will also contribute to the transformation of the local economy by strengthening capacities to capitalise on local content opportunities associated with OGP investments and operations.

The Foundation is pursuing these objectives through a two-pronged approach:

- Improve relationships between OGP companies and coastal communities through an effective dialogue platform.
- Support the accelerated growth of priority value chains and mobilise other resources for that purpose. These value chains must have the potential to improve the livelihoods of community residents, and to respond to new opportunities, such as the demand from OGP investments and operations, as part of the economic transformation of the region.

This report addresses the second objective. WRCF has adopted a systematic and transparent method for selecting the target value chains. It combines stakeholder participation and careful analysis. This procedure acknowledges that priorities may shift over time as new technologies appear and markets change. The WRCF approach is therefore designed to accompany implementation of efforts to advance competitiveness strategies for the (initial) target value chains. Such strategies will focus on overcoming key constraints, which may differ from one case to the next. However, better business services and workforce development services are likely to form part of all interventions.

Sectors, Industries, Supply Chains, and Value Chains

Why focus on value chains? Targeted support for accelerated growth typically deals with sectors or industries—the essence of "industrial policy." But, industries often cut across products and markets. Value chains are product and market specific. The concept shares some features with supply chains, overlaying a network of firms, but there are major differences. Supply chains, however, focus downstream, integrating supplier and producer processes, improving efficiency, and reducing waste. Value chains, in contrast, focus on downstream impacts, creating value in the eyes of the customer, the end markets. The flow in supply chains is one-directional, while value chains are characterised by two-way relations between both parties in a transaction, suppliers, and customers. In practice, we refer to a value chain as the set of activities, typically involving different firms at different stages, which successively add value to (intermediate) goods or services, as perceived by the customer or end market. That is, value in the value chain is driven by the perceptions of end markets.

Adapted from: http://www.authorstream.com/Presentation/mistersuzuki-1232365-group-7-supplychain/

The economic opportunities analysis presented seeks to establish a better understanding of the economic dynamics of the six coastal districts in the Western Region. It also pinpoints opportunities to accelerate growth in value chains selected for their potential to mitigate poverty and foster economic diversification.

The first part of this report outlines the underlying strategy adopted by the WRCF for accelerating growth and diversification in the six coastal districts. This strategy emphasises support for key value chains with the potential for accelerated growth. The selection starts with the identification of all candidate value chains, and applies a two-stage screening process to arrive at the five priority value chains. The report then sketches the economic environment of the country, the Western Region, and the six coastal districts. Since OGP investments and operations represent a new (potential) market for local value chains, the foundation uses DAI's proprietary Tangha model to analyse these markets and identify opportunities for local participation. That analysis of a key end market serves as the background for the presentation of the list of value chains proposed for intervention. From the list of candidate value chains, a stakeholder workshop selected the 10 finalists. Each of these finalists were then subjected to further scrutiny to identify the five target value chains for which WRCF will conduct a more detailed ("deep dive") analysis. That analysis is scheduled to be performed during the next few weeks.

WRCF Strategy for Development in the Coastal Districts: Targeted Support for Leading Value Chains

STRATEGIC CHOICES

One of the principal goals of the WRCF is to inform the development strategy for the six coastal districts in Ghana's Western Region. The review of the socioeconomic characteristics of the Western Region and the six coastal districts below suggests a region reliant primarily on agriculture, relatively rich in natural resources, yet hampered by an inadequate infrastructure. Accelerating economic growth and social development in this context requires choices to nurture and leverage the comparative advantages of the region. The rationale for this approach focuses policies and programs on a few value chains that exhibit (latent) comparative advantage to facilitate their accelerated growth. A systematic approach to the appraisal and selection of promising value chains is essential to informing these strategic choices.

It is demand that creates opportunities for growth. For smaller economies, like that of the six coastal districts, the demand that matters comes from outside.[1] Existing and emerging demand patterns determine where the comparative advantages lie. Priorities then belong to value chains that serve primarily demand in end markets elsewhere, typically in the rest of the nation and other countries (exports). In the case of the six districts, a third end market has emerged from investments and operations of OGP activities. These projects open up new opportunities for local businesses in a number of value chains. Developing a sound competitiveness strategy for selected value chains starts with a sound end market analysis.

END MARKETS

The notion that external demand can emerge as a main driver for accelerated development certainly is not new. Internationally, it has formed the basis for export-oriented growth strategies. Domestically, economic base theory has argued that exports from the region to the rest of the country are critical in accelerating economic growth. For the six districts, there are three sources of external demand. First, of course, exports to world markets. Second, the (potential) boost in demand for local goods and services as a consequence of OGP investments and operations. And third, patterns in demand from the rest of the country.

EXPORTS

The regional economy in the six coastal districts participates in the country's exports. Commodities such as cocoa, palm oil, manganese, and gold are being produced here and shipped abroad. Data on the precise contribution of the regional economy to total exports are lacking. Even so, understanding the export performance of the country as a whole can in fact guide the appraisal of local value chains. Traditionally, Ghana has depended on the export of raw materials, in particular gold, and more recently crude oil. The country is also a global leader in the export of cocoa beans and related products. What have been weak are the downstream economic activities that add value to these raw materials. There are some signs, though, that Ghana has begun to move into manufacturing exports with a higher added value, often with a focus on export markets in neighboring countries.

DEMAND FROM OGP INVESTMENTS AND OPERATIONS

In some respects, the demand associated with the recent growth of OGP activities is akin to exports. Foreign companies account for most of the investments and operations. The issue here is the capacity of

[1] Once an accelerated development process is underway, increases in household income will create new opportunities. For example, increased agricultural incomes can generate demand for local goods and services like clothing or construction services.

local businesses and workers to respond to these demands. As a rule, much of the demand coming from OGP investments and operations goes directly to imports of goods, as well as (specialised) labor services. What is required here is a careful assessment of the composition of OGP investments and operations to determine the demand patterns and assess the capacity of local businesses and workers to meet some of that demand.

The analysis of the OGP markets can build on experiences elsewhere to break down overall demand associated with investments or operations into components and subcomponents that define potential markets for local value chains. DAI has developed a straightforward model that allows for the translation of assumptions about the components of OGP investments or operations, and their composition in terms of goods and labor, imported versus locally procured goods, and labor requirements by local or expatriate workers into measures of domestic added value and employment.

The results of this analysis can identify value chains that have the greatest opportunity in terms of added value and employment. These value chains may not necessarily end up as priorities, but they will play a role in efforts to raise the local content of OGP investments and operations. The analysis approach and model are discussed in greater detail below.

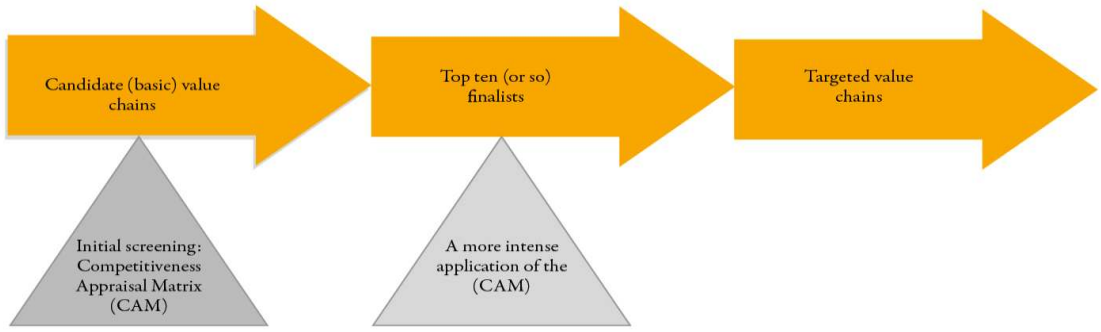
DOMESTIC MARKETS

Ghana's internal markets are moving in the direction of greater integration, as the transport and communications infrastructure develops. At present, the principal activity with exports to the rest of the country appears to be artisanal fisheries, but further options may emerge. For example, cassava produced in the region is shipped to breweries in other parts of the country.

APPRAISAL PROCESS

The end market analysis is the first step in a systematic appraisal of possible value chains and the selection of the initial target value chains for policy and programmatic support. The end market analysis provides the grounds for identification of the candidate value chains. However, this step is not a mechanical process. In addition, stakeholders in both the public and private sectors have provided inputs into the choice of candidate value chains. For a comprehensive analysis, no fewer than 30 candidates should be identified.[2] A set of criteria, summarised in a CAM, helped to narrow down the list to about 10 to 12 finalists. The CAM is discussed in greater detail in the discussion of the actual selection process. After additional in-depth analysis, the WRCF selected five target value chains for which a comprehensive competitiveness strategy will be designed. The process is described in Figure 1.

FIGURE 1: SCHEMATIC VIEW OF THE VALUE CHAIN SELECTION PROCESS



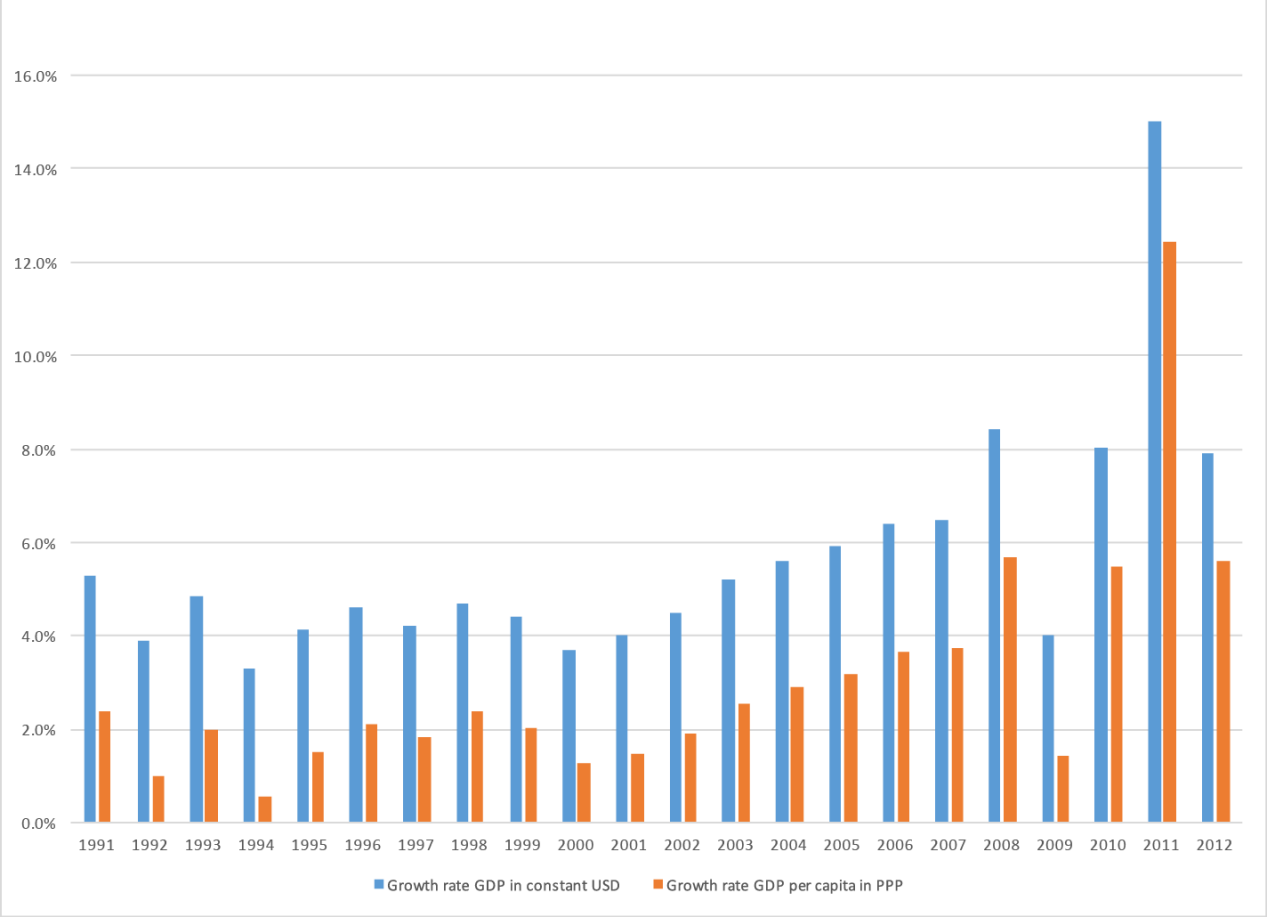
[2] As discussed below, the WRCF identified 39 candidate value chains.

Economic Context

OVERALL TRENDS FOR GHANA'S ECONOMY

Over the past two decades, Ghana has achieved strong and broadly inclusive economic growth. The growth rates for gross domestic product (GDP) (in constant US$) and for GDP per capita (in purchasing power parity [PPP]) are shown in Figure 2. Between 2005 and 2012, the average annual growth rate for GDP was 8.0 percent, and for GDP per capita (in PPP) the rate was 5.4 percent. Ghana has graduated to lower middle-income status.

FIGURE 2: ANNUAL GROWTH RATES FOR GDP AND GDP PER CAPITA, 1991–2012



Source: WDI 2014.

The country's solid democratic credentials and a favourable business environment compared to its neighbors have attracted significant foreign direct investment. Oil and gas production have also contributed; they are likely to support an expansion of exports, and should also contribute to an improved energy supply domestically.

Faster growth also lowered poverty. Ghana has done better than its regional peers in bringing down its poverty ratio, and has outperformed other lower middle-income countries. The ratio for the period 1990–1995 averaged around 50 percent; for the period 2005–2010, it had been brought down to around 30 percent. With the exception of the prevalence of HIV, Ghana has also accomplished much with respect to selected Millennium Development Goals (MDGs), as illustrated in Table 1.

TABLE 1: SELECTED INDICATORS OF THE MILLENNIUM DEVELOPMENT GOALS, 1990–2013

MDG Indicator	Percent	Year	Percent	Year
Malnutrition prevalence, weight for age (% of children under 5)	25.1	1993	14.3	2008
Poverty headcount ratio at US$1.25 a day (PPP) (% of population)	51.1	1992	28.6	2006
Literacy rate female (% of females age 15–24)	65.5	2000	79.9	2010
Literacy rate male (% of males age 15–24)	75.9	2000	81.7	2010
School enrollment primary (% net)	60.7	1999	82.1	2012
Immunisation, measles (% children age 12–23 months)	61.0	1990	91.0	2011
Mortality rate, under 5 (per 1,000 live births)	120.9	1990	77.6	2011
Prevalence of HIV, total (% of population age 15–49)	1.0	1990	1.5	2011
Improved sanitation facilities (% of population with access)	7.0	1990	14.0	2010
Improved water source (% of population with access)	53.0	1990	86.0	2010
Mobile cellular subscriptions (per 100 people)	0.0	1990	84.8	2011
Telephone lines (per 100 people)	0.3	1990	1.1	2011
Life expectancy at birth, total (years)	56.8	1990	64.2	2011
Literacy rate, adult total (% of people age 15 and above)	57.9	2000	67.3	2010

However, since 2012, growth has dropped off, to 7.3 percent in 2013 and 4.2 percent in 2014, driven by a sharp contraction in the industrial and service sectors, in part because of the higher cost of (imported) inputs. Projected GDP growth for 2015 is even lower, at 3.5 percent. Both fiscal and current account deficits have contributed to that slowdown. With respect to the fiscal deficit, a ballooning wage bill for the public sector, poorly targeted subsidies, and rising interest payments have contributed. While rising oil revenue offset some of these pressures, it was not enough to avoid double-digit fiscal deficits—11.6 percent of GDP in 2012, 10.4 percent in 2013, and 9.4 percent in 2014. The government has taken steps to contain the deficit, including an increase in electricity (by 60 percent) and water tariffs in 2013.

The country's external position has deteriorated. Weaker gold and cocoa exports led to an increase in the current account deficit. While growing oil production made up for some of these losses, the current account deficit remained.

Inflation—changes in the consumer price index—jumped from 7.1 percent in 2012 to 11.7 and 15.5 percent in 2013 and 2014, respectively. In addition to high inflation, the twin deficits have also resulted in a decline in reserves, a significant depreciation of Ghanaian cedi (GH₵) and high interest rates, curtailing growth and job creation.

GOVERNMENT PRIORITIES

Macroeconomic stability is one of the three priorities for the government of Ghana. A stable macroeconomic environment and sustainable debt dynamics are critical foundations for continued growth. The government is targeting a gradual fiscal consolidation to reduce the twin deficits and bring down inflation over the medium term. In the short term, government policy is focusing on measures to reduce macroeconomic imbalances, in particular the twin deficits. These measures include:

- Mobilising revenues, in particular by broadening the tax base and raising the value-added tax rate.
- Bringing the government's wage bill under control.
- Restricting capital spending to clearly identified priorities.

- Reducing tax expenditure and increasing compliance.

In addition to the pursuit of macroeconomic stability, the government's agenda for socioeconomic transformation includes two other broad objectives:

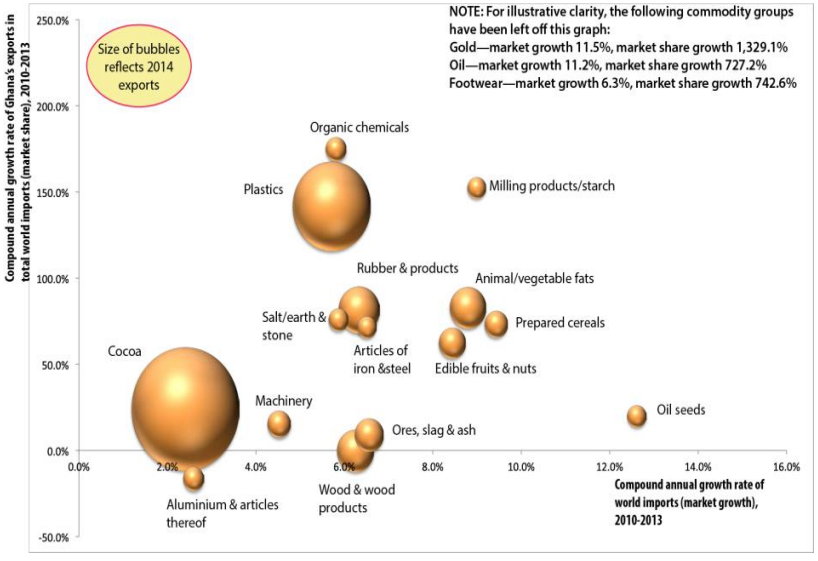
- **Economic diversification**. Ghana's exports are dominated by three major commodities: Gold, cocoa, and oil. That concentration makes the economy highly vulnerable to price fluctuations in world markets, which has contributed to the slowdown in economic growth in recent years. One of the central notions is to leverage Ghana's new oil and gas resources toward the creation of a robust manufacturing sector and higher-value agriculture. A significant part of the oil revenue is earmarked for investments in priority areas, including road and infrastructure improvements. In addition, these funds are also to be used to help modernise agriculture, and build capacity, including in the oil and gas sector itself.
- **Social inclusion.** The government is committed to ensuring that the benefits of growth are widely shared. Building a workforce for the 21st century, ready to take on higher-skilled jobs, is part of that objective. In addition, the government intends to strengthen the social safety net and continue investment in utilities, health, and education. Part of that social safety is the Livelihood Empowerment Against Poverty (LEAP) program.

TRADE PATTERNS

On the face of it, Ghana's export performance over the last five years has been impressive. Overall, exports increased at an average annual rate of 68.8 percent between 2010 and 2014. However, these average growth rates reflect a slump in exports in the base year, 2010. The performance over the period 2011–2014 actually shows a *decline* in export value terms of -5.7 percent per year. Over this period, the two leading export commodities, gold (US$5.1 billion in 2014) and oil (US$4.6 billion), which together account for almost 65 percent of total exports, stayed just about level (0.6 percent per year for gold) or declined (-12..9 percent for oil as a result of the drop in world market prices).

Figure 3 illustrates some of the dynamics of market development and the extent to which Ghana's exports have gained or lost market shares over the period 2010–2014. For clarity, three of the main "success stories" have been kept off the graph—for the commodities gold, oil, and footwear, Ghana's market share has effectively exploded (see note in graph); moreover, total market size for gold and oil, as measured by world imports, has been increasing at more than 11 percent per year.

FIGURE 3: MARKET AND MARKET SHARE DYNAMICS, SELECTED COMMODITY GROUPS



With few exceptions, Ghana has been capturing greater market share. There have been significant gains in "Plastics and articles thereof" (Harmonised System [HS] code 39), both in terms of market growth and market share for Ghana. In fact, Ghana has lost ground in only one commodity group, "Wood and articles of wood" (HS 44).

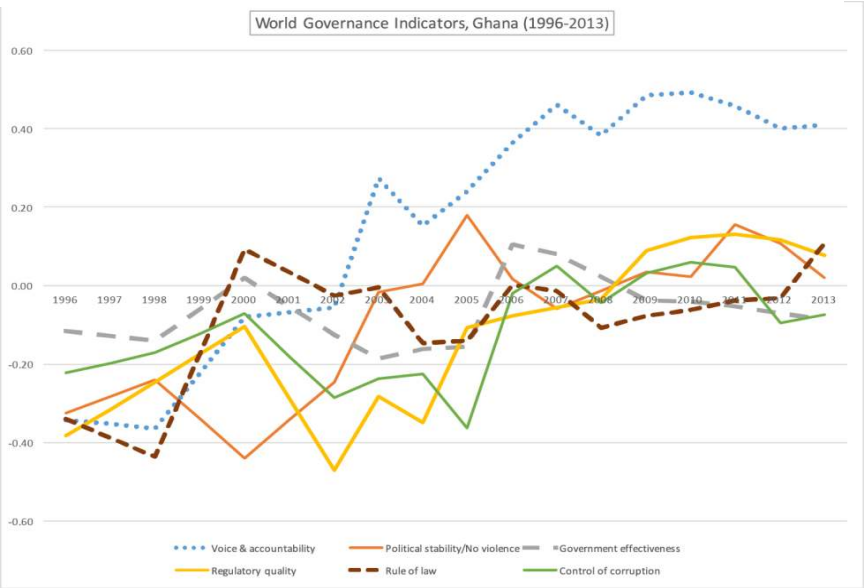
Another encouraging sign is the growing importance of manufacturing in total exports. While several of the fastest-growing commodities have started from a small base, and do not account for a major share of total exports in 2014, two commodity groups have registered significant growth rates and represent significant export activities. In 2014, Ghana exported more than US$1 billion of "Plastics and articles thereof" (HS 39), compared to a 2010 value of US$61.9 million. Similarly, exports of "Footwear, gaiters, etc. and parts thereof" (HS 64) increased from US$194.4 thousand in 2010 to US$139.7 million in 2014. Common to both of these commodity groups is that their principal markets are in neighboring countries—Burkina Faso, Mali, and others in the region.[3] These data suggest that Ghana may be emerging as a regional manufacturing center, at least for some commodity groups.

However, even with the gains in manufacturing exports have not led to major export diversification. The Herfindahl-Hirschman Product Concentration Index (HHI), which is a measure of the dispersion of trade across an exporter's products, has not changed significantly over the last five years.[4]

BUSINESS ENVIRONMENT

The World Governance Indicators illustrate trends in Ghana's business environment, shown in Figure 4. Ghana has made significant progress on the "Voice & accountability" measure. With respect to the other five measures, there has been gradual improvement, and three of them end above the median, including the index for regulatory quality, meaning that Ghana is doing better than 50 percent of the countries ranked in the exercise.

FIGURE 4: TRENDS IN GHANA'S BUSINESS ENVIRONMENT: WORLD GOVERNANCE INDICATORS



Source: Worldwide Governance Indicators, World Bank, 2014.

According to the World Bank's *Doing Business* indicators, Ghana is one of Africa's better-governed countries. Ranked 70 out of 189 countries on the 2015 World Bank *Doing Business* report, it performs well against its peers—the average rank for Sub-Saharan Africa as a region is 142.

A closer look at Ghana's performance, sketched in Figure 5, shows that it ranks modestly well on property registration and access to credit. However, there are acute weaknesses (comparatively), when it comes to starting a business, contract enforcement, dealing with insolvency, and investor protection. These constraints shape the environment for private sector development in the country, and most likely the region as well.

[3] Re-exports of imported commodities may play a role, but for both HS 39 and HS 64, there have been no major changes in imports recently; the jump in exports appears to reflect an increase is Ghana's manufacturing industry.

[4] The HHI ranges from 0 (complete dispersion) to 1 (complete concentration). For Ghana, the HHI value has remained in the range of 0.22 to 0.29, suggesting a relatively diversified export composition.

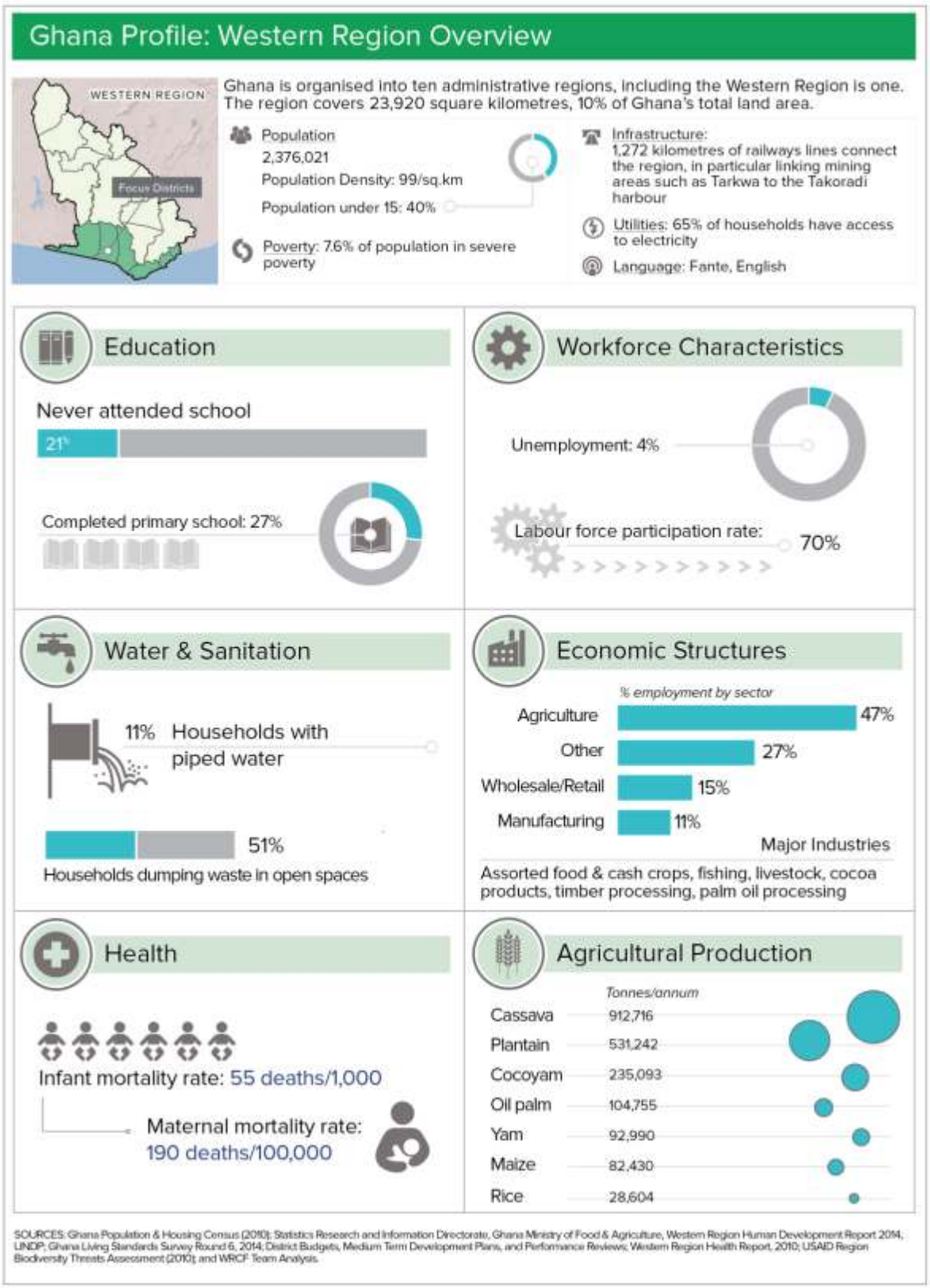
FIGURE 5: PERFORMANCE ON *DOING BUSINESS* CRITERIA, GHANA 2015

While the overall business environment reflects primarily national legislation and regulations, the way in which these are administered by the local authorities can account for significant differences. Similarly, particular local governance structures can facilitate or hamper business. It may therefore be possible that some regions or districts of the country have better or worse business environments than indicated by the national average.[5]

While the business climate is better than in most countries in the region, doing business in Ghana still faces hurdles. Surveys have identified limited access to finance and unreliable electricity supply as the major obstacles. While Ghana's financial sector is relatively well developed and competitive, government borrowing has crowded out the private sector. Improving the electricity supply will require significant investment by both the public and the private sectors. It is currently hampered by the financial viability of the state-owned energy companies.

[5] In fact, the data collection for the *Doing Business* exercise is restricted to the commercial capital of the country.

WESTERN REGION



Geography and Administration

Administratively, Ghana is organised into 10 regions. The Western Region occupies about 10 percent of Ghana's total land area; it abuts the Côte d'Ivoire to the east, and the Brong Ahafo, Ashanti, and Central Regions to the north and east. In the south, it is the Atlantic Ocean; the region accounts for 30 percent of the national coastline. Four main rivers, the Pra, Ankobra, Tano, and Bia, flow through the region.

Its climate is humid (70–80 percent)—the region is the wettest in Ghana. Rainfalls reach a peak May through July, and September through October. Approximately 40 percent of Ghana's forest reserves are located in the region; about 75 percent of the vegetation is classified as "high forest zone."

The Regional Coordinating Council coordinates development planning among the region's 17 administrative districts.[6] District Assemblies manage these districts, coordinating with urban councils, town councils, and unit committees. Traditional governance structures continue to play an active role in the region, with traditional authorities and chiefs owning more than 70 percent of the land, which they lease to the government. These structures remain a force in resource mobilisation, land governance, infrastructure development, and natural resource management. In social and political terms, the traditional authorities remain a major player in terms of conflict resolution.

Population

The region's population grew from 0.6 million in 1960 to 2.4 million in 2010; the region accounts for about 10 percent of Ghana's population. The average rate of population growth has come down from the average of 2.7 percent for the period 1960–2010 to about 2.0 percent today. Migration accounts for part of the population growth, in response to opportunities in cocoa production, "galamsey" (illegal small-scale) mining operations, and, more recently, in the oil and gas industry. Growth has been accompanied by increasing urbanisation, from 24.7 percent of the population in 1960 to 42.4 percent in 2010. The main ethnicity in the region is Akan (78.2 percent), comprising five subgroups—the Ahanta, Nzema, Wassa, Sefwi, and Aowin; Mole Dagbani account for 8.6 percent of the population, Ewe for 6.2 percent, Ga-Adangbe for 3.1 percent. The remaining 3.9 percent are classified as "other."

The population of the region is young, with a dependency ratio of 74.8 percent.[7] Almost two-fifths (39.3 percent) of the total population is under the age of 15 years, as illustrated in Figure 6.

Resources

The Western Region is well endowed with natural resources, including gold, timber, oil, and gas. Other contributors to the region's economy include agricultural crops, fisheries, tourism, and port services. Its major exports are cocoa, timber, copra, coffee, rubber and rubber products, gold, manganese, and bauxite.

Infrastructure

Much of the region's infrastructure dates back to colonial times, and is in need of upgrading. Road networks are poor, considered to be the least developed in the country, and hamper the movement of goods. Many roads are impassable in the rainy seasons. A major port in Takoradi has seen a reversal in its decline as a result of the new oil and gas activities. The fishing port in Sekondi has been affected by the decline in catch. The region's principal airport is also located in Takoradi. Railway lines link primarily the mining areas like Tarkwa to the Takoradi port; their performance for freight transport appears acceptable.

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[6] A Regional Minister chairs the Regional Coordinating Council. The council includes the Chief Executives of the region's 14 districts, two municipalities, and one metropolitan area, and two paramount chiefs. The Regional Coordinating Council's functions (legislation, planning, budgeting, and service delivery) are mirrored in assemblies at the district (and municipality and metropolitan area) level. The President nominates the Chief Executive, and appoints one-third of the assembly members. The other two-thirds are elected.

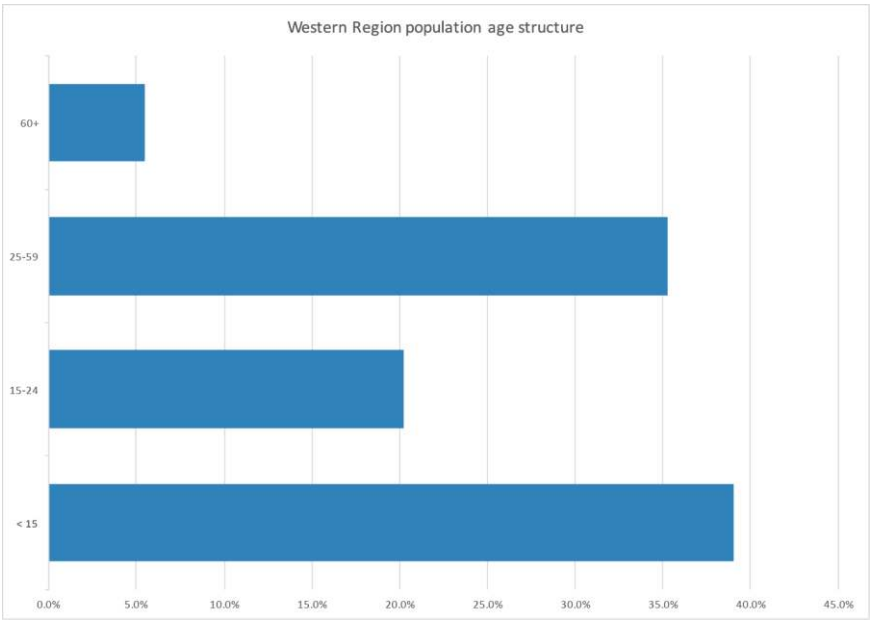
[7] The dependency ratio is a measure of the dependent population made up of those younger than 15 years and 65 years and older, to those in the "economically productive" ages of 15–64 years.

Thermal power plants near Sekondi generate a significant proportion of Ghana's electricity.

POVERTY

In 2010, two-fifths (40.5 percent) of the Western Region's population were found to be living in multidimensional poverty.[8] A further 21.8 percent of the population is vulnerable to poverty, while 7.6 percent live in severe poverty. Poverty levels vary among districts, with urban districts like Sekondi-Takoradi, Tarkwa Nsuaem, and Prestea Huni valley performing better than rural districts in the region. The annual per capita income in the region stood at GH₵7,731 in 2012–2013, compared to the national average of GH₵5,347.[9]

FIGURE 6: AGE STRUCTURE OF THE POPULATION OF THE WESTERN REGION



Basic poverty, the percentage of people living under US$1.25/day, has been on the decline in the Western Region, mirroring the reduction of poverty in the country overall. The incidence of basic poverty has declined from 60 percent in 1991–1992 to 18 percent in 2005–1996.[10]

INFLATION

The region continues to experience double-digit inflation, slightly above the level for the nation as a whole. The combined (food and non-food) inflation for December 2014 was 16.6 percent, with a rate for food of 6.6 percent, and 24.3 percent for other goods and services.[11] Inflation is driven in part by the macroeconomic policies at the central level, as discussed above, and by the expansion of the oil and gas economy. Opportunities offered in that sector have attracted migrants from other parts of the country, and with limited supply response, prices rise. For food, infrastructure deficiencies are contributing, curtailing food imports from food-surplus northern districts. Shortages for staple foods and expanding demand drive up prices.

AGRICULTURE

Agriculture, including fishing and forestry, forms the bulk of the region's economy. Crops account for 74 percent of agricultural production. Major food crops include cassava, maize, rice, yam, cocoyam, and plantain (see overview on page 10). The first three are central to the diet of lower-income households, while plantain is cultivated as both a food and cash crop. Food crop production from the region accounts for 8 percent of the national production, although the ratios are higher for plantain (17 percent) and cocoyam (25 percent). Major cash crops include cocoa, palm oil, rubber, coconut, coffee, and cola nuts.

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[8] Ghana Statistics Service, Population and Housing Census, 2013.

[9] Ghana Statistics Service, Ghana Living Standards Survey Round 6, August 2014.

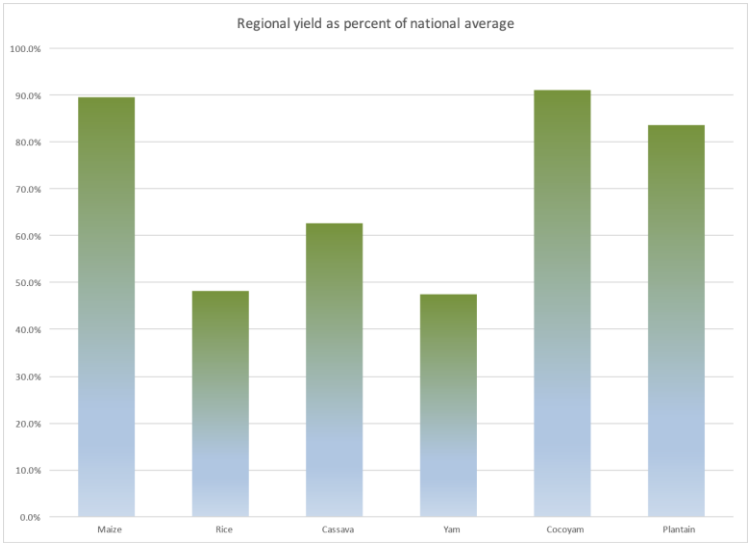
[10] International Fund for Agricultural Development, Ghana Country Programme Evaluation, May 2012.

[11] Ghana Statistics Service, Consumer Price Index Statistics Bulletin, December 2014.

Most of the major food crops are grown in the northern part of the Western Region. Low soil fertility and the prevalence of fishing as a source of livelihood limit agricultural production in the coastal districts.

The gaps are illustrated in Figure 7. The yields for maize, cocoyam, and plantain are reasonably competitive. However, for yam, rice, and cassava, yields in the Western Region are significantly below the national average. That may not matter for rice and yam, which represent relatively minor crops, but the gap for the major crop, cassava, poses a serious problem, and, perhaps, an opportunity. If this gap is attributable to differences in soil conditions and climate, raising yields may become a challenge. If they exist because of differences in farm management systems, prospects for raising productivity through support interventions look more promising.

FIGURE 7: GAPS IN YIELD FOR FOOD CROP PRODUCTION, 2013



Though not one of the main economic drivers, livestock rearing is fairly common in the region. The total livestock population in the region is estimated at around 2.7 million: Chicken (64 percent), farmed fish (10 percent),[12] goats (9.2 percent), and sheep (8.2 percent).[13] Approximately 40.5 percent of households in the Western Region are engaged in livestock rearing, the majority of these being in rural areas.[14] Other livestock types include cattle, ducks, and Guinea fowl.

FORESTRY

The Western Region's rich tropical forests make it one of the largest producers of raw and sawn timber, as well as processed wood products. In fact, the export of timber and wood products played a major role in development of the Takoradi port. However, past policies managed the nation's forest resources in ways that have led to severe degradations and fragmentation of the timber industry. In addition, tighter (environmental) quality standards in major export markets, in particular the European Union, led to a decline of wood and timber exports.[15] The analysis of recent export performance suggests that wood and wood products still play a role, but Ghana has not been gaining market share for these commodities. Ghana currently exports about 400,000 m^3 of wood per annum and consumes 600,000 locally.

Deforestation has encouraged reliance on tree plantations. The output of these tree plantations, predominantly teak and beechwood (gmelina), tends to be exported rather than be used to offset demand in Ghana for timber from natural forest. Ghana prohibits the export of logs, unless these derive from tree plantations. However, these plantations, for example for rosewood, cover only a small portion of external demand, especially from China. The ban on exports has led to various illegal schemes; for example, rosewood cut in Ghana would be clandestinely exported to a neighboring country, and then exported as a transit good. Lumber processing has been located primarily in the Western Region, however,

[12] Farmed fish is counted as part of livestock by the Ghana Statistics Service.

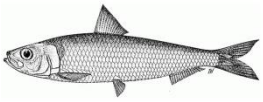
[13] Ghana Statistics Service, Population and Housing Census, 2013.

[14] Ibid.

[15] Ghana has signed a Voluntary Partnership Agreement with the European Union, a major market, that obliges exporters to ensure that all wood and timber exports are fully traceable.

infrastructure for these operations continued to be relatively neglected compared with mining and cocoa production regions. Other difficulties include lack of expertise at technological and managerial levels.

FISHERIES



Ghana's fishing industry is estimated to account for US$1 billion in revenue annually, and for approximately 2 percent of Ghana's GDP. With access to 30 percent of the national coastline, the region is a major producer of marine fish. Fishing, in fact, is central to the Western Region's economy, as both a source of livelihood and a key contributor to the local diet (contributing 40–60 percent of the national animal protein supply).[16] The most commonly caught fish is Sardinella; other important types include tuna, red fish, sea bream, cassava fish, swordfish, and marlin.[17] Most of the catch is sold in the domestic end market as smoked fish. Key urban markets for smoked fish are Accra and Kumasi. Smoked fish is also traded in rural areas in the Ashanti Region, Western Region, and Central Region. About 10 percent of the catch is exported regionally (Benin, Togo), and beyond (Europe, primarily the United Kingdom).

Fishing activities comprise three major components:

- "Artisanal unit—made up of approximately 13,000 canoes, often motorised, and using purse seines, set nets, draft gill nets, and hook and line. Some of the larger canoes can go to sea for several days and have ice chests to preserve the fish until they return to shore. This sector contributes 70–80 percent of total marine fish output (Fisheries Scientific Survey Division, 2013) and employs 80 percent of Ghanaian fishers.
- Semi-industrial/inshore fleet—locally built wooden vessels between 8 and 37 meters long, which use purse seine gear during the major and minor upwelling periods, and practice trawling in the shallow coastal waters during the offseason.
- Industrial fleet—large, steel-hulled vessels including trawlers, shrimpers, tuna pole and line, and purse seiners (Food and Agriculture Organisation of the United Nations [FAO], 2004)."[18]

The fishing industry accounts for thousands of direct and indirect jobs. According to the FAO Sustainable Fisheries Livelihoods program in Ghana, one fishing job generates seven additional indirect jobs (upstream jobs such as boat building and downstream jobs in processing/marketing).[19] Fishing employs a significant number of women, particularly in fish smoking.

However, the industry is under severe stress. Catch has been declining over time because of overfishing, and use of harmful fishing methods, which damage juvenile stocks.[20] The industry suffers from a serious scarcity of fisheries resources, disputes over jurisdiction, inadequate conservation and management measures, and a high influx of foreign fishing vessels in Ghanaian fishery waters. These factors undermine the country's ability to meet domestic demand, threatening fish food security and the livelihood of many Ghanaians, as well as the country's economy. As a result, Ghana has now become a net importer of fish, with imports on the rise since the early 1990s.[21]

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[16] World Fish Center, Value Chain Assessment – Smoked Marine Fish from the Western Region, July 2011, http://www.worldfishcenter.org/resource_centre/WF_2916.pdf.

[17] Ibid.

[18] Acorn International, *Independent study of marine environmental conditions in Ghana*. January 2015.

[19] Ibid.

[20] There was a large oil spill from the Jubilee field in 2011: http://www.publicintegrity.org/2012/01/19/7896/west-africa-oil-boom-overlooks-tattered-environmental-safety-net.

[21] http://www.ghanaweb.com/GhanaHomePage/business/artikel.php?ID=297409.

INDUSTRY

Industrial activities in the region consist mainly of the processing of agricultural products, such as cocoa products, flour milling, and processing of timber and wood, palm oil, and rubber, and to a small extent cassava, as well as production of cement and cigarettes. Approximately 7.5 percent of the national industrial units are located in the region, and almost 60 percent of these are located in the Sekondi-Takoradi Municipal Area. For 2003, the sector's total annual output was valued at GH₵3.01 million.[22]

OIL AND GAS

The Western Region produces the bulk of the national crude oil output. These activities are covered in more detail below.

MINING

The Western Region is rich in minerals. It accounts for all of Ghana's manganese and bauxite deposits, in Bibiani and Tarkwa, respectively, and 30 percent of its gold deposits (largely in the Prestea Huni Valley and Tarkwa). Additional minerals include iron ore (near Oppon-Manso), limestone (400 million metric tons [MT] near Half-Assini), clay deposits, solar salt (near Amanfulkuma), silica, and glass sands (Jomoro District). Approximately 21 percent of the total land of the Western Region is under mining permits.[23]

According to the last manufacturing census in 2003, there were 22 mining establishments in the Western Region, employing approximately 4,500 people.[24] Mining employs a significant proportion of the workforce in Prestea/Huni valley and Tarkwa Nsuaem, with more males than females. Artisanal mining as well as illegal small-scale gold mining (known as galamsey) is also common.

REGIONAL (TAKORADI) PORT SERVICES

The Takoradi port was built in 1928 and is a major export port for Ghana. In 2012, it handled about 31 percent of Ghana's seaborne traffic—66 percent of national exports and 19 percent of national imports.[25] The port is connected to road and rail networks, and also serves the nearby landlocked countries of Mali, Burkina Faso, and Niger. Main exports handled by the port include manganese, bauxite, cocoa, oil, and forest products. The port also offers a range of cargo handling and logistics services, and is home to several shipping, clearing, and forwarding companies. Since the discovery of oil, there has been a robust increase in commercial activity at the port, and the Ghana Ports and Harbours Authority is now planning on upgrading the port's facilities. The first phase of the plan is expected to include extension of the breakwater, dredging of a maritime access channel, and development of a modern dry bulk terminal. The developments in total export and import activity reflect to some extent the broad patterns of world trade, as illustrated in Figure 8.

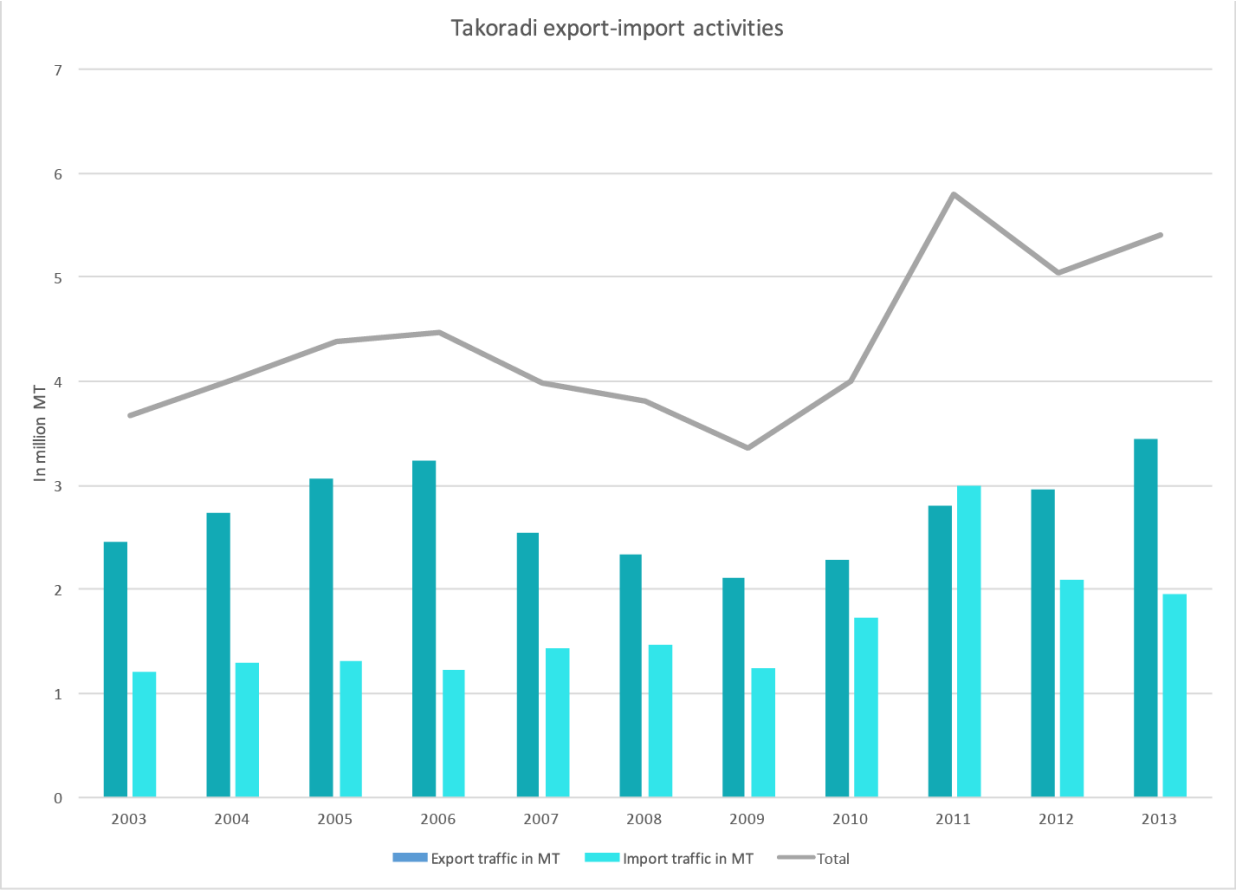
[22] http://www.ghanaweb.com/GhanaHomePage/business/artikel.php?ID=297409.

[23] UNDP, Western Region Human Development Report, 2014.

[24] These figures have of course increased since 2003. However, that is the latest version of the National Industrial Census currently available.

[25] http://ghanaports.gov.gh/tr/default.

FIGURE 8: TAKORADI PORT EXPORTS AND IMPORTS, 2003–2013



TOURISM

Ghana's tourism industry is expected to grow at 4.1 percent per year over the next two decades.[26] The Western Region boasts a number of tourist attractions, particularly from the west of Takoradi up to the Côte d'Ivoire. These include colonial-era forts (several forts and castles were built by Portuguese, Dutch, and English traders), eco-tourism sites, and beaches. For them to start making a greater contribution to the economy though, these sites require upgrading.

There are also several nature and wildlife attractions, such as the Ankasa National Park, Egambra Crocodile Sanctuary, Baoako Waterfalls, Amansuri Wetlands, and Bia National Park. These contain several species of wildlife, as well as mangrove forests, swamps, and streams. The region's coastline has several attractive beaches. Some of these, such as those at Busua and Ankobra, are developed resorts. Others, such as those at Butre, Dixcove, Axim Beach, and Ajua, are less developed.

The region also hosts cultural festivals such as the Kundum festival (in Ellembelle), which coincides with the harvest period and is celebrated by both the Ahanta and Nzema peoples.

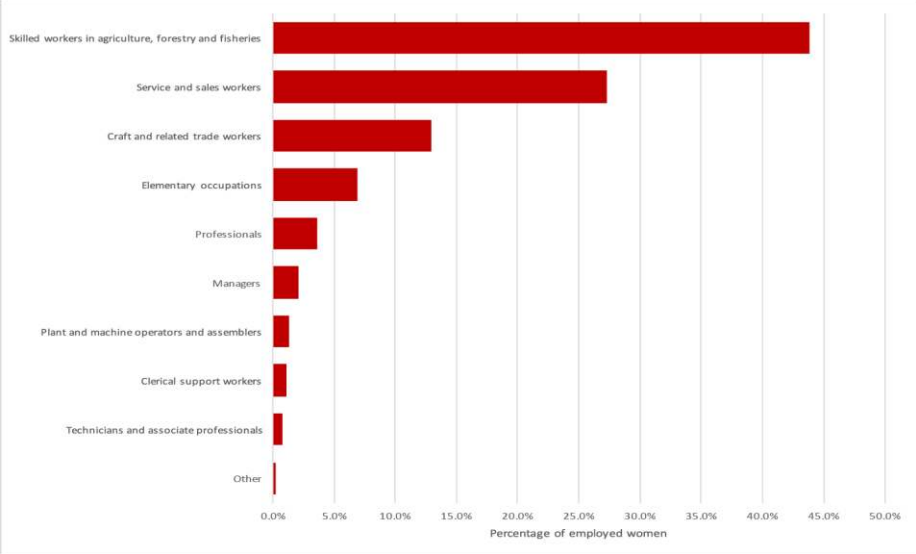
[26] http://ghanawestcoast.com/gwc/investing.php.

EMPLOYMENT

About two-thirds (66.3 percent) of the population above the age of 15 is employed. Agriculture, forestry, and fishing make up the largest share of employment, followed by services, crafts, and trade. Gender composition varies among sectors; in agriculture, women outnumber men (with more women in food crop production, and more men in cash crop production). The same holds for services, but male workers dominate in manufacturing and mining.

Among women in the region over the age of 15, 64.5 percent are estimated to be employed, 4 percent unemployed, and 31.5 percent are registered as "not-active." The 472,417 employed women fall within the occupational functions shown in Figure 9.

FIGURE 9: OCCUPATIONAL CATEGORIES FOR EMPLOYED WOMEN

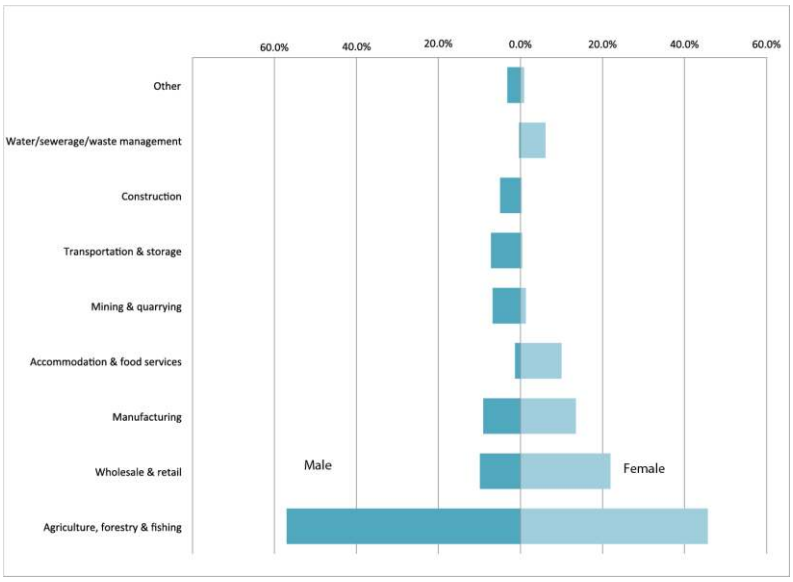


The comparison of employment by industrial branch in Figure 10 (taken from the 2010 Census) underscores the importance of agriculture. Almost 60 percent of male workers and more than 40 percent of female workers are employed in agriculture, forestry, and fishing (available data do not allow for a breakdown among these three components). Wholesale and retail follow, but primarily for women.

The average life expectancy is 58.9 years—60.8 years for women and 57.1 for men. On average, 46.9 percent of the population lives less than 30 minutes away from a health facility, below the national average of 57.6 percent. But this average hides significant disparities among districts.

In 2009, the Western Region counted only 77 doctors—a ratio of one doctor for 33,187 people (against a national average of one doctor per 11,929 people). The nurse-to-population ratio stood at one nurse for 2,004 people. Maternal mortality rates for the region are among the highest in Ghana (see overview on page 10). In 2003, fewer than half of children under 5 were delivered with the assistance of a

FIGURE 10: DISTRIBUTION OF TOTAL EMPLOYMENT IN THE WESTERN REGION AMONG INDUSTRIAL BRANCHES, 2010



trained health professional.[27] In 2003, 38.5 percent of children under 5 were found to be stunted (short for their age).[28] The primary reason for poor health indicators in the region is the inadequacy of health facilities, and a shortage of trained professionals. Access to adequate healthcare is also made difficult by the region's poor road network, electricity shortages, water shortages, and communication breakdowns.[29] Health issues clearly have economic repercussions in terms of education and workforce development.

WATER AND SANITATION

All district capitals in the region are connected to electricity and water. A majority of households have access to treated drinking water, but from different sources. Rising (average) household incomes in response to new opportunities is likely to result in greater demand for better water and sanitation services.

A majority of households are deemed to have access to safe sanitation facilities (defined as flush toilet/covered pit latrine). About a third of all households have shared bathrooms, 31.1 percent have individual bathrooms, 14.7 percent use shared open cubicles, and 6.3 percent use open space around the house.[30] Formal trash collection covers only 8.2 percent of households.[31]

BUSINESS ENVIRONMENT

The review of the national rankings on different indicators of the quality of the business environment above already touched on the possibility of regional variations, which depend to a large extent on the quality of the personnel applying these rules and regulations. There is no evidence that the administrative capabilities in the six coastal districts differ from those in other parts of the country (always keeping in mind that the data for the *Doing Business* rankings are based on the performance in Accra). One might argue that exposure to the dynamics of the oil and gas sector might result in more learning by doing by local administrations, but that is pure conjecture. Moreover, most of the particular permits for OGP investments and operations are handled at the national level. With respect to local businesses, the impact of the business environment on competitiveness for the targeted value chains will be a topic of the detailed ("deep dive") analysis.

NOTE ON DISTRICT-LEVEL REPORTS

There is no authoritative data source regarding socioeconomic characteristics of the districts. To provide a sketch of the socioeconomic environment at the district level, the WRCF team has consulted a range of data sources. Sometimes data are available for one or two districts, but not for all of them. Rather than trying to bring the descriptions down to the lowest common denominator (use only data available for all districts), the discussion here uses data from different sources, even though that means that there is uneven coverage. Much of the common information is summarised in the district dashboards.

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[27] 2003 Core Welfare Indicators Questionnaire Survey, Ghana – Western Region Districts Summary.

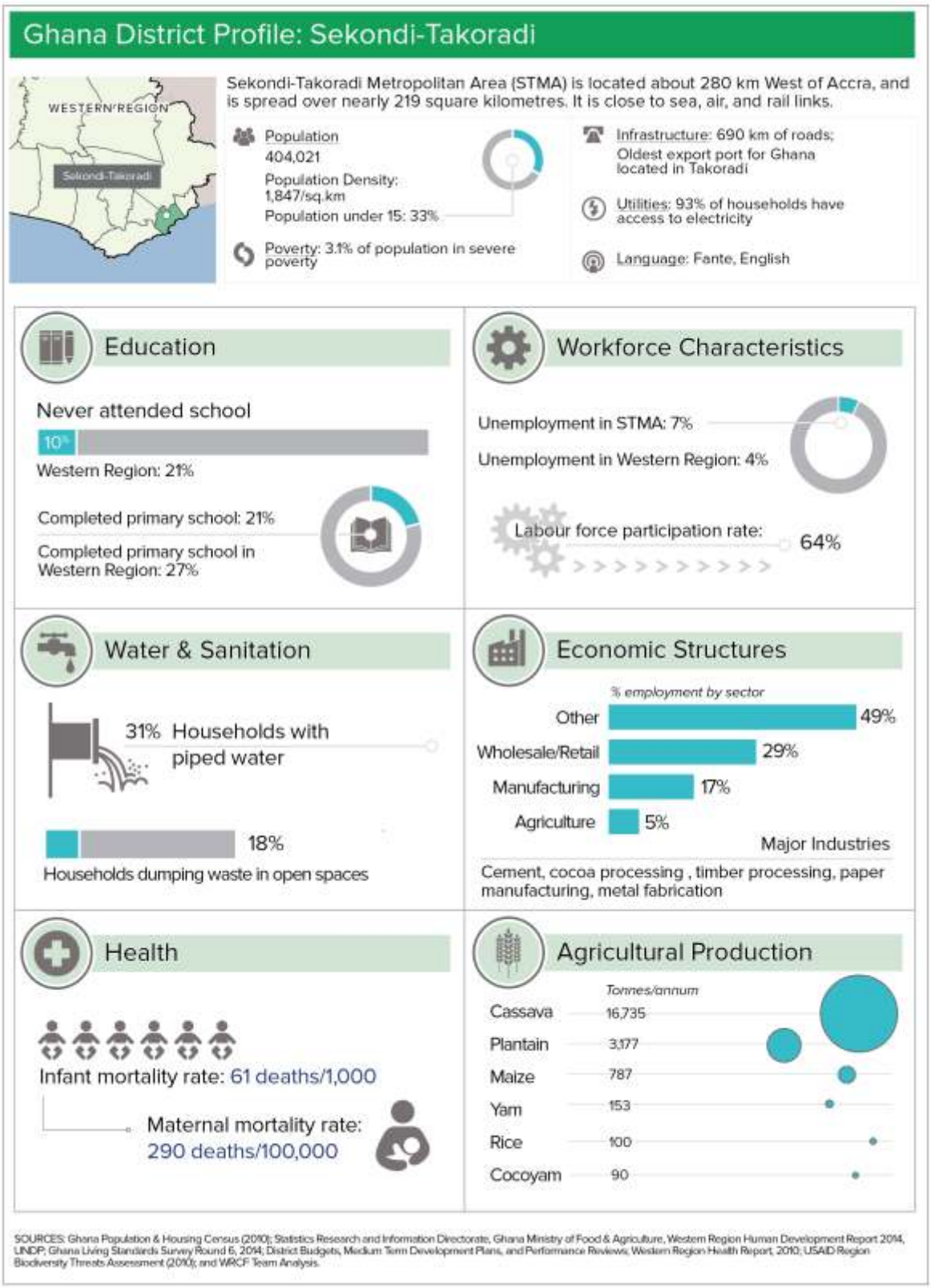
[28] Ibid.

[29] Ghana Western Region Human Development Report, 2013.

[30] Ibid., p. 184.

[31] Ghana Statistics Service, Population and Housing Census.

SEKONDI-TAKORADI METROPOLITAN AREA (STMA)



THE SETTING

The STMA evolved from Sekondi Town Council in 1903 to Sekondi Takoradi Town Council in 1946. It was elevated to a municipality status in 1954, following the promulgation of the Municipality Ordinance. By 1994, the name of the Assembly had been changed to Shama Ahanta East Metropolitan Assembly. After Shama attained district status in 2007, the name was reverted to Sekondi Takoradi Municipal Assembly. The history of the twin city (Sekondi-Takoradi) revolves around the sea. Early settlers of the area migrated from the Central Region. Settlers around the Takoradi Harbour area were later resettled to pave the way for construction of the seaport.

The STMA is located 280 kilometers (km) west of Accra. The shoreline features are characterised by sandy beaches and rocky headlands in a few communities, near shore rocky bottoms and engineered structures such as gabions, boulders, and port facilities. Mangrove forests in the STMA are associated with the Essei Lagoon and the Whin River Estuary. Over the years, these habitats have been negatively impacted by human activities, particularly felling of mangrove trees for fuel wood and housing construction.

TOURIST ATTRACTIONS

The Monkey Hill Forest Reserve (approximately 50 meters from the coastline at Takoradi) used to cover a much larger acreage of forested area than the current 12.6 hectares (ha). This forest reserve is inhabited by three monkey species: Olive Colobus, Mona, and Spot-nosed. It also is home to 58 species of birds and 128 species of vascular plants with medicinal properties.

ADMINISTRATIVE ASPECTS

Two traditional councils exist in the STMA—Sekondi and Essikadu. These serve as an alternative source of settling disputes and a focal point for initiation and implementation of development projects.

INFRASTRUCTURE

There are some 990 km of roads, approximately half surfaced, but most of the road network is in poor condition. Rail links connect the STMA to Kumasi, Tarkwa, Obuasi, and Accra. Rail transport is key for the mining operations in the region, but both rolling stock and tracks need upgrading. The Takoradi port serves both exports and imports (see Figure 8). Demands on port services have increased in the wake of the expansion of the oil and gas sector, and the port is scheduled for a major upgrading project. The STMA is also home to the region's major airport for commercial flights; the airport is managed by the Ghanaian Air Force.

POPULATION AND EMPLOYMENT

The population in 2010 exceeded 400,000; it is expected to grow rapidly, largely because of the expansion of the oil and gas sector. Almost three-quarters of the population live in urban areas, which are growing much faster. The number of housing units exceeds 35,000, implying an average household sise of 11.2 people.

Young people between the ages of 10 and 25 account for 46.3 percent of the total population. Of the population age 15 and over, 56.9 percent are employed, 6.7 percent are unemployed, and 36.4 percent are economically inactive.[32]

Among the women age 15 and over, 39.4 percent are engaged in wholesale and retail, 17.3 percent in manufacturing, and 15.0 percent in the hospitality sector. Only 10.3 percent of married women in the 15–49 age group utilise contraceptives; however, 87.1 percent receive some form of prenatal coverage and 60.7 percent of all births are attended by skilled personnel.

[32] Population and Housing Census, Ghana Statistics Service, 2013.

Economic Activity

Agriculture in the STMA consists mainly of crop farming and fishing. Industrial activities include cement production, processing of cocoa and timber, paper manufacturing, and metal fabrication. Microenterprises in the district are engaged in sachet water production, confectionary making, batik, and leather works. The services sector employs 59.9 percent of the STMA labor force. It includes activities such as shipping/freight forwarding, transport and logistics, marine services, and hotels and restaurants. Takoradi also has emerged as a hub for services related to OGP investments and operations. The area serves as the base for oil and gas companies. In addition, such support services as engineering, transport and logistics (including air and marine services), and catering services call the STMA home.

Social Development Indicators

The overall literacy rate is 89.5 percent (male: 94.1 percent, female: 85.1 percent). The infant mortality rate is 61 per 1,000 births, and under-5 mortality is 94 per 1,000 births.

The HIV prevalence among those tested at a health center is 5.7 percent. The United Nations Development Programme (UNDP)'s Multidimensional Poverty Index is lower than for other districts in the region: 3.1 percent of the population is estimated to be in severe poverty, and 13.8 percent in multidimensional poverty. [33]

Ninety percent of the households have access to water, but supply is irregular. Garbage collection, and solid and liquid waste disposal, present problems. Nearly 20 percent of household waste is dumped in an unorganised manner. Most homes lack toilet facilities, and 43.9 percent of the population was using public toilets in 2010.

[33] The UN's Multidimensional Poverty Index is a more holistic measure, which assesses deprivation along the three components of the Human Development Index – health, education, and standard of living.

ELLEMBELLE

Ghana District Profile: Ellembelle

The Ellembelle District Assembly is located at Nkroful. The district is among the new districts and municipalities created in 2008 by the then President, John Agyekum Kufuor.

Population
87,501

Population Density:
36/sq.km

Population under 15: 40%

Percent of population in urban areas: 21%

Infrastructure: 154 km of roads;

Utilities: 78% of households have access to electricity

Language: Nzema, Evalue, Gwira, Fante, Twi, English

Education

Never attended school

23%

Western Region: 21%

Completed primary school: 28%

Completed primary school in Western Region: 27%

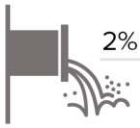
Workforce Characteristics

Unemployment: 3%

Unemployment in Western Region: 4%

Labour force participation rate: 60%

Water & Sanitation



2% Households with piped water

60%

Households dumping waste in open spaces

Economic Structures

% employment by sector

Agriculture	35%
Other	35%
Wholesale/Retail	15%
Manufacturing	15%

Major Industries

Cocoa, coffee, rubber, cocoyam, coconuts, oil palm, plantain, vegetables, cassava, maize, rice, fishing

Health

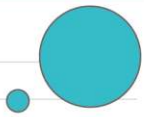
Infant mortality rate: 54 deaths/1,000

Maternal mortality rate: 370 deaths/100,000

Agricultural Production

Tonnes/annum

Cassava	33,359
Plantain	1,610
Rice	956
Maize	888
Cocoyam	247
Yam	112



SOURCES: Ghana Population & Housing Census (2010); Statistics Research and Information Directorate, Ghana Ministry of Food & Agriculture, Western Region Human Development Report 2014, UNDP; Ghana Living Standards Survey Round 6, 2014; District Budgets, Medium Term Development Plans, and Performance Reviews; Western Region Health Report, 2010; USAID Region Biodiversity Threats Assessment (2010); and WRCF Team Analysis.

THE SETTING

The Ellembelle District, created in 2008 (it was part of Nzema East before), covers nearly 10 percent of the landmass of the region, with a 70 km coastline. It is relatively rural, with a mix of land and water uses. The coastline is dotted with small fish landing sites and dense human settlements from Atuabo to Esiama, which are hemmed between the shoreline and the vast Amanzule wetland. Mangrove forests are fairly intact, largely because conservation organisations have been active in the local communities. The Ellembelle District has one paramount chief, with his palace at Atuabo.

TOURIST ATTRACTIONS

Ellembelle District has beautiful sandy beaches, crocodile ponds, and monkey sanctuaries. Tourism opportunities exist for canoe paddling, turtle and whale watching, and hiking. The Amanzule Estuary in Ellembelle ("where two rivers meet") at Azuleloano is a transit point for migratory birds flying seasonally from Europe and other continents. Islands in the Amanzule lagoon between Akonu- Bakanta and Ampain, which used to house settlements, are of archaeological interest and are habitats for game like bushbuck and other endangered fauna. The tomb of Ghana's first President Kwame Nkrumah is located in the district. Other attractions include beach sites, the Ankobra River, and wetlands.

The Kundum festival is the biggest annual cultural event of the people. During this festive occasion, citizens contribute financial and material resources toward development projects.

INFRASTRUCTURE

There are 154.1 km of trunk roads; 41.5 percent are tarred. Other roads tend to be impassable during the rainy season. Coverage by the electrical grid is limited; in 2009, 30 percent of households were connected to the electricity grid.

With respect to communications, major towns in the districts are connected to telephone lines and are covered by GSM, but access is poor in rural areas. About 70 percent of the people living in the district do not have ready access to a computer.

POPULATION AND EMPLOYMENT

In 2010, the district population was 87,500, with an average household size of 4.7 people. The urban population accounted for 20.6 percent of the total. Most (93.5 percent) of the population belong to the Akan ethnic group; 80.7 percent of the population is Christian, while 9.1 percent is Muslim. Nzema is the major language spoken, but others such as Evalue, Gwira, Fanti, and Twi are also common.

Youth accounts for some 62 percent of the district population. Of the 45,000 females in the district, 37.8 percent are under age 15, 56.3 percent are age 15–64, and 5.9 percent are over 65.

Of the 53,000 people age 15 and older, 59.0 percent are economically active; 55.7 are employed, and 3.2 percent are unemployed.

Agriculture, forestry, and fishing employ almost two-fifths of the economically active population (39.5 percent), manufacturing 17.9 percent, and wholesale and retail 16.5 percent.

ECONOMIC ACTIVITY

In addition to the production of food crops (see the district profile on page 22), the district also produces cocoa, coconuts, coffee, rubber, and palm oil. More than half (51.8 percent) of the district's businesses are farm-based, followed by agro-processing and agro-industrial (23.6 percent), and service enterprises. Industry consists mainly of small and medium-sized enterprises (SMEs). These include food processing, edible oil extraction/production, and sawmilling. The district also has gold deposits. There is one formal company—Adamus Resources—exploring these, along with informal mining (known as galamsey) taking place in Nkroful and its vicinity.

Ellembelle is also an important fishing district. There are six Community Based Fisheries Management Committees in Ellembelle, which are helping to regulate fishing and discourage the use of harmful fishing

techniques (primarily traditional methods are used). Aquaculture is not common, and there are only approximately 40 fish farmers with 64 ponds in the district.[34]

Services consist primarily of small-scale activities such as welding, auto repairs, electrical repairs, dressmaking, hairdressing, carpentry, and mechanical repairs.

Ellembelle is likely to benefit from major investment in the OGP sector. The principal projects are the Ghana Gas Company's US$1 billion processing plant between Atuabo and Anochie, with its pipelines, and the Oil Services Terminal at Atuabo. Additional gas processing for the nearby oilfield is also planned.

Social Development Indicators

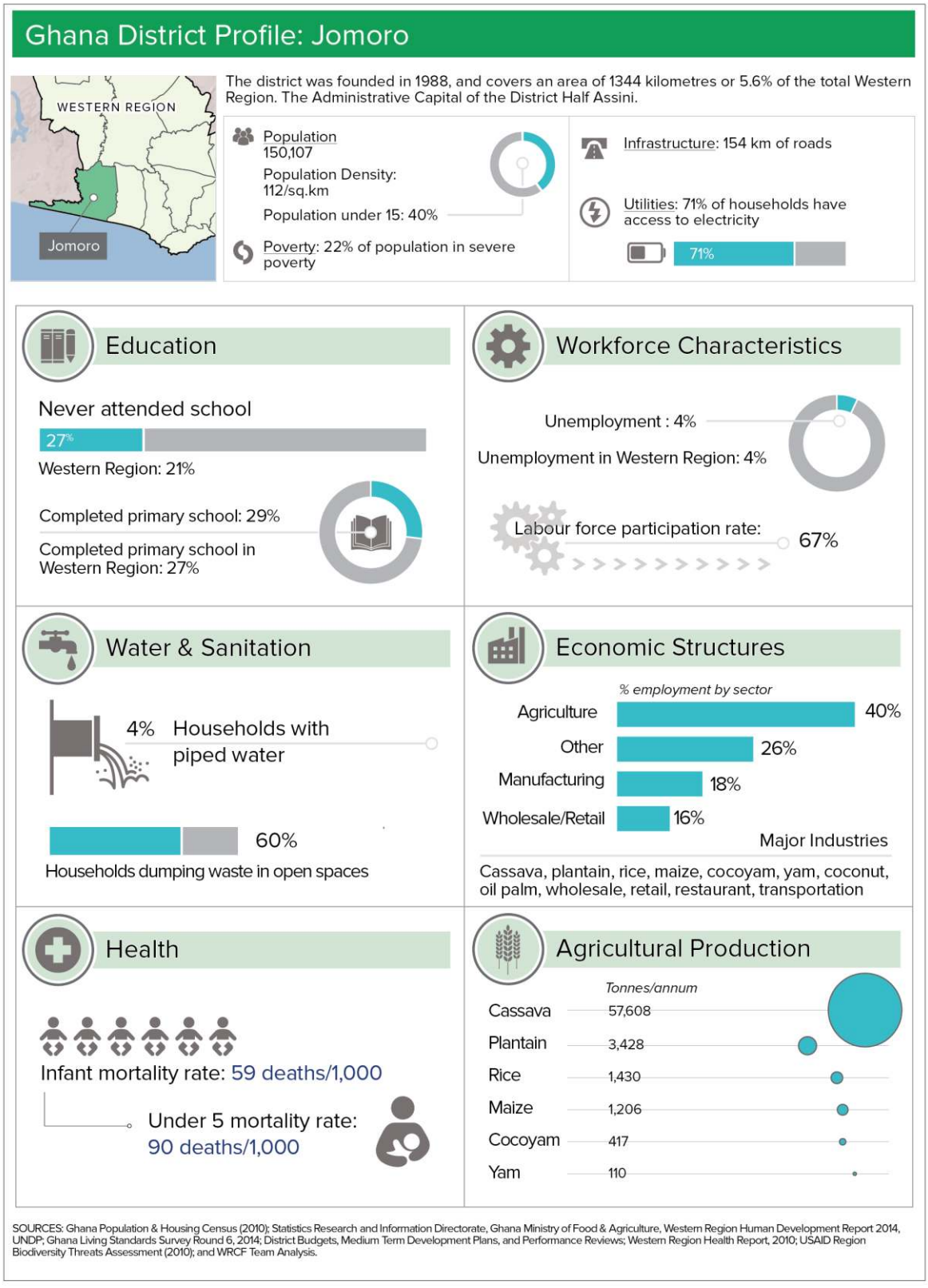
The literacy rate is 73.9 percent; 22.6 percent of the population has never attended school, 28.9 percent have completed primary school, 27.7 percent middle school, and 9.9 percent high school. Only 0.5 percent of the population has a college degree or higher qualification. Schools are under-staffed, only 34.3 percent of the district's teachers are trained, and the physical infrastructure is often in a poor state.

Contraceptive prevalence rate is 10.1 percent, antenatal coverage (at least 1 visit) is 21.6 percent, and 79.3 percent of births are attended by skilled personnel. The district has two hospitals, six health centers, three health promotion services, one clinic, and 140 traditional birth attendants. There is one doctor for every 34,778 people. Challenges for the healthcare sector include the availability of trained practitioners, affordability, infrastructure, and equipment.

Two percent of the population has piped water inside their households, and a majority obtain their water from external sources, including tube wells and public taps. An estimated 30 percent of households have toilets. Indiscriminate disposal of solid and liquid waste is common.

[34] Ghana Statistics Service, Population and Housing Census.

JOMORO


Ghana District Profile: Jomoro
WESTERN REGION
Jomoro
The district was founded in 1988, and covers an area of 1344 kilometres or 5.6% of the total Western Region. The Administrative Capital of the District Half Assini.
Population
150,107
Population Density:
112/sq.km
Population under 15: 40%
Poverty: 22% of population in severe poverty
Infrastructure: 154 km of roads
Utilities: 71% of households have access to electricity
71%
Education
Never attended school
27%
Western Region: 21%
Completed primary school: 29%
Completed primary school in Western Region: 27%
Workforce Characteristics
Unemployment : 4%
Unemployment in Western Region: 4%
Labour force participation rate:
67%
Water & Sanitation
4% Households with piped water
60%
Households dumping waste in open spaces
Economic Structures
% employment by sector
Agriculture 40%
Other 26%
Manufacturing 18%
Wholesale/Retail 16%
Major Industries
Cassava, plantain, rice, maize, cocoyam, yam, coconut, oil palm, wholesale, retail, restaurant, transportation
Health
Infant mortality rate: 59 deaths/1,000
Under 5 mortality rate:
90 deaths/1,000
Agricultural Production
Tonnes/annum
Cassava 57,608
Plantain 3,428
Rice 1,430
Maize 1,206
Cocoyam 417
Yam 110
SOURCES: Ghana Population & Housing Census (2010); Statistics Research and Information Directorate, Ghana Ministry of Food & Agriculture, Western Region Human Development Report 2014, UNDP; Ghana Living Standards Survey Round 6, 2014; District Budgets, Medium Term Development Plans, and Performance Reviews; Western Region Health Report, 2010; USAID Region Biodiversity Threats Assessment (2010); and WRCF Team Analysis.

THE SETTING

The district was founded in 1988, covering an area of 5.6 percent of the total Western Region. The majority of the district's population live in dense fishing settlements, with fish landing and processing areas. The shoreline stretches from the western boundary of Ghana to Ahobre. Until recently, this was the main international route across the border to Abidjan by ferry. Half Assini, the district capital, is the center for a thriving coconut industry. From Bonyere to Beyin is a further long stretch of coast with coconut groves separating fishing villages. Beyin is the location of a paramount chieftaincy of the Nzema people, and a growing tourist resort with the Nzulezu stilt village inland on the Amanzule Lake, as its star attraction.

The district's ecosystem is composed of several wetland categories, including swamp and mangrove forests, and holds Ghana's only known peat swamp forest and the country's largest intact swamp forest. The estimated US$4.8 billion Tweneboa, Enyenra, and Ntomme (TEN) oilfield development is located immediately south of Jomoro.

TOURIST ATTRACTIONS

The Ankasa Forest Reserve is the major Forest Reserve in the district, and is one of the largest designated for "protection" rather than "production" in Ghana. The park is recognised for its guided nature walk by most tourists and has high plant diversity, indigenous forest birds, monkeys (especially chimpanzees), and forest elephants.

The main festival in Jomoro is Kundum (locally called Abisa). The festival, mostly celebrated between August and November, lasts at least seven days and rotates between communities.

INFRASTRUCTURE

Many of the district's 153.9 km of roads are unusable during the rainy season. Boats are used to traverse the Tano River and the Abbey Lagoon.

Access to the electricity grid is limited; 47 communities have access to electricity. Electricity is the second-most important source of energy, for 27 percent of households. Other sources include wood (31 percent of households), charcoal (14 percent), kerosene (21 percent), and liquefied petroleum gas (7 percent).

POPULATION AND EMPLOYMENT

About 150,000 people reside in the district, with 35.4 percent in urban areas. Some 40 percent of the population is under the age of 15, 55.6 percent between 15 and 64, and 4.4 percent 65 and over. The average household sise is 4.4 people. There are a total of 48,000 youth age 10–24. Jomoro reportedly may have lost some of its inhabitants to neighboring Côte d'Ivoire, since it lacks the sort of industry that attracts migrants.

The two largest ethnic groups are Akan (88.7 percent), and Ewe (6.1 percent). The Christian faith predominates (82.1 percent of the population); 7.4 percent are Muslim.

About two-thirds (65.7 percent) of the population over 15 is economically active. Of these, 39.5 percent are engaged in agriculture, 17.9 percent in manufacturing, and 16.5 percent in wholesale, retail, and motor repairs.[35] Among employed women, agriculture employs 31.7 percent, manufacturing 23.9 percent, wholesale/retail and motor repairs 20.4 percent, and accommodation and food services 14.4percent.

ECONOMIC ACTIVITY

The economy of Jomoro is based primarily on agriculture, with coconut production the major agricultural activity. Manufacturing activities do not contribute significantly to the district economy. The services sector includes mainly wholesale, retail, hotel, restaurant, and transportation activities, and employs about 30 percent of the workforce.

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[35] Ghana Statistics Service, Population and Housing Census.

SOCIAL DEVELOPMENT INDICATORS

The overall literacy rate is 69.1 percent (84.2 percent for males and 58.7 percent for females). Twenty-seven percent has never attended school; 28.9 percent has attended primary school, 27.7 percent middle school, and 9.9 percent high school.

There is one government hospital in the district and four health centers. Equipment and hygiene at these locations are often poor. Contraceptive use is 13.3 percent, antenatal coverage is 78.4 percent, and 24.3 percent of all births are attended by skilled personnel.

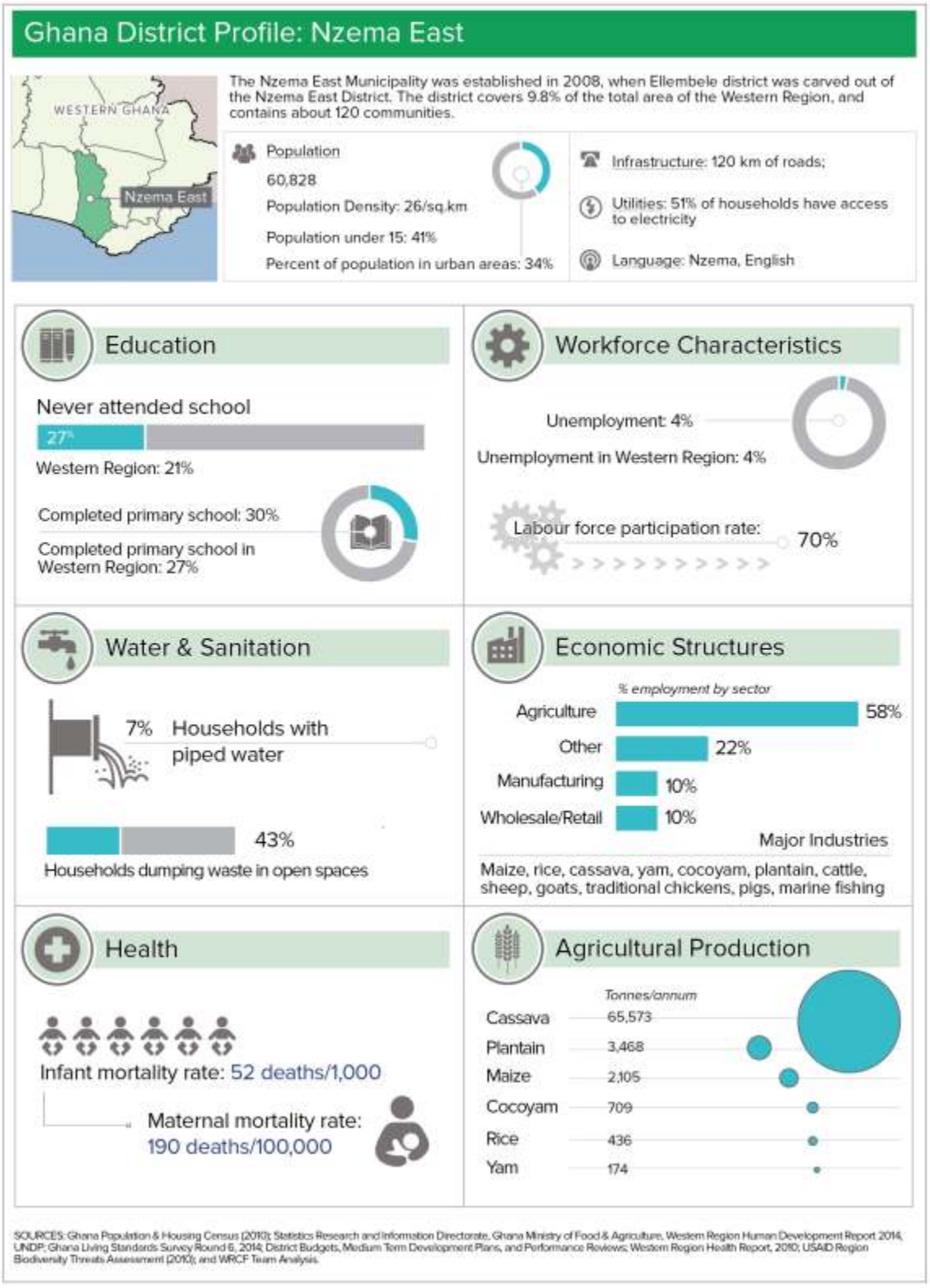
Severe poverty affects 21.3 percent of the population; and 34.6 percent is considered vulnerable to multidimensional poverty.[36]

Four percent of the households have direct connections to drinking water, with most households getting their supply from pipes outside the house (27.6 percent), public taps (27 percent), or tube wells (11.6 percent). The percentage of households without a toilet facility is the highest in the region (36.5 percent). More than 50 percent of households dump solid and liquid waste into open spaces.[37]

[36] Ghana Western Region Human Development Report, UNDP, 2013.

[37] Population and Housing Census, Ghana Statistics Service, 2013.

NZEMA EAST


Ghana District Profile: Nzema East
WESTERN GHANA
Nzema East
The Nzema East Municipality was established in 2008, when Ellembele district was carved out of the Nzema East District. The district covers 9.8% of the total area of the Western Region, and contains about 120 communities.
Population
60,828
Population Density: 26/sq.km
Population under 15: 41%
Percent of population in urban areas: 34%
Infrastructure: 120 km of roads;
Utilities: 51% of households have access to electricity
Language: Nzema, English
Education
Never attended school
27%
Western Region: 21%
Completed primary school: 30%
Completed primary school in Western Region: 27%
Workforce Characteristics
Unemployment: 4%
Unemployment in Western Region: 4%
Labour force participation rate: 70%
Water & Sanitation
7% Households with piped water
43%
Households dumping waste in open spaces
Economic Structures
% employment by sector
Agriculture 58%
Other 22%
Manufacturing 10%
Wholesale/Retail 10%
Major Industries
Maize, rice, cassava, yam, cocoyam, plantain, cattle, sheep, goats, traditional chickens, pigs, marine fishing
Health
Infant mortality rate: 52 deaths/1,000
Maternal mortality rate: 190 deaths/100,000
Agricultural Production
Tonnes/annum
Cassava 65,573
Plantain 3,468
Maize 2,105
Cocoyam 709
Rice 436
Yam 174
SOURCES: Ghana Population & Housing Census (2010); Statistics Research and Information Directorate, Ghana Ministry of Food & Agriculture, Western Region Human Development Report 2014, UNDP; Ghana Living Standards Survey Round 6, 2014; District Budgets, Medium Term Development Plans, and Performance Reviews; Western Region Health Report, 2010; USAID Region Biodiversity Threats Assessment (2010); and WRCF Team Analysis.

THE SETTING

The Nzema East District was established in 2008, when Ellembelle district was carved out of the Nzema East District. The district covers 9.8 percent of the total land area of the Western Region, and contains about 120 communities. Nzema East is a relatively rural district, with a mix of land and water uses that underpin local cultures and livelihoods. The coastline is dotted with hospitality facilities and dense human (fishing) settlements, with fish landing and processing areas. Natural harbors on rocky islands and outcrops have offered protection for local fishermen and traders.

The river Ankobra Estuary and its ecologically significant wetlands that are habitats for diverse flora and fauna are also located in the district. There are locally breeding fish, those inhabiting the Guinean current across West Africa and those that migrate across larger distances (such as blue whales). In the uplands there are patches of forest and rich agricultural lands.

The Nzema East Municipal Area has three paramountcies under the Nzema Manle Traditional Council, with its headquarters at Esiama in the Ellembelle District.

TOURIST ATTRACTIONS

The rocky capes have formed bays, the best of which house three of Ghana's highest-quality seaside resorts. The coast is dominated by Axim itself, which has one of the oldest and most prominent former forts. The fort served as a refuge of European traders.

Before 1965, the major cash crops grown in the area were coconut and cocoa, with cassava and plantain being the major food crops. In 1965, Cape St. Paul's Wilt Disease destroyed almost half of the coconut plantations along the southeastern coastline. This affected the economic livelihood of people in these areas, leading to low income and increased unemployment. This has been a major factor that shifted the attention of coconut farmers to rubber plantations.

The key tourism sites in the coastal zone of Nzema East District are at Ankobra Beach, Axim Beach Lodge, and Lou Lagoon. The sandy beaches, coastal landscapes, traditional settlements, wildlife, historic and cultural sites, opportunities for surfing and canoe paddling, turtle- and whale-watching, and hiking make this one of the more attractive leisure areas in Ghana.

INFRASTRUCTURE

The municipality has about 120 km of trunk roads and 200 km of feeder roads, of which 25 percent are tarred. The majority of the feeder roads are in the south of the municipality. Many roads are unusable during the rainy reason. Parts of the Ankobra River are also used for transportation by boat.

The main sources of lighting for households are electricity (51.1 percent), flashlights (26.3 percent), and kerosene lamps (21 percent). For cooking, 56.8 percent of households use wood, while 26.5 percent use charcoal.[38]

POPULATION AND EMPLOYMENT

The total population of the district is about 61,000, with 34 percent living in urban areas. More than two-fifths of the population (41.4 percent) is under the age of 15, 55.2 percent is 15–64, and 2.8 percent is over 65. Young people age 10–25 number roughly 20,000. The average household sise is 4.5 people.

There are some 36,000 people age 15 and older, of which 65.4 percent are employed, 4.1 percent are unemployed, and 30.5 percent are not economically active. Of those employed, 57.8 percent are working in agriculture, forestry, and fishing; 11.2 percent in manufacturing; and 9.5 percent are in retail and motor repairs.

[38] Population and Housing Census, Ghana Statistics Service, 2013.

Of the roughly 31,000 women in the district, 49.8 percent are employed in agriculture, forestry, and fishing; 15.8 percent in manufacturing; 14.8 percent in retail and motor repairs; and 10 percent in accommodation and food services.

Christianity prevails (82.2 percent of the population), another 6.1 percent are Muslim, and the remainder are a mixture of traditional faiths. The major ethnic group is Akan (89 percent), followed by Ewe (4 percent), Mole-Dagbon (4 percent), and Ga Adangbe (3 percent); the major language spoken in the region is Nzema.

Economic Activity

Agriculture dominates the district's economy. The district profile on page 28 shows the composition of food crop production. Major cash crops grown in the municipality include coconut, oil palm, rubber, and cocoa. Coconut output has recently been severely impacted by Wilt Disease, which is rampant in the area.[39]

Livestock in the district includes cattle (unknown number), goats (6,363), sheep (8,130), pigs (6,524), and poultry (18,220).[40] The total annual catch for marine fishing stood at 23,573 MT in 2009.[41] Fish farming is not significant, with an estimated 25 ponds in the municipality.

Oil processors dominate the list of the 3,111 registered SMEs in the district, shown in Table 2.[42]

TABLE 2: ACTIVITIES FOR REGISTERED SMES IN NZEMA EAST

Activity	Number	Percent
Oil processing	725	23.3
Food processing	604	19.4
Fish smokers	388	12.5
Building and construction	320	10.3
Tailors and dress makers	241	7.7
Chop bar operators	185	5.9
Electronics/electricians	153	4.9
Akpeteshie distillers	129	4.1
Garages	103	3.3
Carpenters	92	3.0
Soap makers	47	1.5
Batik/tie-dye	27	0.9
Shoe makers	25	0.8
Painters	24	0.8
Plumbers	21	0.7
Traditional healers	15	0.5
Photographers	12	0.4

Social Development Indicators

The literacy rate is 69.9 percent of the population (male 77.9 percent, female 62.3 percent). Of the population above the age of 6, 2.3 percent have a qualification higher than high school, 6.6 percent have

[39] http://mofa.gov.gh/site/districts-western-region/nzema-east-municipal-western-region.

[40] Livestock Census, 2008.

[41] http://mofa.gov.gh/site/districts-western-region/nzema-east-municipal-western-region.

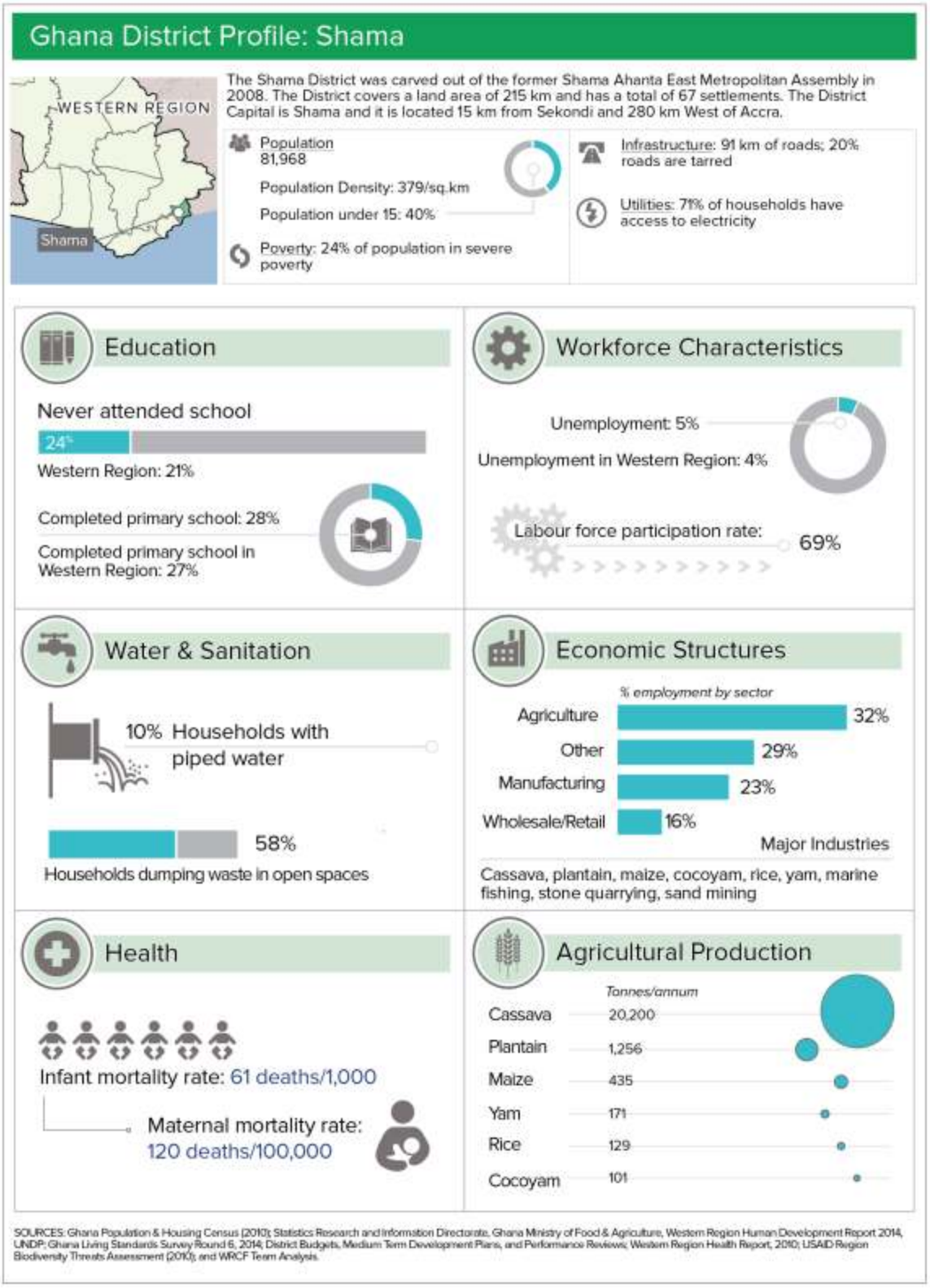
[42] http://www.ghanadistricts.com/pdfs/nzemaeast_econ.pdf.

qualified secondary school, 30.1 percent have passed middle school, and 29.7 percent have completed only primary school; 26.6 percent have never attended school.

The municipality has two hospitals and six health centers. For many communities, particularly in the northern part of the district, it is difficult to access health facilities, which are in poor shape. Contraceptive prevalence is at 18.7percent, 69.8 percent of pregnant women receive some form of antenatal coverage, and 26.2 percent of births are attended by skilled personnel.

Few households (6.8 percent) have direct water connections. Most obtain water from pipes outside the household (10.3 percent), boreholes/tube wells (30.1 percent), or rivers/streams (26.7 percent). The fraction of households with toilets is 13.2, while the remainder use pit latrines (26.1 percent), or public toilets (46 percent). More than 30 percent of households dump solid and liquid waste in public areas.

SHAMA


Ghana District Profile: Shama
WESTERN REGION
Shama
The Shama District was carved out of the former Shama Ahanta East Metropolitan Assembly in 2008. The District covers a land area of 215 km and has a total of 67 settlements. The District Capital is Shama and it is located 15 km from Sekondi and 280 km West of Accra.
Population 81,968
Population Density: 379/sq.km
Population under 15: 40%
Poverty: 24% of population in severe poverty
Infrastructure: 91 km of roads; 20% roads are tarred
Utilities: 71% of households have access to electricity
Education
Never attended school
24%
Western Region: 21%
Completed primary school: 28%
Completed primary school in Western Region: 27%
Workforce Characteristics
Unemployment: 5%
Unemployment in Western Region: 4%
Labour force participation rate: 69%
Water & Sanitation
10% Households with piped water
58%
Households dumping waste in open spaces
Economic Structures
% employment by sector
Agriculture 32%
Other 29%
Manufacturing 23%
Wholesale/Retail 16%
Major Industries
Cassava, plantain, maize, cocoyam, rice, yam, marine fishing, stone quarrying, sand mining
Health
Infant mortality rate: 61 deaths/1,000
Maternal mortality rate: 120 deaths/100,000
Agricultural Production
Tonnes/annum
Cassava 20,200
Plantain 1,256
Maize 435
Yam 171
Rice 129
Cocoyam 101
SOURCES: Ghana Population & Housing Census (2010); Statistics Research and Information Directorate, Ghana Ministry of Food & Agriculture, Western Region Human Development Report 2014, UNDP; Ghana Living Standards Survey Round 6, 2014; District Budgets, Medium Term Development Plans, and Performance Reviews; Western Region Health Report, 2010; USAID Region Biodiversity Threats Assessment (2010); and WRCF Team Analysis.

THE SETTING

The Shama District was carved out of the former Shama Ahanta East Metropolitan Assembly in 2008, covering a land area of 215 sq. km. The district Capital is Shama. Several streams, in addition to the major river, Pra, run through the district. The Shama District shoreline is about a 13 km stretch from Anlo Beach in the southeast to the barrier beaches in the vicinity of the Anankwar floodplain at the southwestern part of the district. The coastal zone features barrier beaches, sand pits and dunes, uplands, estuary, wetlands, and rock outcrops. The Pra River flows southward and meets the sea at Shama.

Various minerals are found within the district: Gold (along Pra River and its valley); granite (Aboso, Supomu-Dunkwa, Anto, Apimenyim); clay (Inchaban, Aboadze, Komfueku, Ituma); kaolin (Apimenim, Ohiamadwen, Anto); and salt (Anlo beach, Abuesi, Aboadze, Krobo, Bosomdo).[43]

TOURIST ATTRACTIONS

There are no key tourism sites yet established in the coastal zone of Shama District, but the Pra Estuary and Anlo Beach have been identified as potential tourism areas. There is a golf course near Aboadze, and attractive beaches between Aboadze and the Anankwari River, adjacent to the power plants.

The people of Shama celebrate the 'ra Nyinani Afahye, which is the major annual festival, organised in September.

ADMINISTRATIVE ASPECTS

The Shama traditional area is headed by a Paramount Chief with jurisdiction over three main Chieftain Divisions and several sub chiefs. The three Chieftain Divisions are Inchaban, Yabiw, and Dunkwa.

INFRASTRUCTURE

The asphalted road stretching from Sekondi to Cape Coast passes through it. There are other tarred roads, but mainly in the southern (coastal) zone of the districts. The interior part of the district is serviced largely by untarred feeder and seasonal roads, which are normally not usable during the raining season. Privately owned buses, trucks, and taxis are the main means of transportation.

The district is connected to the national electricity grid and a sizable number of towns and villages are supplied with electricity. Fuel wood is used in heating and cooking, and fish smoking.

POPULATION AND EMPLOYMENT

In 2010, the district population reached almost 82,000; the dependency rate (84.9 percent) is the highest within the Western Region. The urban population accounts for 56.2 percent of the total. The average household size is 4.2 people.

People age 15 and older number more than 48,000, with 68.6 percent being economically active. Of these, 63.3 percent are employed and 5.3 percent are registered as unemployed. Women older than 15 years account for 61.5 percent of the district's female population, and 68.2 percent are economically active. There are more than 27,000 young people age 10–24 with equal gender balance.

Fantes (a subgroup of the Akan) are the dominant ethnic group in Shama, constituting 86.5 percent of the total population, while settlers account for 13.5 percent. The Fantes mainly reside west of the Pra River. Two main groups of Fantes can be distinguished; the first are the indigenous people of Shama who identify themselves as Fantes, with Techiman as their ancestral origin; while the second are migrant Fantes from Moree, Apam, and Winneba in the Central Region who acquired permanent residency in Shama decades ago. More than four-fifths (81.1 percent) of the population is Christian; 8.4 percent are Muslim, 2.2 percent are traditionalists, and the rest do not practice any religion.[44]

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[43] 2009–2013 Shama Medium-Term Development Plan.

[44] Population and Housing Census, Ghana Statistics Service, 2013.

Economic Activity

The top industries are agriculture, forestry, and fishing (32.4 percent); manufacturing (23.4 percent); and wholesale and retail (15 percent). For employed women, 33.7 percent work in manufacturing; 23.5 percent in agriculture, forestry, and fishing; 20.9 percent in wholesale, retail, and motor repairs; and 10 percent in accommodation and food services.

Agriculture is the backbone of the economy of the district. Some 29 percent of households are engaged in agriculture; 92.7 percent are in crop farming, 20.5 percent in livestock rearing, 3.1 percent in tree growing, and 0.2 percent in fish farming. The production of food crops is shown in the district profile on page 32.

Fishing is done along the district coast, while farming is done inland in the north of the district. The major fishing communities in the district are Abuesi, Shama, Aboadze, and Anlo Beach. Four fishing communities have a total of about 1,500 registered sea-worthy canoes and an annual catch of about 30,000 metric tons.[45]

Social Development Indicators

The overall literacy rate for the district is 72.7 percent (81.4 percent for males and 65.5 percent for females). Of the total population over 6, 12.5 percent have completed high school or above, 32.2 percent have attended middle school, 31.7 percent have attended primary school, while 23.6 percent have never attended school. Almost a quarter of the population (24.1 percent) are considered to be in severe poverty, and 24.1 percent are considered vulnerable to multidimensional poverty.[46]

The district has seven hospitals, clinics, and health centers and six Community-Based Health Planning and Services (CHPS)[47] compounds.[48] Contraceptive prevalence is at 14.3 percent, 53.8 percent of women receive some form of antenatal coverage, and 22.6 percent of births are administered by a skilled attendant.

A few communities have piped water connections. Most households obtain water from public taps/standpipes (44.3 percent), pipes outside (34.2 percent) or inside dwelling (10.3 percent); and unprotected wells (4.7 percent). Toilets are found in 22.6 percent of households, while the remainder use pit latrines (11.2 percent) or public toilets (46.6 percent). Almost three-fifths (58.2 percent) of the district population dump solid waste in public spaces, and 26.1 percent use public dump containers; 30.1 percent throw liquid waste into a compound, 30 percent into gutters, and 24.3 percent throw directly onto the street.

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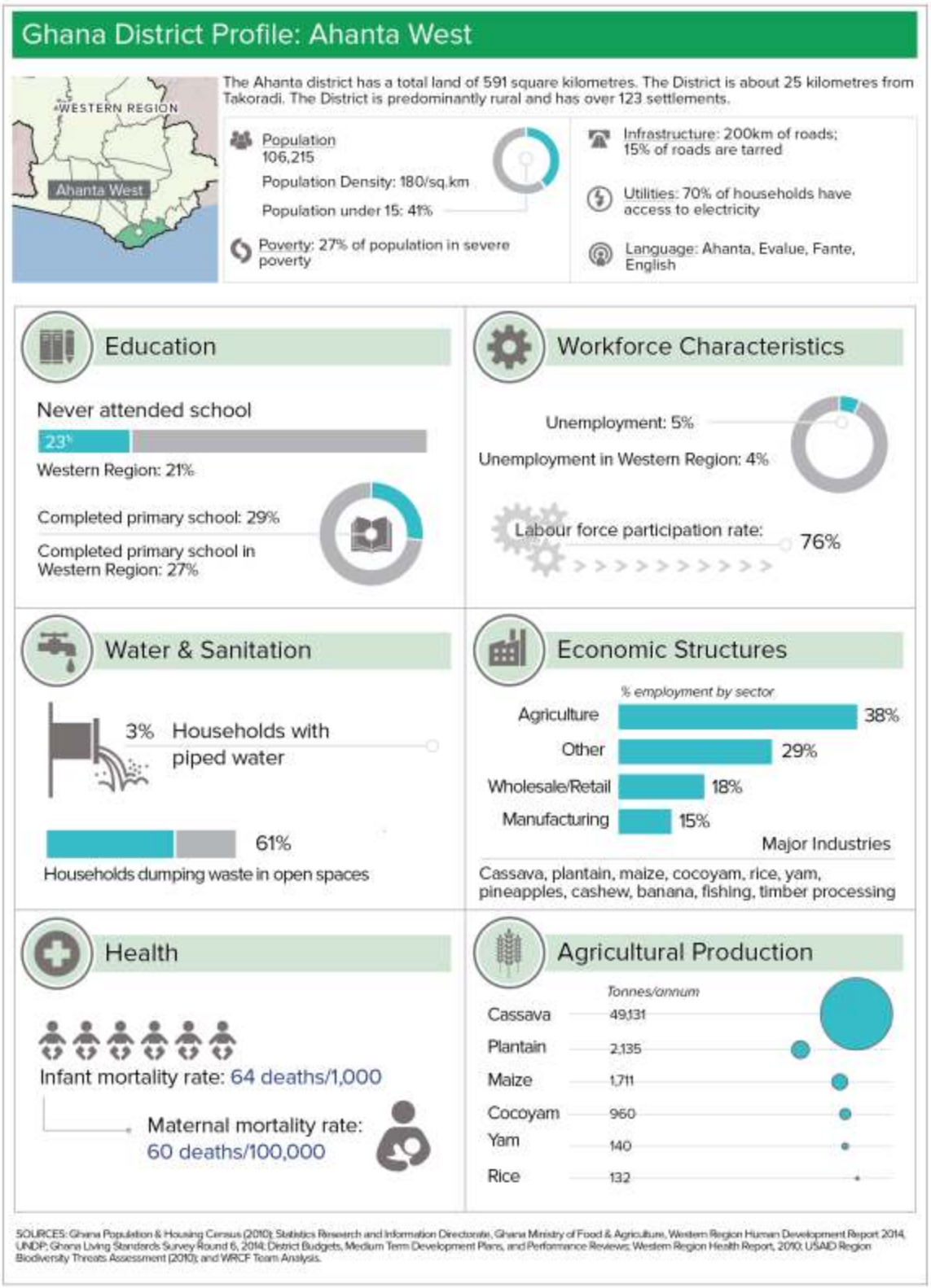
[45] Shama District Medium-Term Development Plan 2010–2013.

[46] UNDP Western Region Human Development Report, 2013.

[47] CHPS initiative.

[48] The composite budget of the Shama District Assembly for the 2013 Fiscal Year.

AHANTA WEST


Ghana District Profile: Ahanta West
WESTERN REGION
Ahanta West
The Ahanta district has a total land of 591 square kilometres. The District is about 25 kilometres from Takoradi. The District is predominantly rural and has over 123 settlements.
Population 106,215
Population Density: 180/sq.km
Population under 15: 41%
Poverty: 27% of population in severe poverty
Infrastructure: 200km of roads; 15% of roads are tarred
Utilities: 70% of households have access to electricity
Language: Ahanta, Evalue, Fante, English
Education
Never attended school
23%
Western Region: 21%
Completed primary school: 29%
Completed primary school in Western Region: 27%
Workforce Characteristics
Unemployment: 5%
Unemployment in Western Region: 4%
Labour force participation rate: 76%
Water & Sanitation
3% Households with piped water
61%
Households dumping waste in open spaces
Economic Structures
% employment by sector
Agriculture 38%
Other 29%
Wholesale/Retail 18%
Manufacturing 15%
Major Industries
Cassava, plantain, maize, cocoyam, rice, yam, pineapples, cashew, banana, fishing, timber processing
Health
Infant mortality rate: 64 deaths/1,000
Maternal mortality rate: 60 deaths/100,000
Agricultural Production
Tonnes/annum
Cassava 49,131
Plantain 2,135
Maize 1,711
Cocoyam 960
Yam 140
Rice 132
SOURCES: Ghana Population & Housing Census (2010); Statistics Research and Information Directorate, Ghana Ministry of Food & Agriculture, Western Region Human Development Report 2014, UNDP; Ghana Living Standards Survey Round 6, 2014; District Budgets, Medium Term Development Plans, and Performance Reviews; Western Region Health Report, 2010; USAID Region Biodiversity Threats Assessment (2010); and WRCF Team Analysis.

THE SETTING

Ahanta West is located at the southern-most point of Ghana, covering an area of 591 sq. km. The district capital is at Agona Nkwanta. The land is generally flat, with a few isolated hills. A number of peri-urban towns such as Apowa, Agona Nkwanta, and Dixcove account for a relatively high population density.

Various rivers, including Butre, Apesuro, Whin, Suoni, Nyila, Nyame, and Yani flow through the district. There are 123 communities in the district, 22 of which are on the coast. The most populated areas in the district are on the N1 highway leading west out of Takoradi; and Dixcove, which was a former colonial settlement. Sections of the shoreline in the district are noted to have eroded considerably over the past 50 years, causing the disappearance of buildings, farm lands, and other properties. This phenomenon continues due to high sea wave energy and sea level rise, exacerbated by climate change.

Wetlands are easy targets for dumping of waste and infilling because they lack existing users or owners. They are also under threat from indiscriminate cutting of mangroves for fire wood for cooking and fish smoking. Comparatively, in Butre and Akwidaa, the mangroves are in fairly good condition due to interventions by nongovernmental organisations like Ricerca, Cooperazione, and Conservation Foundation, among others. Active fishing activities occur in about 20 fish landing sites dotting the coast of Ahanta West District.

TOURIST ATTRACTIONS

The key tourism sites in the coastal zone of Ahanta West District are at Butre Estuary; Busua, from Dixcove to Cape Three Points; and Princess Town. European traders also built their now historic forts close to these natural harbors on rocky islands and outcrops. Of the seven forts and castles in the region, four are located in the Ahanta West District. They are Fort Groof Fredburg, the only German fort in Ghana in Princess Town; Fort Batenteim, built by the Dutch; Fort Metal Cross, in Dixcove; and Akwidaa, which has now been turned into a sacred grove and shrine.

Cape Three Points is especially renowned as a route for whales, dolphins, and sharks in their annual migration, and this makes for fascinating watching. The Cape Three Points Forest Reserve is the only primary forest in Ghana that is very close to the sea. It occupies a total area of 51,102 sq. km. About 10 km west of Princess Town is the Egyambra crocodile pond and shrine. The priest in attendance usually performs some rituals, then uses some incantations to call the crocodiles.

The main festival in the district is Kundum.

ADMINISTRATIVE ASPECTS

The Paramount Chief of Ahanta traditional area is seated at Busua. Other key traditional rulers are seated at Upper and Lower Dixcove.

INFRASTRUCTURE

About 85 percent of the district's roads are unpaved, making them impassable during the rainy season.[49] Cargo trucks, mini-trucks, mini-buses, and taxis are commonly used for transportation. For lighting, households in the district use electricity (70.2 percent), kerosene lamps (20.6 percent), and flashlights (7.4 percent).

Infrastructure development has also made its way in the district with the newly built Oil Village, a 100-acre gated community, strategically located to accommodate expatriates and locals in the oil and gas industry.

POPULATION AND EMPLOYMENT

The population of the Ahanta West District exceeds106,000; 29.5 percent live in urbanised areas. There are a total of 26,095 households, and the average household size is 4.1 people. The district shows a

[49] Ahanta West Medium-Term Development Plan 2010–2013.

relatively high proportion of women in the population, more than in other districts. That may reflect a preponderance of trading, which is undertaken mainly by women.

Economically active people account for 75.5 percent of the population over the age of 15. Of these, 70.8 percent are employed, and 4.9 percent are unemployed. The top industries by share of employment are agriculture, forestry, and fishing (38.1 percent); wholesale, retail, and repair of motor vehicles (17.9 percent); and manufacturing (15.6 percent). For females, the top industries by employment are agriculture, forestry, and fishing (34.3 percent); wholesale and retail (25.8 percent); manufacturing (17.5 percent); and accommodation and food service activities (12.1 percent).

The bulk of the district population is Christian (78.6 percent), followed by traditionalists and Muslims. The major ethnic groups are Akans (93.9 percent), Ga-Dangme (1 percent), and Ewe (3.2 percent).[50] The main languages spoken are Ahanta, Evalue, and Fante. The population of the district is relatively young: 41.4 percent is under 15, 54.2 percent between 15 and 64, and 3.8 percent is older than 65. The number of youths between the ages of 10 and 24 exceeds 64,000.

Of the women above the age of 15, 75.3 percent are economically active. Of those employed, 33.2 percent are working as service and sales workers; 33.1 percent in agriculture, forestry, and fishing; 17.7 percent in crafts and related trade; and 9.3 percent in elementary occupations.

Economic Activity

The Ahanta West Rural Enterprise survey, carried out in 2013, showed that the majority of the district's entrepreneurs (76 percent) were female, again because of trading. About 40 percent of the entrepreneurs were within the age group of 30 to 39 years.

In terms of sectors, again agriculture dominates. Most of the district's small land area has been cultivated with rubber and oil palm plantations. The production of food crops is shown in the district profile on page 35. Cash crops such as cocoa, oil palm, and rubber are also produced in the district. Production also includes non-traditional crops such as black pepper, pineapples, citrus, cashews, and bananas, which have significant export potential.

Fishing is a major activity, and the district is known for shark, tuna, and lobster. It is one of the oldest and most well-known fishing communities in the country, and the Agona Nkwanta market is well known for trading in fish. Basic fish processing is common, and activities include smoking, salting, and frying.

A number of timber and saw mills are located in the district, such as the Veneer Lumber Company, BMK, Mondial, Metro-Star, Farouk Industries, Prime Wood, Intex, and GDC. Industrial palm oil and industrial rubber are also produced by Norpalm Ghana, and Greil, respectively. There are also a number of small-scale agricultural processors scattered throughout the district. The district has large deposits of gold and kaolin and some iron. The substantial clay deposits around the Beahu area can be utilised for ceramics.

Social Development Indicators

The overall literacy rate is 73.3 percent. Almost a quarter (23.2 percent) of the population have never attended school, 29 percent have completed primary school or less, 32.4 percent middle school, and 6.7 percent high school qualified. Only 0.7 percent possess a college degree or higher qualification. Ahanta West has a number of basic and second-cycle institutions: 97 kindergartens, 87 primary schools, 60 junior high schools, two senior high schools, and one technical and vocational institute. The teachers number 1,445; about a third of them are not adequately trained.

There is one public hospital located at Dixcove, four health centers, three clinics and 10 CHPS compounds. There are also 95 outreach points and a number of drug stores. Contraceptive prevalence is at

[50] Population and Housing Census, Ghana Statistics Service, 2013.

14.5 percent. Almost 70 percent of pregnant women receive some form of antenatal coverage, and skilled health people attend 32.5 percent of births.[51]

More than a quarter (26.6 percent) of the population is considered to be in severe poverty, and 13 percent are considered vulnerable to multidimensional poverty.[52]

Most households obtain water from bore-holes/pumps/tube wells (32.0 percent), pipes outside dwelling (16.2 percent), protected wells (12.1 percent), sachet water (10.4 percent), and public taps/standpipes (6.6 percent). More than 60 percent of the population dumps solid waste in public spaces, 17.8 percent use public dump containers, and 9.1 percent burn; 45.3 percent throw liquid waste onto compounds, 24.9 percent—onto the street, and 19.3 percent throw it into gutters.

Salient Points from the Appraisal of the Economic Environment

The review of current economic trends and conditions in the country, the Western Region, and the six coastal districts suggests both opportunities and constraints. The government's focus on an inclusive growth strategy that seeks to increase diversification faces challenges in the districts that are the target of the WRCF. The districts differ in several elements, but common to all of them is the leading role of agricultural activities, and the constraints on transport and logistics as a result of disinvestment in the infrastructure. At the same time though, there appear to be a number of non-agricultural activities that could serve as the seed of a diversification strategy. In Sekondi-Takoradi in particular, service establishments have emerged that serve the demands of a more diversified export economy and of the OGP investments and operations. These services include catering, engineering, construction, transport and logistics, and others that are likely to play a major role in the diversification of the districts' economies.

The review of the economic background therefore suggests that some of the target value chains are likely to be associated with the districts' agricultural sector. In addition, targets should reflect the need to supporting economic diversification. The discussion returns to these aspects after looking more closely at economic opportunities associated with the OGP sector.

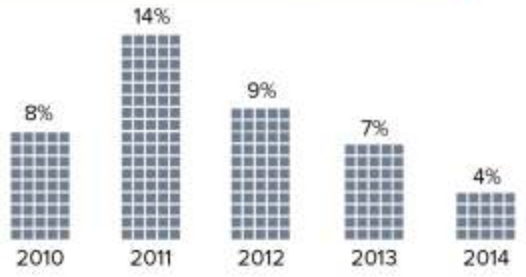
[51] UNDP Western Region Human Development Report, 2013.

[52] UNDP Western Region Human Development Report, 2013.

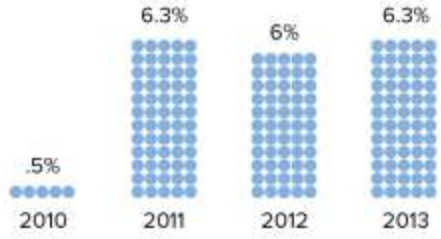
The Oil and Gas Industry

Ghana's oil and gas industry took off with the discovery of the Jubilee Oilfield. The industry presently generates about US$ 800-900 million in annual revenue for Ghana. By 2017, revenues from oil and gas exports are expected to surpass those from the export of gold.

Real GDP Growth Rates (in Percent)



Oil Rents (% of GDP)



Oil Production for Jubilee Field

	Barrels (annual)	Value
2010	24.4 million	$2,779 million
2011	26.4 million	$2,976 million
2012	36.1 million	$3,885 million

DESTINATION OF OIL EXPORTS

Europe	69%
China/Taiwan	13%
South Africa	12%
USA	5%
India	1%

GHANA'S OIL AND GAS INDUSTRY

Oil and gas have merged as a major industry and foreign exchange earner only recently. However, the first discoveries of commercial quantity of offshore oil dates back to the 1970s. In 1983, the government set up the Ghana National Petroleum Corporation (GNPC), which prospected in ten offshore blocks. By 1992, an offshore field in the Tano River Basin produced about 6,900 barrels per day of crude oil,

The government issued licenses to international oil companies for further prospecting. In 2007, Tullow Oil (named after the small town in Ireland where it was created in 1985) discovered the Jubilee Oilfield in 2007, with estimated reserves of up to 3 million barrels of oil and 1.2 trillion cubic feet of gas. Tullow developed the required infrastructure, and production started in 2010.

Ghana currently expects to pump some 190,000 barrels of crude per day by the end of 2016, reaching 30 percent of total exports. The main focus will be on oil production from the main Jubilee field. At the sdame time, efforts will be launched to extract gas from that field to reduce pressure on its reservoirs. Plans also include the development of the Tweneboa, Enyenra and Ntomme (TEN) oilfield, which is expected to contribute 60,000 barrels by the end of 2016. Discoveries in 2008 and 2011 have identified another major oilfield, the Mahogany, Teak, and Akasa (MTA) oilfield, now also under development. Kosmos Energy has drilled ten wells in these three discovery areas. The company expects these high-value, plateau-extending barrels to be tied back to the Jubilee FPSO.

By 2017, revenues from oil and gas exports are expected to surpass those from the export of gold. The industry presently generates about USD 800-900 million in annual revenue for Ghana.[53]

Approximately 20 companies are currently operating in the sector. Some of the leading companies include Tullow Oil, Kosmos Energy, Anadarko Petroleum Corporation, Ghana National Petroleum Corporation, Ghana Gas, ENI Ghana, Vanco, and Hess. Lonrho has plans to establish a Free Port at Atuabo (Ellembelle), in part to provide services to the oil rigs. Also at Atuabo, a gas processing plant is under construction to facilitate the offtake of natural gas from the oilfields. In addition, gas pipelines will take the gas from Atuabo to Takoradi and from Takoradi to Tema to be used in electricity generation as part of the program to address the country's energy challenges.

The growth in the oil and gas industry has catalyzed economic opportunities in ancillary sectors, such as gas processing infrastructure, fabrication, food and water supply, real estate, hospitality, and infrastructure, as well as a range of port-related logistics and warehousing services. The WRCF team is exploring the likely economic impact of the demand emanating from the oil, gas and power sector on the local economy. The discussion of this analysis below also offers further information on major investment projects in the oil and gas sector.

[53] http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=314026

Assessing Economic Opportunities from Oil and Gas Operations

LOCAL CONTENT: THE INTERPLAY OF DEMAND AND SUPPLY CAPACITY

The discovery of commercial quantities of oil and gas has triggered new activities in the economies of the six coastal districts in terms of new investments and operations. Existing OGP operations and proposed investments have opened up new opportunities for the local economy. In many instances, though, the local response has been disappointing, since local businesses and workers lack the wherewithal to capitalise on these opportunities. There has been concern for raising the *local content* in OGP investments and operations across many countries, but actual gains depend on the interplay between the precise demands *and* the ability of local businesses and workers to meet that demand.

In the case of Ghana, a number of initiatives have sprung up to enable local businesses and workers to pursue these prospects. CSI programs by the oil and gas companies have supported many of these actions. There have also been admirable schemes to boost local content for OGP operations and investments, such as prior registry of local businesses, limited advisory services, and support for training programs.

To assess quantitatively the local content potential, DAI has developed a model approach to obtain estimates of the opportunities associated with OGP investments and operations under different assumptions regarding efforts to support and develop local capacities. The initial version of this Tangha model was developed for a planned investment in liquefied natural gas facilities in Tanzania, and has been completely redesigned to respond to the geographic and operational requirements for Ghana's Western Region. The model structure is described in detail in Appendix 1 of this report. The discussion here focuses on selected preliminary findings.

GENERATING ESTIMATES OF LOCAL CONTENT

The Tangha model seeks to estimate the impact of OGP investments and operations on the local economy—the degree to which local businesses and workers can provide needed goods and services. Demand—what is needed for completing an investment project or operating oil and gas production—and supply—the local capacity to deliver the required goods and services—are not known with certainty. To cope with that uncertainty, the model establishes a causal chain from OGP investments and operations to measures describing economic progress at the local level. It transforms a series of assumptions about the structure of demand, and of local capacities for local businesses and workers to estimates of local added value, employment, subcontracts, and goods procured locally.

Projected OGP investments and operations spending drive the analysis. Investments typically offer more attractive opportunities for local businesses and workers; operations require fewer local suppliers and workers, but provide a more sustainable source of demand.

The model uses slightly different approaches for OGP investments and operations. In both cases, it breaks down the total spending by component. For example, for investments the components might include civil works/site preparation, concrete works, piping systems, etc. For a given level of total investment, the spending by component is estimated by applying a percentage breakdown. The next step is to define for each component a series of subcomponents that should correspond more closely to individual value chains, such as concrete pouring. Total spending for each subcomponent again is obtained by using a percentage breakdown.

A series of assumptions is then required for each subcomponent. First is the spending pattern over time. These assumptions will largely reflect interdependencies among activities. For example, pipe insulation

requires that pipe installation is completed. Other assumptions concern the allocation of spending between employment and goods procurement, with the latter broken down by imports versus local procurement. Other assumptions reflect judgments about local capacities—the degree to which each subcomponent involves local subcontracts, either directly or as part of joint bids with international suppliers, and the distribution of total employment between local and expatriate labor by major skill category.

The model specification for operations differs slightly. The main difference concerns the possibility that local capacities may evolve over time.[54]

PRELIMINARY FINDINGS

A CAVEAT

To get the analytical process started, the Tangha model was applied to a series of OGP investment and operations projects. The focus of the work on the quantitative model(s) used for the appraisal of the likely impact of OGP investments and operations on the local economy has been on ensuring internal consistency and streamlining the actual programming, which will make it easier for future modifications. For the initial round, the parameter estimates reflect broad industry experience, and should be seen as a first approximation. It is conceivable that they do not reflect Ghanaian reality.

The interpretation of the preliminary findings should therefore keep in mind the continuing process of refining these assumptions. WRCF is planning to validate parameter assumptions with OGP representatives, as well as other stakeholders. That continuing validation process will ensure that the cases analysed are more representative of the on-the-ground situation in Ghana.

PROJECTS ANALYSED

Trying to analyze the implications of OGP investments (and subsequently operations) in a dynamic environment resembles at best a snapshot of a moving train. Some investment projects have been completed, and operations have been under way for some time, others are in mid-stream, and others are scheduled for some point in the future. The initial analysis round included only investments that are already in progress. Any projects scheduled for some future date require further analysis and have not been considered in the initial analysis. Table 3 summarises the investment projects that have been examined to date. The analysis period starts in 2015; any activities before that date have not been considered.

TABLE 3: INVESTMENT PROJECTS ANALYSED

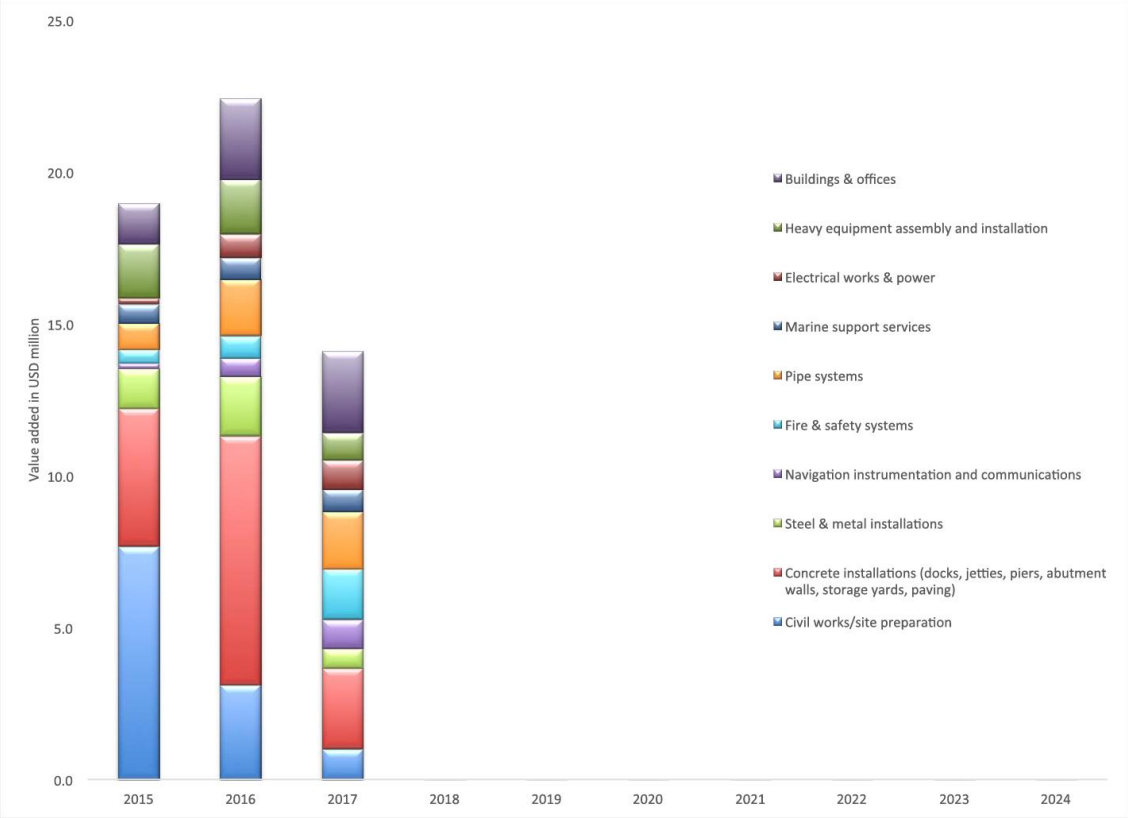
Project	Total Investment in US$ Million	Start Date	End Date
TEN oilfield	5,200	2013	2019
Mahogany, Teak, and Akasa (MTA)/ Offshore Cape Three Points (OCTP) oilfield	6,500	2013	2018
Atuabo gas processing plant	1,000	2012	2015
Atuabo Free Port	624	2014	2016
Takoradi-Sekondi port expansion	400	2013	2018

Source: Various; the dates and projected investment amounts have been validated in discussions with OGP representatives.

Operations include the oilfields, pipelines, and construction of ports and plants, as shown in Table 4. The assessment focuses on the period until 2025.

[54] For the limited time horizon for OGP investments, it is reasonable that local capabilities will remain constant.

TABLE 4: OGP OPERATIONS ANALYSED



PRELIMINARY RESULTS FOR THE INVESTMENT ANALYSIS

The Tangha model is designed to trace the contributions of investment projects to annual GDP (the added value generated) and local employment, measured in full-time equivalents on a monthly basis. Given the focus on the composition of investments, the model traces these impacts at the level of the components.

Two examples may be sufficient to illustrate the outputs of the model for the investment analysis—the Atuabo Free Port and the MTA oilfield development. Figures 10 and 11 show the estimated contribution of the investment in the Atuabo Free Port by component, and the average monthly employment by year. The charts appear somewhat unbalanced because the entire forecasting period for the Tangha model is the period 2015 until 2024.

FIGURE 11: ANNUAL DOMESTIC ADDED VALUE FOR ATUABO FREE PORT INVESTMENT

Project	Start Date	End Date

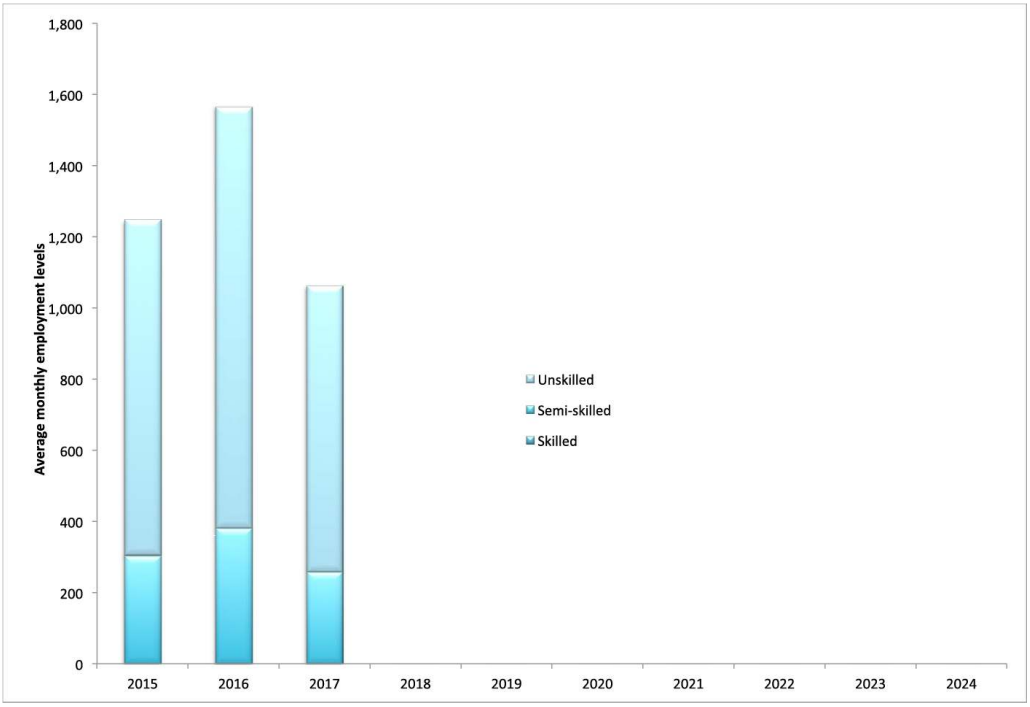
Jubilee oilfield	2011	2025
TEN oilfield	2016	2025
MTA/OCTP	2016	2025
Atuabo gas processing plant	2012	2025
Atuabo Free Port	2017	2025
Takoradi-Sekondi port expansion	2015	2025
Pipeline 1: Jubilee->Atuabo	2015	2025
Pipeline 2: Atuabo->Takoradi	2015	2025

Source: Tangha model calculations; parameters—various sources.

For clarity, the components shown are (corresponding from the bottom of the chart up):

- Civil works/site preparation.
- Concrete installations (docks, jetties, piers, abutment walls, storage yards, paving).
- Steel and metal installations.
- Navigation instrumentation and communications.
- Fire and safety systems.
- Pipe systems.
- Marine support services.
- Electrical works and power.
- Heavy equipment assembly and installation.
- Buildings and offices.

FIGURE 12: MONTHLY LOCAL EMPLOYMENT FOR ATUABO FREE PORT INVESTMENT



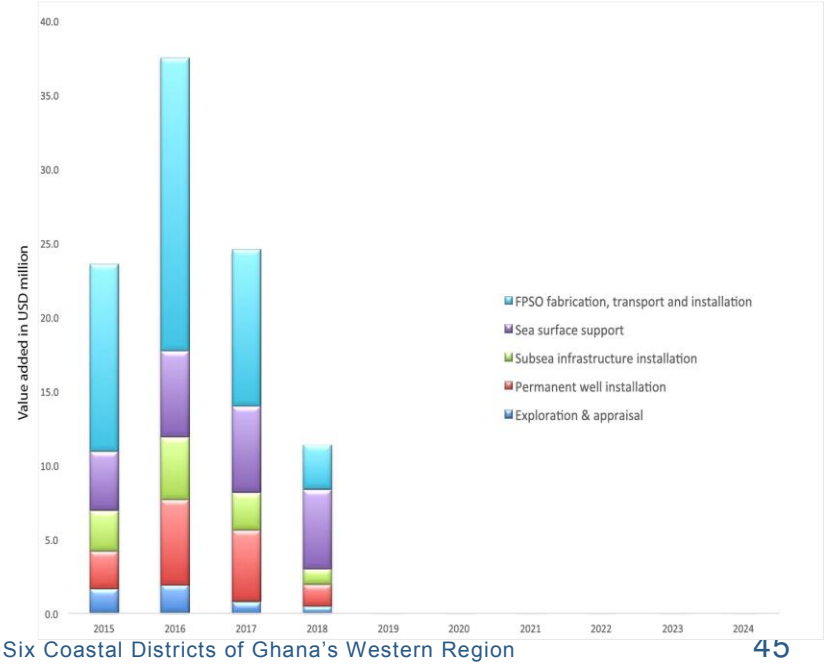
Source: Tangha model with preliminary parameter specifications.

Using our best available data and sets of assumptions, civil works and concrete installations account for the most of the domestic added value in the first two years, with civil works leading in year 1 and concrete installations dominating year 2. Under current assumptions, local businesses and workers would contribute US$7.5 million for earthworks in year 1 and for concrete works in year 2. For the parameters specified, the contribution to Ghana's GDP reaches around US$22.4 million out of a total investment of US$624 million, or about 4 percent. As discussed above, the investment may also involve local purchase of goods and services, some of which will contribute to domestic GDP. In years 2 and 3, construction of buildings and offices would contribute somewhere around US$3 million to the region's GDP.

With respect to employment impacts, the assumption is that skilled workers are likely to be all expatriates. The results of the model calculations shown in Figure 11 suggest that the major impact on local employment will fall on unskilled workers. In the second year, total monthly employment of local workers is projected to exceed 1,500 full-time equivalent workers in the semi-skilled and unskilled categories. The translation of the funds earmarked for payroll into employment levels depends on not only the estimated composition of the workforce, but also the relative wages among different labor categories. These are the key parameters that need to be analysed further and validated by OGP representatives.

The results for the planned expansion of the Sekondi-Takoradi port show a

FIGURE 13: ESTIMATED ECONOMIC IMPACTS OF MTA OILFIELD INVESTMENT



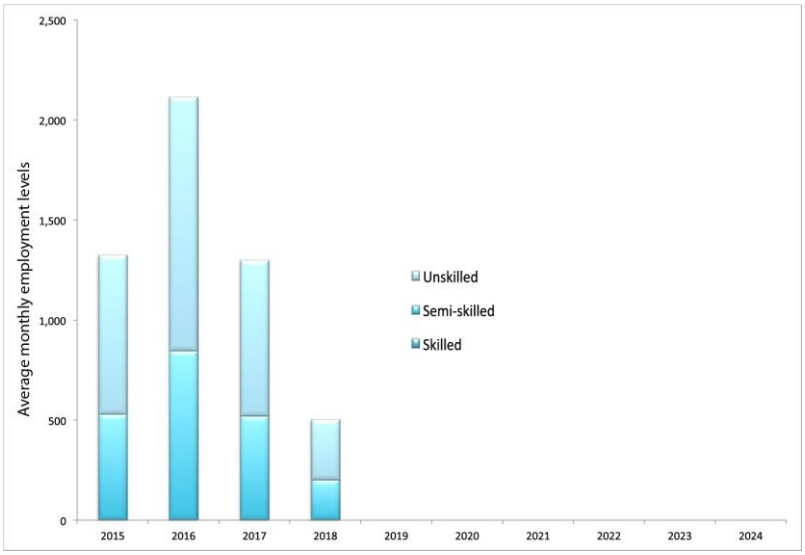
Source: Tangha model with preliminary parameter specifications.

similar pattern. In fact, the preliminary assumptions for these two cases resemble each other, but the projected investment for the port expansion corresponds to 61.4 percent of the one for the Atuabo Free Port. The results for the Atuabo gas processing plant resemble those for the two port projects.

The pattern is different for the oilfield development projects, MTA and TEN. Figure 13 summarises the projected contribution to regional GDP (or added value) for the MTA oilfield investment. In this case, we only have five components that account for the total investment:

- Exploration and appraisal.
- Permanent well installation.
- Subsea infrastructure installation.
- Sea surface support.
- Floating production storage and offloading (FPSO) fabrication, transport, and installation.

FIGURE 14: MONTHLY LOCAL EMPLOYMENT FOR MTA OILFIELD INVESTMENT



Source: Tangha model with preliminary parameter specifications.

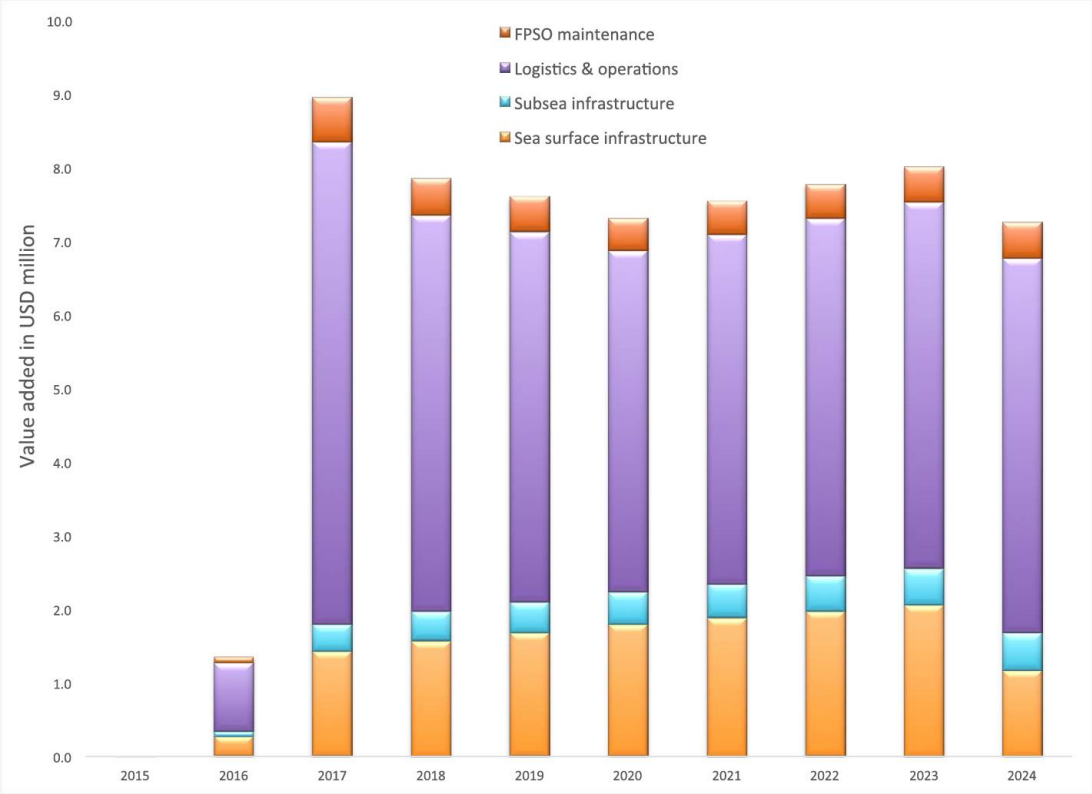
The major contributor is the FPSO fabrication, transport, and installation, which is assumed to claim 55 percent of the remaining US$4.9 billion investment to develop the MTA oilfield. Since the total investment for the MTA oilfield development is estimated at US$6.5 billion, even a small rate of participation is projected to have a significant impact on the local economy. In year 2 (2016), our preliminary assumptions imply a contribution to domestic added value (GDP) of US$20 million from the FPSO fabrication, transport, and installation alone. Much of that may be attributable to local subcontracts for some of the functions. Under the preliminary assumptions, total local employment in year 2 would exceed 2,100 workers per month (a proxy for the number of jobs created) in the semi-skilled and unskilled categories. Again, the current situation of the Ghanaian labor market suggests that virtually all of the skilled workers are expatriates. The analysis for the TEN oilfield development produces very similar results, although the projected investment amounts to 80 percent of that for the MTA oilfield.

Illustrative Results for the Operations Analysis

Figure 15 illustrates the type of results that the analysis of OGP operations can provide. Over the period considered here, the total domestic added value as a result of local hires and local subcontracts from the operation of the TEN oilfield hovers around US$8 million, which would constitute a contribution to the regional GDP. The components are as follows:

- Sea surface infrastructure.
- Subsea infrastructure.
- Logistics and operations.
- FPSO maintenance.

FIGURE 15: PROJECTED ADDED VALUE IMPACTS FOR TEN OILFIELD OPERATIONS



Source: Tangha model with preliminary parameter specifications.

The major impact projected on the basis of our initial assumptions is associated with logistics and operations, where industry practice suggests the greatest opportunities for local businesses to participate. This category includes transport for both passengers and freight, as well as catering, security, cleaning, and other services. The pattern over time reflects assumptions about an assumed ability to "learn by doing." As local companies and workers become more familiar with the requirements of the OGP market, the likelihood of participation increases. These assumptions therefore imply some gains in terms of local procurement of goods and subcontracts over time. The impact of these assumptions is reflected in the patterns shown in Figure 14, where local businesses capture a growing share of the total activity pattern (which is actually projected to decline over time). Local employment is projected to stabilise at a total of around 115 workers per month (proxy for the number of jobs created), divided just about equally between the semi-skilled and unskilled categories. That level represents a relatively small effect.

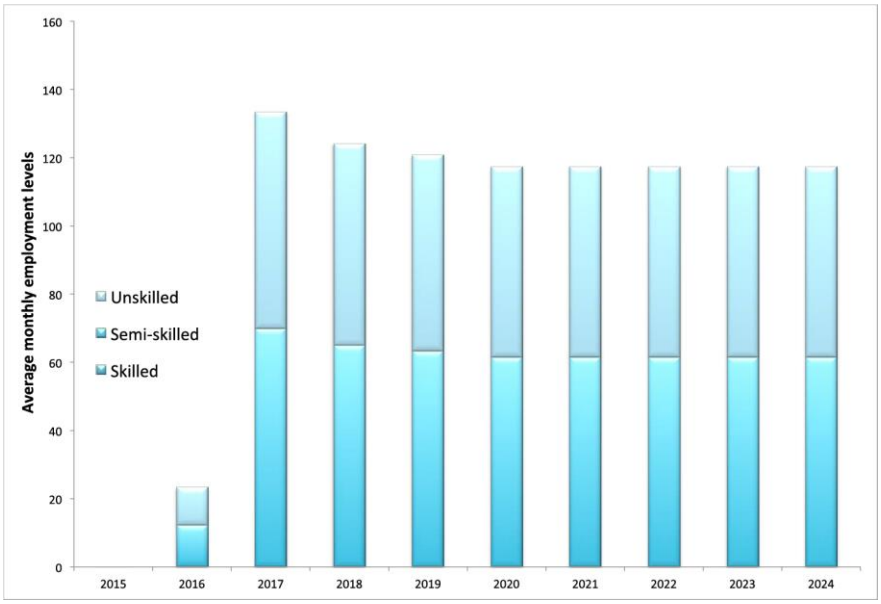
The preliminary analysis suggests that opportunities for local businesses and workers are likely to vary according to the nature of the investment and operations projects. In the case of port development/ expansion and the construction of downstream facilities, like the Atuabo gas processing plant, major opportunities exist in the area of civil works and associated services, and in the area of concrete works. There may be other opportunities, but they are relatively minor and fleeting. In contrast, the opportunities with respect to OGP operations are likely to be concentrated in logistics and operations, including transport and logistics and service industries, like catering.

NEXT STEPS

: PROJECTED EMPLOYMENT IMPACTS FOR TEN OILFIELD OPERATIONS

The intent of this modeling exercise was to create a tool that would look at the sources of added value and employment contributions associated with OGP investments and operations. The current model specification and calibration allows for this source assessment. In addition, the model could also help identify major skill gaps across all OGP activities to inform training priorities. In other words, it would help to identify (potential) demand for semi-skilled workers across all OGP projects. For that, the decomposition for all projects needs to work with the same component categories. Our examples suggest that the definition of components (and subcomponents) follows more the specifics of the overall project. Only a few model runs share the same component nomenclature. While the analysis so far has helped in identifying certain value chains for targeted support, the further application of the model in a continuing reassessment of priority value chains will depend on a better link between (sub)components and value chains.

FIGURE 16: PROJECTED EMPLOYMENT IMPACTS FOR TEN OILFIELD OPERATIONS



Source: Tangha model with preliminary parameter specifications.

Thus, four major tasks remain: 1) Review the component categories across projects to determine if it may be possible to establish a common set for all projects, perhaps separately for investments and operations; 2) Validate the quantitative assumptions with OGP representatives to establish a firmer foundation for the policy and programmatic implications of the analysis; 3) Ensure internal consistency between local subcontracts and local employment; and 4) Continue to identify opportunities for improving local content associated with OGP investments and operations.

SELECTING TARGET VALUE CHAINS

Given the rationale for the selection of target value chains, the overall process, and the more detailed analysis of the opportunities associated with OGP investments and operations, we proceeded to the actual selection of target value chains. The first step was the identification of candidate value chains.

CANDIDATE VALUE CHAINS

To develop a list of candidate value chains, the WRCF team drew on the findings of the review of the regional economy in combination with the preliminary findings of the Tangha model. The analysis of Ghana's exports also highlighted potential candidates for inclusion. In addition, the team consulted stakeholders in the regional economy. The resulting list of candidate value chains is shown in Table 5. As discussed above, the initial screening used a method of ranking the likely performance of each of the candidate value chains against a set of criteria, the CAM.

TABLE 5: CANDIDATE VALUE CHAINS

Agriculture and Agribusiness	Industrial Products	Construction Related	Miscellaneous Services	Hospitality Services	Support Services
Cocoa and cocoa processing	Chemical products	Construction materials (cement, aggregate)	Transport services (freight)	Tourism	Grounds services
Fish, fresh and frozen	Steel and iron products	Transport infrastructure construction	Transport services (passengers)	Catering	Water and sewage treatment
Cassava	Aluminum products	Building construction	Transport services (marine)		Solid waste disposal
Nuts	Rubber and rubber products	Concrete works	Electrical services (including HVAC)		
Oil seeds and palm oil	Machinery (mechanical)	Heavy equipment leasing	Ship building and repair		
Dairy products (including eggs)	Machinery (electric)	Engineering services	Oil rig construction and repair		
Fruits and vegetables	Measurement instruments		Business services (accounting, legal)		
Meat and meat products			Banking and financial services		
Food crops (except cassava)			Information technology installation and repair		
Wood and wood products			Temporary employment services		
Beverages					

COMPETITIVENESS APPRAISAL MATRIX (CAM)

The next step is the appraisal of these candidate value chains according to a number of criteria referring to their potential impact on socioeconomic development, summarised in the CAM. The emphasis on the future means that even if empirical data were available—and typically they are not—the appraisal rests on projections. Following industry practice, the process calls for assigning scores to each of the selected criteria on a scale of 1 to 7. These scores are then summarised in a weighted average that determines the overall ranking of the particular value chain.

The WRCF has chosen the following criteria for this appraisal step:

- **Recent performance:** While the appraisal is based on expected future performance, past performance can provide some guidance. The following categories are considered:
  - Exports (to one of the three end markets).
  - Employment (a measure of scale).
  - Productivity (a major determinant of competitiveness).
  - Investment dynamics.
- **Economic performance prospects:** In the quest for creating economic opportunity, these criteria matter most. The individual criteria mirror those for past performance:
  - Exports (to one of the three end markets).
  - Employment (a measure of scale).
  - Productivity (a major determinant of competitiveness).

- Investment dynamics.

- **Socioeconomic impacts:** The foundation's mandate extends beyond the creation of economic opportunity, stressing the overall socioeconomic development of the six coastal districts. This part of the appraisal therefore focuses on the following expected impacts:
  - Vulnerable groups (effects on youth or marginalised segments of the population.
  - Forward/backward linkages (to other parts of the local economy).
  - Spillover effects (demonstration and other side effects of accelerated growth for the targeted value chain).
  - Environmental sustainability (a measure of the environmental risk associated with accelerated growth).

The results of an initial appraisal process are summarised in Table 6.

TABLE 6: COMPETITIVENESS APPRAISAL MATRIX (CAM)

		Recent economic performance	Exports (to three end markets)	Employment	Productivity	Investment dynamics	Economic performance prospects	Exports (to three end markets)	Employment	Productivity	Investment	Socioeconomic impact	Vulnerable groups	Forward/backward linkages	Spillover effects	Environmental sustainability	
	Weights	20.0%	5.0%	5.0%	5.0%	5.0%	45.0%	10.0%	15.0%	10.0%	10.0%	35.0%	10.0%	10.0%	5.0%	10.0%	100.0%
Agriculture and agribusiness																	
1	Cocoa & cocoa processing	5.0	7	6	4	3	4.2	5	4	4	4	2.9	4	2	2	3	3.9
2	Frish, fresh & frozen	2.8	2	4	3	2	3.6	4	4	3	3	3.4	5	4	2	2	3.4
3	Cassava	3.5	5	7	1	1	4.6	6	7	2	2	2.7	4	1	1	4	3.7
4	Nuts	3.8	6	4	2	3	4.1	6	5	3	2	2.6	3	2	2	3	3.5
5	Oils seeds and palm oil	2.3	3	3	2	1	2.8	4	3	2	2	2.3	1	2	2	4	2.5
6	Dairy products (including eggs)	2.0	1	3	2	2	2.6	3	3	2	2	2.3	3	2	2	2	2.4
7	Fruits & vegetables	2.5	2	3	2	3	2.8	2	3	3	3	3.6	5	4	3	2	3.0
8	Meat and meat products	2.5	1	3	3	3	2.8	2	3	3	3	3.0	3	3	3	3	2.8
9	Food crops (other than cassava)	1.8	1	3	1	2	3.1	2	4	2	4	2.9	5	1	2	3	2.8
10	Wood & wood products	3.0	4	3	3	2	4.0	5	4	4	3	3.1	3	4	4	2	3.5
11	Beverages	2.3	2	2	3	2	3.2	4	3	3	3	2.6	2	3	2	3	2.8
Industrial products																	
12	Chemical products	3.8	5	2	4	4	3.6	5	2	4	4	2.9	1	4	4	3	3.4
13	Steel & iron products	3.0	4	2	3	3	2.9	4	2	3	3	3.0	1	5	3	3	3.0
14	Aluminum products	4.5	4	3	5	6	5.1	6	4	5	6	2.7	1	4	3	3	4.2
15	Rubber & rubber products	4.0	5	3	4	4	3.9	5	3	4	4	2.9	2	4	2	3	3.6
16	Machinery (mechanical)	3.0	4	2	3	3	3.4	4	3	3	4	3.0	1	5	3	3	3.2
17	Machinery (electric)	3.0	4	2	4	2	3.7	5	3	4	3	2.7	1	3	3	4	3.2
18	Measurement instruments	2.8	4	1	4	2	3.0	5	1	4	3	2.6	1	3	2	4	2.8
Construction related																	
19	Construction materials (cement, aggregate)	4.3	2	3	5	7	3.9	2	3	5	6	3.0	1	6	3	2	3.7
20	Transportation infrastructure construction	4.0	2	5	3	6	4.3	3	5	3	6	5.0	5	7	3	4	4.5
21	Building construction	3.5	2	4	3	5	3.8	3	4	3	5	3.6	4	3	3	4	3.7
22	Concrete works	3.0	2	3	3	4	3.2	3	3	3	4	3.7	2	5	4	4	3.4
23	Heavy equipment leasing, rental, repair	3.5	2	2	5	5	3.0	3	3	3	3	2.3	1	3	2	3	2.9
24	Engineering services	3.5	3	2	4	5	3.4	4	3	4	3	4.0	2	5	6	4	3.7
Miscellaneous services																	
25	Transport services (freight)	2.8	2	2	4	3	3.1	3	2	4	4	3.1	5	2	2	3	3.1
26	Transport services (passengers)	3.3	2	2	4	5	3.1	3	2	4	4	3.6	5	3	3	3	3.3
27	Transport services (marine)	2.8	3	1	4	3	3.1	4	2	4	3	4.4	4	5	5	4	3.5
28	Electrical services (including HVAC)	2.8	3	1	4	3	3.3	4	2	5	3	4.1	4	4	5	4	3.5
29	Ship building & repair	2.5	1	2	3	4	3.6	3	2	5	5	4.3	4	4	6	4	3.6
30	Oil rig construction & repair	2.8	2	2	3	4	3.8	4	2	5	5	3.4	4	3	4	3	3.5
31	Business services (legal, accounting)	3.3	2	2	5	4	3.3	3	2	5	4	3.0	2	3	3	4	3.2
32	Banking & financial services	3.5	3	2	5	4	3.6	4	2	6	3	3.4	2	4	4	4	3.5
33	ICT installation & repair	3.3	3	2	5	3	3.8	4	2	6	4	4.6	3	6	6	4	4.0
34	Temporary employment services	3.0	3	1	5	3	3.7	5	1	5	5	2.3	1	2	2	4	3.1
Hospitality services																	
35	Tourism	3.3	3	3	4	3	4.4	5	4	5	4	5.1	6	6	4	4	4.5
36	Catering	4.0	4	2	5	5	4.4	5	2	6	6	5.1	6	6	4	4	4.6
Support services																	
37	Grounds services (security, landscaping, etc)	3.3	3	1	5	4	3.6	3	2	5	5	3.3	6	1	1	4	3.4
38	Water & sewage treatment	2.5	2	1	4	3	2.8	3	1	4	4	3.6	6	1	1	5	3.0
39	Solid waste disposal	2.3	2	1	3	3	3.0	3	1	4	5	3.6	6	1	1	5	3.1

PARTICIPATORY APPROACH TO SELECTING THE FINALISTS

To encourage participation and ownership of the results, the selection of the 10 (or so) finalists stressed the involvement of stakeholders in screening the candidate value chains. The WRCF organised a workshop, held on April 14, 2015, in Takoradi. Some 50 stakeholders from different sectors participated in the initial appraisal of the candidate value chains and the selection of finalists. Using the CAM, the workshop participants ranked the value chains with respect to their potential contribution to the socioeconomic development of the region. As described above, these value chain finalists were then subjected to further analysis to justify the selection of the five value chains targeted for support by the WRCF and its partners.

The participatory approach to the selection of the finalists resulted in the rankings shown in Table 7, which includes both the top 10 and the next set of 10.

TABLE 7: TOP 20 VALUE CHAINS SELECTED BY WORKSHOP PARTICIPANTS

Top 10 Value Chains	Value Chains Placed 11 Through 20
Rubber and rubber products	Heavy equipment leasing, rental, and repair
Cocoa and cocoa processing	Fruits and vegetables
Oil seeds and palm oil	Construction materials (cement, aggregate)
Fish, fresh and frozen	Electrical services
Cassava	Tourism
Nuts	Dairy products (including eggs)
Transport services (passengers)	Grounds services (security, landscaping, etc.)
Food crops (except cassava)	Catering
Aluminum products	Building construction
Freight transport and logistics	Concrete works

These rankings formed the basis for additional screening according to the likely effect of support efforts coordinated by the WRCF, or the contribution to the needed diversification of the local economies. On that basis, the 10 finalists selected for further analysis are shown in Table 8. The objective of this analysis was to substantiate the selection of five value chains that promise the greatest contribution to the socioeconomic development goals for the region. The "shallow dive" analysis (or rapid appraisal) of the finalists included a preliminary value chain mapping, a more detailed appraisal of structure and dynamics of end markets, in particular the competitiveness of the value chain, and an assessment of current constraints that undermine competitiveness.

TABLE 8: VALUE CHAIN FINALISTS

Oils seeds and palm oil
Fish, fresh and frozen
Food crops (except cassava)
Freight transport and logistics
Cassava
Tourism
Catering
Fruits and vegetables
Electrical services
Heavy equipment leasing, rental, and repairs

To put this step into the broader context of value chain selection, we can picture the process as shown in Figure 1. The participatory ranking of the candidate value chains, along with additional criteria, resulted in the selection of 10 value chains. The selection process then moved to a more detailed, yet still fairly broad appraisal of the 10 finalists. As illustrated in Figure 1, the screening involved a more careful analysis of the market structure and dynamics, the assessment of constraints on the competitive performance of the value chains, and an appraisal of the upgrading potential, that is, the likely ability of the value chain to overcome the identified constraints. This "shallow dive" analysis (or rapid appraisal) was then used to justify the selection of the target value chains. Action plans for improving the competitiveness of these value chains will build on the insights gathered in earlier selection steps, but will demand a more precise assessment of market structure, constraints, and upgrading paths. That "deep dive" analysis is expected to form the basis of efforts guided and coordinated by the WRCF.

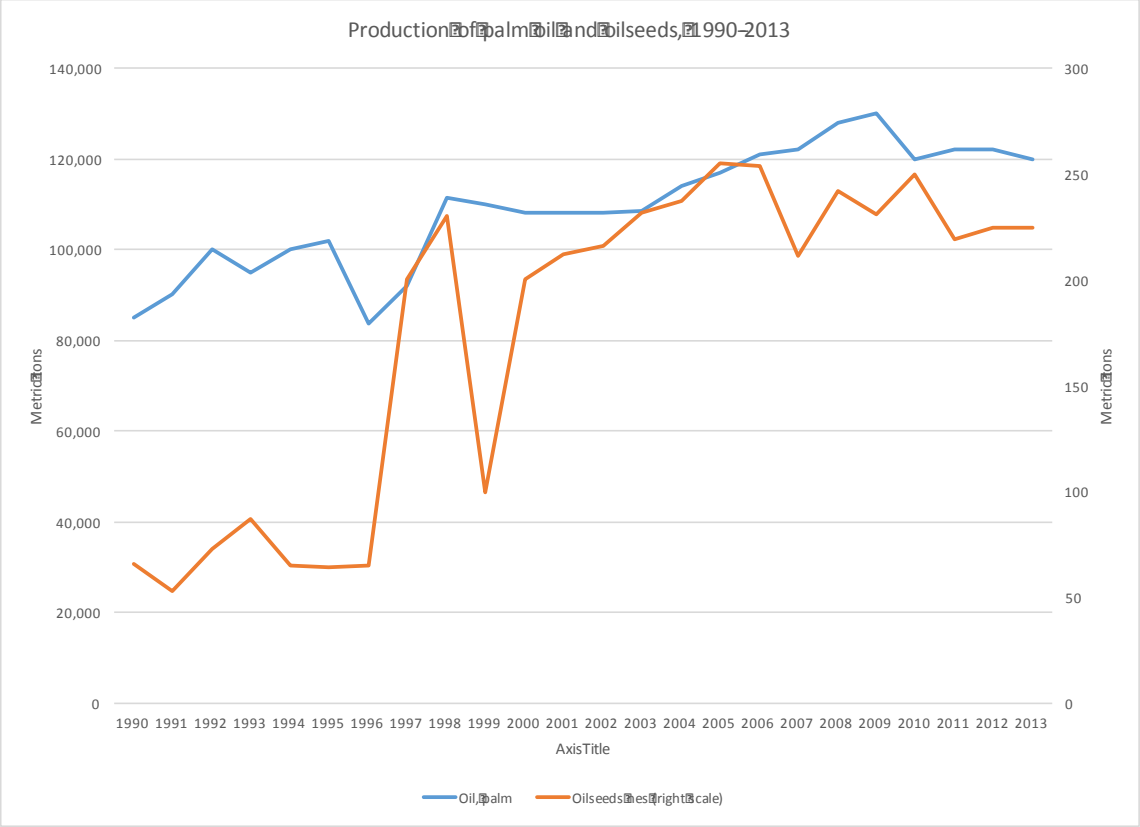
RAPID APPRAISAL OF VALUE CHAIN FINALISTS

OIL SEEDS AND PALM OIL

End markets: According to FAO data, shown in Figure 17, palm oil production has remained fairly stable over the past few years at around 120,000 MT. In 2014, Ghana exported roughly 57,000 MT of

palm oil (HS 1511), mostly to neighboring countries. It also exported 25,422 MT of coconut oil, more than half of that to India, followed by Spain and Norway.[55] Demand for coconut products, including coconut oil, has sharply increased[56] as their nutritional and cosmetic benefits become more popular. Coconut and palm oils are used both for cooking and manufacturing of various products. According to the DFID-funded ENGINE project, more young entrepreneurs in Ghana are entering the natural cosmetic products manufacturing and sales market. Increased local, regional, and global demand for coconut and palm oils are immediate potential end markets.[57]

FIGURE 17: PRODUCTION OF PALM OIL AND OIL SEEDS



Source: FAOSTAT.

Governance: A mix of large firms and individual smallholder farmers cultivate and process oil seeds and palm oil in the Western Region. Processing firms range from small (less than 5 MT/year) to large (20+ MT/year). Data on separate production volume totals for smallholder farmers and firms are currently not available. Certain areas in Nzema East District have smallholder farmer cooperatives. It is not clear if export-oriented oil processors must comply with uniform standards for processed oil quality.

Major competitiveness constraints: The rapid appraisal has identified three major constraints to the improved competitiveness of the palm and oil seeds value chain:

[55] Source: Global Trade Atlas, Ghana Statistical Service.

[56] Source: http://www.theguardian.com/commentisfree/2014/sep/24/coconut-oil-teff-and-quinoa-increased-superfoods-demand-hits-the-south-in-the-guts.

[57] Source: http://www.fao.org/fileadmin/templates/rap/files/meetings/2013/131030-market.pdf.

- *Lack of access to finance*— participants in the value chain lack adequate collateral and have an inconsistent banking/credit history; these weaknesses restrict their access to SME financing needed to upgrade their economic activities.
- *Poor infrastructure*—inadequate infrastructure (roads, storage facilities, communications) hinders the smooth interactions among market actors required to enhance livelihoods.
- *Deficiencies in production and processing*—low yields and outdated processing practices undermine competitiveness for the value chain.

Upgrading potential: Any upgrading effort is likely to focus on efficiency and productivity in the value chain. Depending on the structure of exports and the competitive position of Ghana's exporters, upgrading activities are likely to focus on specific constraints.

Potential pro-poor impact of upgrading: Most smallholder farmers are poor and live in rural communities. They tend to use inefficient cultivation and processing methods that result in low yields. Designing interventions in the form of extension services and better processing techniques therefore have the potential to impact incomes for a large number of producers in this value chain.

FISH, FRESH AND FROZEN

End markets: Fish is the main source of animal protein for most Ghanaians and is therefore critical for food security. The fisheries sector constitutes 7 percent of Ghana's GDP and employs 10 percent of the Ghanaian labor force. Ghanaians consume on average 25 kg of fish per person per year, well above the global average of 13 kg per person per year. In terms of nutritional dependency on fish, Ghana ranks sixth worldwide after the Maldives, Cambodia, Vietnam, Thailand, and Bangladesh and ranks number one in Africa. Unfortunately, in recent years, Ghana has been experiencing shrinking harvests in its capture fisheries, particularly of small pelagics mainly sardinella, a sardine-like species that constitutes the backbone of the country's fishery.

Official national statistics indicate a 30 percent decline in wild-capture fisheries from a high of 492,776 MT in 1999 to 333,524 MT in 2011. In 2012, the overall annual fish requirement was estimated at 968,000 MT,[58] but only about 455,700 MT from the marine and inland fisheries was produced, leaving a deficit of more than 500,000 MT. To make up for this shortfall, 175,341 MT of fish was imported, still leaving a large deficit in supply. Aquaculture's contribution to fish supply in the country in 2012 totaled only about 26,000 MT. The principal end market for any upgrading of this value chain is therefore domestic demand.

The need to develop and grow fish production through aquaculture for food security, employment, and income generation is paramount. Despite these benefits, very few Ghanaians are involved in the fish farming enterprise, perhaps due to the perception of high upfront capital costs, low technical knowledge, or the lack of knowledge on its economic viability. Official statistics from the 2010 Ghana Housing and Population Census indicate that only 0.22 percent of the Ghanaian population is involved in fish farming as an agricultural activity.[59] Fish farmers produce primarily for local consumption.

Governance: Marine fishermen in the six coastal districts of the Western Region are loosely clustered at key locations (e.g., Sekondi, Axim, etc.), with some governing structures, usually headed by a "Chief Fisherman." Technical assistance, fuel distribution, standards, regulations, and compliance issues targeted at local fishermen are mostly channeled through these clustered groups.

Major competitiveness constraints: Many of the competitiveness constraints faced by participants in the fisheries are the same as for others, but some reflect the particular nature of the activity:

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[58] Source: http://mofa.gov.gh/site/?page_id=2862.

[59] Source: http://meridianseedsgh.com/ucc-signs-contract-with-sdf-to-establish-a-fish-farming-training-centre-of-excellence-in-ghana-a-novel-public-private-partnership-project-for-aquaculture-development.

- *Seasonality of fish catch*—seasonal fluctuations in marine fish catches affect incomes; some fishermen resort to overfishing or catching smaller fish to make up for income fluctuations, contributing to a depletion of fish stock.
- *Lack of access to finance*—participants in the value chain lack adequate collateral and have an inconsistent banking/credit history; these weaknesses restrict their access to SME financing needed to upgrade their economic activities.
- *Insufficient transportation, cold storage, and processing capacities*—infrastructure weaknesses, in particular the lack of an efficient and reliable cold chain, result in larger-than-acceptable post-harvest losses, affecting fishermen's incomes.
- *Market price volatility*—fluctuations in market prices attributable to the lack of real-time market information undermine the income potential of fishermen.

Upgrading potential: Much of the reduction in catch is due to overfishing, along with pollution. Recovery of fish stocks will take time. Some potential exists in upgrading the fishing fleet, but that would also entail a restructuring of the value chain. Another option is the expansion of aquaculture, which may require efforts to reduce pollution from illegal small-scale gold mining.

Potential pro-poor impact of upgrading: Marine fishing and processing is a key livelihood source for a majority of the communities close to the shores of the six coastal districts in the Western Region. Most of the participants in this value chain are poor. Considering the huge national demand for fish, designing interventions to unlock the potential of the value chain will likely impact a large number of poor actors.

Food Crops (Other Than Cassava)

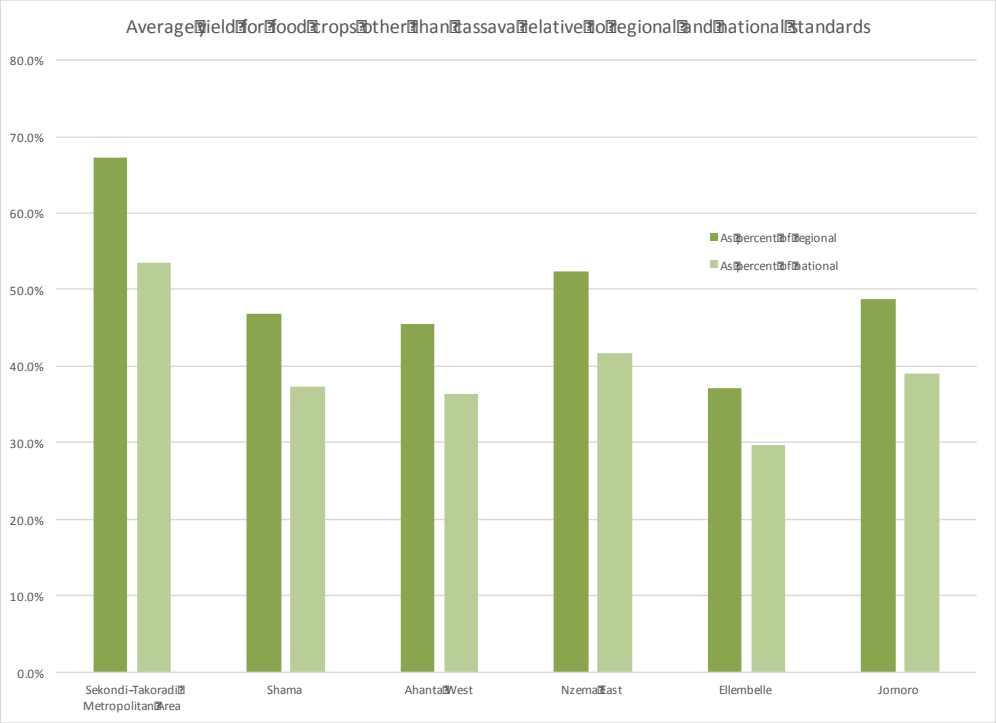
End markets: According to the Regional Directorate of the Ministry of Food and Agriculture, food crops produced in the region are mostly consumed within the region. There was a slight surplus last year of plantain and cocoyam and a production deficit in maize, yam, and rice. This, however, did not affect the availability of food staples at local markets because there were imports from other regions, particularly Ashanti and Brong Ahafo.[60]

Governance: Most farmers are independent and do not belong to recognised cooperatives. There are no known organised structures in this value chain. Individual producers either directly retail their produce or sell to retailers and wholesalers.

Major constraints to competitiveness: Available data suggest that the efficiency in the production of food crops other than cassava lags significantly behind the regional and national averages. Figure 18 illustrates this pattern. With the exception of the STMA, which is not a major producer, the yield (in MT/ha) for all other districts hovers around 50 percent of the regional number. Relative to the national average yield, yield in the districts other than Sekondi-Takoradi tends to be less than 40 percent of the national average.

[60] Source: Ministry of Food and Agriculture, Western Region.

FIGURE 18: YIELD FOR FOOD CROPS OTHER THAN CASSAVA RELATIVE TO REGIONAL AND NATIONAL AVERAGES



Source: Ghana Statistics Service; authors' calculations.

There may be a number of explanations for these gaps, including climatic and soil conditions, but inefficient farming practices are likely to play a role. However, as the brief analysis of agriculture above suggests, the cultivation of these food crops pales in comparison to cassava. While the observed gaps may suggest an opportunity, the impact on livelihoods may be limited, given the prevailing cultivation patterns.

Other constraints on competitiveness include:

- *Disorganised input supply system*—input supplies are not regulated, resulting in some farmers using inferior inputs that give much lower yields.
- *Lack of access to finance*—as in other value chains, lack of adequate collateral and inconsistent banking/credit history result in actors not getting access to SME financing needed to upgrade their economic activities.
- *Weak infrastructure*—deteriorating or nonexistent infrastructure (roads, storage, etc.) hinders the smooth interactions among market actors required to enhance livelihoods.

Upgrading potential: The gaps in production efficiency (yield in MT/ha) suggest that efforts to improve farming practices could have a significant impact, at least in relative terms. However, since the production of other food crops is minor relative to the production of cassava, the overall impact may be limited.

Potential pro-poor impact: Large numbers of subsistence and smallholder farmers are poor. The challenge is these farmers, working independently, are spread over a wide area without organised structures. Further, most of the farmers grow a mix of crops. The scope and length of interventions required to achieve positive impact exceeds resources and project life. Moreover, prevailing cultivation patterns suggest limited impacts on the livelihoods of the farmers.

TRANSPORT AND LOGISTICS

End markets: OGP investments and operations require mostly specialised transportation and logistical services (air, land, and sea). Other mining companies also require heavy truck transportation and logistics services between their mine sites and the Takoradi port. So do agricultural commodities (cocoa, rubber, etc.) export companies. Because of the history of mining and agricultural exports, that market appears in equilibrium or near equilibrium. The advent of oil and gas development and production brought in many transportation and logistics players, apparently more than making up for the increase in demand. However, weaknesses in transport and logistics remain an impediment to economic exchange and growth. The WRCF team will therefore examine this value chain in greater detail to identify additional opportunities for local companies to exploit.

Governance: The transportation and logistics sector in the Western Region seems to be made up of largely independent companies and operators. The companies vary in size and the bigger players with longer tenure appear to own a bigger share of the market.

Constraints on competitiveness: While the supply appears to have increased to meet demand, the major bottlenecks in this area may well be the inadequate transport infrastructure that adds to the costs and delays undermining competitiveness for users. In addition, the rapid appraisal suggests the following constraints:

- *Weak management capacity*—technical knowledge on practices that would ensure business effectiveness and efficient resource management are generally lacking as most managers learn on the job.
- *Poor safety enforcement and certification*—the lack of safety certification services puts local companies at a disadvantage when it comes to getting business for OGP projects and other large multinational companies because they are not able to meet their stringent requirements.
- *Inadequate awareness and compliance with standards*—many operators are not fully aware of the service quality norms and standards, and are therefore often ill-equipped in competing for contracts from OGP investments and operations (as well as other global operations).
- *Lack of access to finance*—lack of adequate collateral and inconsistent banking/credit history result in actors not getting access to SME financing needed to upgrade their economic activities.

Upgrading potential: While competition for this value chain is fierce, the qualitative barriers to full competitiveness at a global level undermine growth, not only in the value chain itself, but also in the rest of the economy that depends on effective transport and logistics. Programs to heighten awareness of international safety and quality standards could yield immediate benefits.

Potential pro-poor impact: Given the size of the value chain, potential impact on employment is therefore unlikely to be significant. However, since an efficient transport and logistics sector is critical for overall socioeconomic development, upgrading the performance of this value chain is likely to yield indirect benefits to improved livelihoods.

CASSAVA

End markets: Cassava, apart from its status as a staple food in Ghana, has other industrial uses. Breweries, paper and textile manufacturing companies, and certain food manufacturers use cassava starch as a primary ingredient. Cassava is also used in producing animal feed. In 2014, 972,353 MT of cassava was produced in the Western Region, up from 787,474 two years earlier.[61] Much of the production was consumed as food. So the potential exists to increase production and productivity to meet growing local and regional industrial demand[62] for cassava and cassava products. Cassava and other food crops are

[61] Ministry of Food and Agriculture, Western Region.

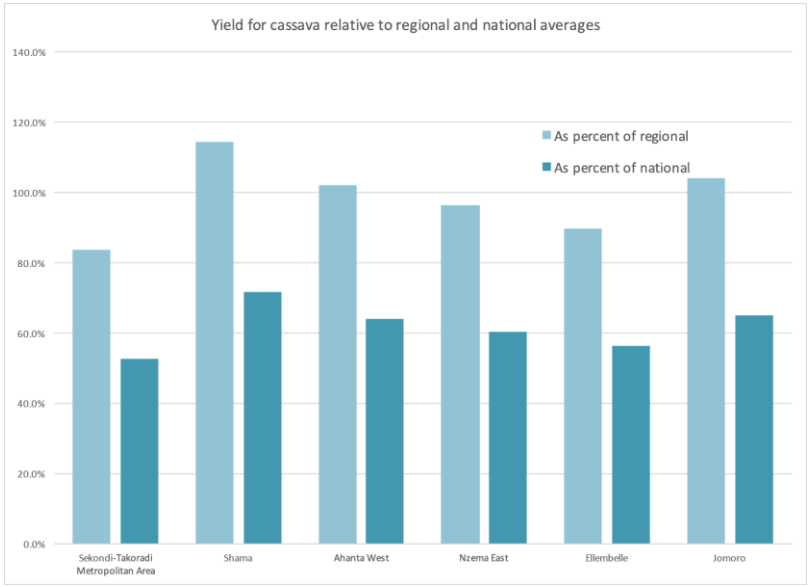
[62] Source: http://www.unctad.info/en/Infocomm/AACP-Products/COMMODITY-PROFILE---Cassava.

grown extensively both for subsistence and for sale in many parts of the Western Region. However, due to the absence of processing and storage facilities, post-harvest losses are high and farmers' incomes are low.[63]

Governance: There appear to be small, dispersed groupings of cassava farmers throughout the Western Region. The existence of processing and storage facilities in the region could help coalesce the groupings, as was seen around the Bawjiase-Kasoa area of the Central Region when the Ayensu Starch Company was established.[64] This outcome could enhance the reach of technical assistance and extension services.

Constraints to competitiveness: The analysis of agricultural production patterns for food crops in the six coastal districts above already suggests that the value chain is relatively efficient. In fact, the yield (MT/ha) is very close to the regional yield. This pattern is illustrated in Figure 19 for each of the six coastal districts. Generally, the yield per ha is comparable to the regional average; the six districts also account for a greater share of total regional production. However, compared to the national average, the gap is significant, with the average yield for the coastal districts corresponding to roughly 60 percent. That gap might suggest some opportunity, depending on the assessment of its causes. If the factor lies in climatic and soil conditions, opportunities for upgrading may be limited. If the difference lies in farming practices, significant gains may be possible.

FIGURE 19: YIELD FOR CASSAVA PRODUCTION RELATIVE TO REGIONAL AND NATIONAL AVERAGES



Other constraints include:

- *Disorganised input supply system*—there are inadequate certifications and supervision of input supplies, which means that farmers have no way of assessing the quality of inputs, with the risk of using inferior inputs that give much lower yields.
- *Lack of access to finance*—lack of adequate collateral and inconsistent banking/credit history result in actors not getting access to SME financing needed to upgrade their economic activities.
- *Weak infrastructure*—deteriorating or nonexistent infrastructure (roads, storage, processing plants, etc.) hinders the smooth interactions between market actors required to enhance livelihoods.

Upgrading potential: A more detailed value chain diagnostic, the "deep dive analysis," may identify the precise causes of yield differentials and other weaknesses in the value chain, such as post-harvest losses. Depending on the findings of that diagnosis, efforts to upgrade practices in this value chain may have a significant impact.

Potential pro-poor impact of upgrading: Smallholders play a major part in the cultivation of cassava. The impact of improvements in production and market access would therefore have a significant impact on poverty levels.

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[63] Source: http://www.ghanadistricts.com/districts/?r=5&_=142&sa=2850.

[64] Source: http://theheraldghana.com/ayensu-starch-factory-needs-more-cassava.

TOURISM

End markets: The number of tourism visits from 2006 to 2011 has shown a steady increase with an average growth of 17 percent per year. Up from 497,129 international visitors in 2006, more than 1 million people visited Ghana in 2011.

Business and pleasure travel to the Western Region, partly linked to the discovery of oil, has significantly increased over the past few years. The increase in travel has fueled the establishment of new boutique resorts, which further attract new tourists. The trend of local, regional, and international tourists visiting resorts and other facilities along the coast of the Western Region is likely to continue. Development of heritage and historical sites, as well as revamping of traditional festivals, could significantly help sustain the tourism appeal of the six coastal districts in the region.

Governance: Hotel and restaurant operators have to follow strict guidelines set out by the Ministry of Tourism, Culture, and Creative Arts and administratively managed through the Ghana Tourism Authority. Typically, tourists visit hotels and resorts along the beaches of the Western Region. There are few linkages between hotels and "tourist attractions." Hotels operate mostly as owner-operated establishments and range from three-star (Best Western Atlantic) to lower-quality.

Constraints on competitiveness: Ghana's tourism has shown significant increases over the past few years. It is a leading destination in Africa for cultural tourism. Even so, there are a number of constraints that undermine its competitiveness in global markets:

- *Inadequate infrastructure*—deteriorating road systems, poor communications, and access restrictions discourage travel to tourist sites. Unreliability of utilities and internet access also tend to reduce the attractiveness of tourist destinations.
- *Weak management capacity*—technical knowledge on practices that would ensure business effectiveness and efficient resource management are generally lacking because most managers learn on the job.
- *Limited financial resources*—lack of financing constrains private sector development of tourism facilities and tourism sites.
- *Skill bottlenecks*—the supply of skills in the local workforce for offering world-class services to tourists and for leveraging the cultural and natural resources for tourism development is inadequate, limiting the gains from tourism to the local economy.

Upgrading potential: The cultural and natural resources of the six coastal districts suggest significant potential for expansion of the tourism value chain. While there are important efforts underway at the national level, a focus on tourism development for these districts could build on experience with the (temporary) increase in expatriate employment in the region, and with greater exposure to and understanding of international quality standards.

Potential pro-poor impact of upgrading: Impact on the poor will come through their employment as lower-skilled staff, probably as wait staff, housekeepers, and cleaners. With more tourists expected and more accommodation facilities under construction, it is likely that an intervention through technical and vocational education and training (TVET) skills training will enable more community members to gain employment in the industry. This could have a significant impact on their incomes.

CATERING

End markets: Catering services in the Western Region are primarily targeted at the OGP industry, although mining projects also number among the customers. Fluctuations in OGP employment have affected demand for the services of this value chain. However, rising employment in investment projects as new oilfields are developed and other projects are launched and completed suggests increased demand

for the next few years. Moreover, the analysis of steady demand from OGP operations in the Tangha model also indicates a fairly steady market.

The impact of increased activities in the catering value chain is not limited to employment and income generation in that value chain alone. Increased exposure to and compliance with international food safety standards is likely to create ripple effects throughout the entire supply chain and, indirectly, to the region's hospitality industry. Currently, local purchases by catering companies are virtually limited to fresh fruits and vegetables (some of which are procured from outside the region itself). There is of course interest in procuring other products locally—*provided* suppliers can meet food safety standards. If properly supported, that pressure can improve overall performance.

Governance: Catering services targeted at the OGP sector are dominated by large multinational catering companies using mostly low-skilled local labor. There are a few local catering companies as well. All the service providers in this sector are expected to meet strict internationally set health and safety requirements.

Constraints on competitiveness: With low skill requirements and standard industry practices, the barriers to entry in the catering value chain are relatively low. However, there are other constraints to competitiveness:

- *Inadequate local supply of inputs*—there are insufficient local quantities of high-quality food inputs (fresh and processed) to meet demand for food that complies with stringent food safety standards. Failure to meet these standards hampers efforts to develop competitive local supply chains.
- *Weak quality infrastructure*—efforts by local producers to meet international food safety and quality standards are hampered by the poor system of quality infrastructure, of setting and enforcing quality regulations, and of testing and certification. Local suppliers find it difficult to pursue a course of required certification, for example, as an HACCP facility because of deficiencies in the support system.

Upgrading opportunities: There are probably few opportunities for upgrading the performance of the catering value chain per se. Both local and international operators understand the requirements, and have adequate knowledge of the respective supply chains to obtain the needed inputs; however, many of them are imported, and the resulting added value effect is minimal.

Potential pro-poor impact of upgrading: Increases in OGP sector employment attributable to new construction (on- and off-shore), as well as the expansion of OGP operations will increase opportunities for the value chain, which relies mostly on unskilled and semi-skilled labor. In addition, any successful effort to develop local supply chains is likely to affect smallholder farmers, for example in the production of fruits and vegetables, which means that the impact on poverty levels is appreciable.

HORTICULTURAL PRODUCTS: FRUITS AND VEGETABLES

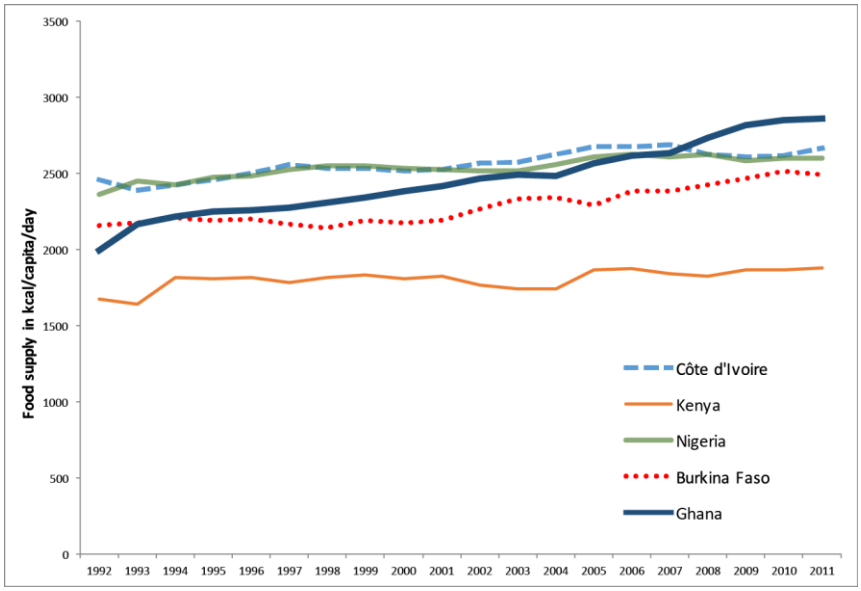
End markets: The fruits and vegetables value chain serves all three end markets—exports, domestic demand, and demand associated with OGP investment and operations. With respect to international trade relations, Ghana's role in these commodities is limited.[65] In 2014, Ghana exported US$21.8 million of products in HS 07, "Edible vegetables." Yams accounted for 92 percent of that total, with shipments going primarily to the United Kingdom, Gambia, and the United States. Fresh or chilled vegetables (HS 0709) accounted for less than US$1 million. At the same time, Ghana imported US$16.7 million of these edible vegetables in HS 07, mostly in HS 0703, "Onions, shallot, garlic, etc." from Niger, Burkina Faso, and China. Imports also included US$1.3 million of tomatoes.

[65] The data reported here are from Ghana Statistical Service. Our analysis has often been unable to reconcile Ghana's export statistics with the respective import statistics of importers, even allowing for the usual discrepancy between export and import measures.

In 2014, Ghana exported US$122.5 million of commodities under HS 08, "Edible fruit and nuts; peel of citrus fruit or melons." Nuts (HS 0801), in particular cashew nuts, accounted for more than 90 percent of that, with exports going primarily to Vietnam and India. For the rest, pineapples (HS 080450) were the only other major export crop at US$5.0 million in 2014. In 2014, Ghana imported US$7.7 million of edible fruits and nuts, primarily fresh "Apples, pears, and quinces" (HS 0808) from South Africa.

The domestic market offers the greatest prospects, as the import patterns already suggest. In a comparative sense, this market has been expanding.[66] FAO statistics suggest that the per capita consumption of vegetal products has been growing in Ghana, as illustrated in Figure 20. While the per capita food supply in the comparator countries has shown some growth, Ghana has moved from 2,000 kcal/capita/day to the highest level, 2,860.

FIGURE 20: FOOD SUPPLY FOR VEGETAL PRODUCTS, GHANA AND COMPARATOR COUNTRIES



Source: FAOSTAT

A similar pattern holds for the food supply in fruits (as classified by FAOSTAT). This pattern is shown in Figure 21. While the fruits food supply in comparator countries has been stable or declining, it has grown significantly between 1992 and 2011 in Ghana.

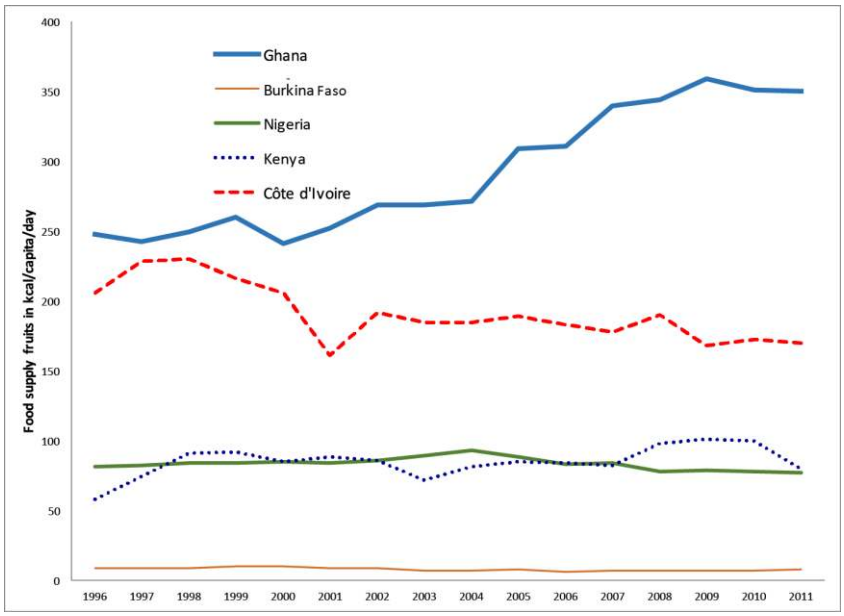
These trends suggest that the domestic market represents a principal opportunity for this value chain, since the growth in per capita consumption is likely to continue, in part as a result of rural to urban migration. The OGP market, in particular the investment phase, offers a good opportunity for horticultural activities in the coastal districts to become familiar with buyer preferences and standards, most likely through an expansion of existing outgrower arrangements. Catering companies would act as intermediaries. In addition, other hospitality services would offer key markets for these products.

Governance: Export-oriented producers of fruits and vegetables have to adhere to strict international standards. Producers of these items for local consumption, on the other hand, generally do not have the skills and capacity to abide by international standards. There is weak standards enforcement administration, worsened by inadequate infrastructure.

[66] The comparator countries include neighboring countries, Nigeria, Côte d'Ivoire, and Burkina Faso, as well as Kenya, a country that has been very successful in promoting agricultural exports.

Constraints on competitiveness: The review of the current practices in the horticultural value chain has already highlighted some of the major constraints. More specifically, any upgrading efforts would have to address the following issues:

FIGURE 21: FOOD SUPPLY FOR FRUITS, GHANA AND COMPARATOR COUNTRIES



- *Disorganised input supply system*—input supplies are not regulated, resulting in some farmers using inferior inputs that give much lower yields.
- *Weak extension services*—crop yields remain below potential.
- *Lack of access to finance*—lack of adequate collateral and inconsistent banking/credit history result in actors not getting access to SME financing needed to upgrade their economic activities.
- *Low processing capacity* renders much of the harvested produce unfit for export.
- *Inadequate infrastructure* (roads, storage, processing, etc.)—deteriorating or nonexistent infrastructure hinders the smooth interactions among market participants required to enhance livelihoods

Upgrading opportunities: The combination of a rising demand for horticultural products in domestic markets and the emergence of the OGP create powerful incentives for upgrading the competitive performance of the fruits and vegetables value chain. The opportunities exist, as this rapid appraisal has identified, and immediate returns from serving the OGP market offer clear incentives.

Clearly, a more detailed analysis is required to identify the binding constraint and formulate a strategy for improving the competitiveness of the horticultural value chain. As the rapid appraisal shows, the emphasis—at least in the short run—should be on serving domestic markets, using the OGP markets as a testing ground for specific strategies to upgrade performance. Both the regional focus of WRCF activities and the expected resources call for a focused approach that reflects priorities in the constraint analysis.

Potential pro-poor impact of upgrading: For a start, productivity improvement interventions in combination with better market access strategies can result in higher yields and more sales. These can significantly affect employment and incomes for unemployed youth and poor farmers.

ELECTRICAL SERVICES

End markets: Residential real estate currently is the dominant market for this service in the coastal districts of the Western Region. There is some demand from the OGP sector, but that has flattened with the commencement of oil production from Jubilee Field. The OGP sector requires well-trained electrical workers. However, most of the local workers do not have the requisite training and certifications to meet OGP industry standards. Most companies therefore are forced to bring experienced electrical workers from abroad.

Governance: Electrical Wiring Regulations, 2012, L.I. 2008, administered by the Energy Commission, govern qualification requirements, practice, and inspection of electrical work in Ghana. However, administration over activities within the sector gets weaker as one moves away from the Accra region. A significant number of electricians learned the trade through apprenticeship and not through formal technical education. There are two technical schools in the region and one polytechnic where students can study electrical work as a career. However, according to regional reports, enrollment is low.

Constraints on competitiveness: There are two major constraints—lack of sufficiently qualified workers, and weak enforcement of appropriate regulations:

- *Poorly qualified workforce*—current systems do not encourage workers to strive to obtain sufficient technical skills to compete in what are ultimately global markets. Existing TVET initiatives have not produced a cadre of well-qualified electricians.
- *Weak administration of norms and standards*—lack of adherence to norms and standards over time tends to degrade expertise and service quality. Local companies therefore find it difficult to get business from OGP and other large companies, and this has ripple effects on local employee incomes.
- *Weak management capacity*—technical knowledge on practices that would ensure business effectiveness and efficient resource management are generally lacking because most managers learn on the job.
- *Inadequate access to certification for firms*—absence of certification services puts local companies at a disadvantage when it comes to getting business from OGP and other large multinational companies because they are not able to meet their stringent requirements.

Upgrading opportunities: Low capacity of local electrical workers to meet stringent certification requirements of OGP and other large multinational companies is a significant challenge to unlocking the local market potential for this sector. The type of interventions that can help reverse this course will be slow and long and could be very capital intensive. Efforts to improve the performance of this value chain need to focus on building the requisite technical knowledge among electricians, and ensure the enforcement of appropriate rules and regulations.

Potential pro-poor impact of upgrading: A key actor in the OGP sector has stated that employment for electrical workers within OGP companies is usually minimal, because they mostly work on maintenance issues. Consequently, local labor participation in this specialised field is not estimated to have significant potential impact on income and employment levels—although improvements in this value chain are likely to spill over into other economic activities.

Heavy Equipment Leasing, Rental, and Repairs

End markets: This highly specialised field comprises equipment leasing companies and mostly individuals with one or two heavy machinery for hire. Some of the construction companies (e.g., Sinopec, builders of the Atuabo Gas Plant) also use some machinery of their own. On-shore construction equipment parts replacement and repairs are made up of a few big companies like Mantrac Ghana (local representatives of Caterpillar) and some local parts distributors and repairers. The off-shore side of this value chain is controlled by large oil services companies like Schlumberger and Haliburton, with some local company participation.

The primary markets for this value chain are the OGP, infrastructure, and commercial construction sectors. Currently, there are construction activities occurring in these sectors, with other planned construction yet to commence. The preliminary assumptions for the Tangha model project a total expenditure for these activities between 2015 and 2019 of US$111 million (mostly in the construction of the Atuabo Free Port). Thus, even a small sliver of this total implies a fairly significant market. The Tangha model implies an added value contribution of US$4.6 million in total.

Governance: OGP-market operators must comply with strict international health and safety standards. They are usually monitored for compliance by in-house OGP health and safety departments. Construction-related operators are required to abide by safety standards set by the Energy Commission. However, there appears to be weak compliance administration, as one can observe some unsafe practices at most construction sites.

Constraints on competitiveness: One of the major obstacles to greater local participation in these activities is the significant upfront costs to acquiring the needed (and expensive) equipment. The necessary financial instruments are currently underdeveloped. In addition, there are two other issues:

- *Absence of safety certification services*—puts local companies at a disadvantage when it comes to getting business from the OGP sector and other large multinational companies because they are not able to meet their stringent requirements.
- *Weak management capacity*—heavy equipment leasing requires specific management capacities to deal with significant market fluctuations that are not found in most other endeavors. Meeting these particular demands requires significant experience, typically acquired overseas.

Upgrading opportunities: The focus on any upgrading opportunities in this sector depends on a careful analysis of the type of demand to identify opportunities for smaller operators. In addition, there should be greater emphasis on the appropriate financial instruments and their application, which would have impacts beyond the OGP markets.

Potential pro-poor impact of upgrading: This highly specialised field requires skilled local labor, which currently stands low. A balancing in the OGP sector coupled with strong competition among the few strong players in this field does not appear to offer major promise for local employment and income levels.

FIVE INITIAL TARGET VALUE CHAINS

A key aspect of selecting the initial list of target value chains includes partnering with IOCs and other corporations to analyse and design support programs that will improve the economic development of the target six coastal districts. Following the rapid appraisal of these value chains, the team reviewed these value chains with both the supply chain and sustainable development/corporate affairs departments of IOCs and other non-oil and gas corporations active in Ghana. This provided a useful opportunity to identify areas of alignment between the WRCF and interested private sector partners.

The rapid appraisal of the 10 top finalists and these discussions suggested the following selection of the final targets for deeper analysis and development support thereafter:

- Fish.
- Cassava.
- Transport and logistics.
- Oil seeds and palm oil.
- Catering supply chain.

This list represents the first set of target value chains, but is not an exclusive list. The WRCF team will consider additional areas of economic development based on the findings of this economic opportunities assessment and further consultations with potential corporate partners.

NEXT STEPS

Moving forward, the WRCF team will carry out in-depth value chain studies to identify barriers to competitiveness and means to overcome them. These studies will identify gaps relative to best practices and outline programmatic and policy interventions to close these gaps. The terms of reference for these

gap studies or in-depth diagnostics will be constructed in collaboration with private sector partners to ensure they reflect the interests and objectives of WRCF as well as its partners. These diagnostics will serve as the basis for the formulation of specific competitiveness strategies addressing the weaknesses and leveraging the strengths of the selected value chains. From the findings of these studies the team will design value chain development action plans and initiate pilot interventions.

In parallel, the WRCF team will continue to refine the Tangha model to reflect improved data as shared by IOCs and other oil and gas services companies. The team will also seek to use the model to share results with key government agencies such as the Petroleum Commission to help inform the understanding of local content opportunities.

Appendix 1: Structure of the Tangha Model

ESTIMATING LOCAL ECONOMIC IMPACTS

The analytical challenge is to measure the potential impact of OGP investments and operations on the local economy—the degree to which local businesses and workers can provide needed goods and services. Such measurements involve a high degree of uncertainty. Neither OGP investments nor operating expenses are known with certainty. And assessments of local capacities are typically highly speculative. Tracing the implications of assumptions about primary activity levels—investments and operations—and about local capacity for businesses and workers on local employment and income demands a quantitative model. On the input side, such a model calls for estimates of expenditure levels and patterns associated with investments and operations, and of local capacities for local businesses and workers. It transforms these inputs into measures of interest to policy makers, such as contributions to the GDP (added value), local subcontracting, local employment, or local procurement of goods. A model of this nature outlines a causal chain from OGP investment and operations spending to measures describing economic progress at the local level.

Projected OGP investments and operations spending drive the analysis. Investments typically offer more attractive opportunities for local businesses and workers; operations require fewer local suppliers and workers, but provide a more sustainable source of demand. To describe the analytical framework and process, this paper first focuses on OGP investment projects. The estimation process for OGP operations builds on that approach to offer further flexibility in allowing changes in key parameters over time.

MODELING THE IMPACT OF INVESTMENTS IN THE OGP SECTOR

The basic structure of the Tangha model for OGP is simple. Investment expenditures create markets for goods and services, including labor services. What percentage of this "demand" can be met by local businesses and workers determines the local economic impact. In effect, the model simulates how the various investment functions are being carried out—through imports or local procurement and hiring.

There are two options for such simulations. First, if it were possible to identify drivers for the activity level or effective demand in a given subcomponent, one might calculate some metrics and estimate the factors needed to meet that demand. For example, in the case of catering, total demand for meals can be estimated as the number of meals to be delivered per day, given measures of total construction employment. The analysis can then determine the composition of an average meal and the number of catering employees required to serve that customer base. Given assumptions of the value of catering contract per meal, the analysis could subsequently estimate total activity levels for local businesses and workers, and related variables, like domestic added value or local employment.

Unfortunately, drivers of demand are not always as clear-cut as in the case of catering. In most instances, activity levels are determined by the final product—a building, a dock or jetty, or another facility. An alternative to the search for "demand drivers" employs activity forecasts by structural elements of the investment, its components and subcomponents, using a *decomposition* approach to the task of breaking down projected total activity into "bite-sized" chunks—the allocation of total investment among components and subcomponents over time.

These estimates in turn serve as the basis for realistic estimates of domestic added value and employment generated by OGP investments. The decomposition technique is well-established; for example, Hubbard (2014) presents decomposition as a cornerstone of obtaining reliable estimates under uncertainty.[67] The approach allows for analysing subcomponents under each investment activity to introduce measures of employment, subcontracting, and procurement of goods, both in the domestic economy and as imports.

The Tangha model has been programmed as an Excel workbook to estimate local economic impacts. It is designed to allow for a quick assessment of different scenarios about spending patterns and local capacities. What are the implications of a shift in goods procurement between imports and local suppliers in response to initiatives to raise the quality of local supply chains? How would efforts to improve the skills of workers in a particular activity affect the split between expatriate and local labor? The model is designed to respond to these kinds of questions.

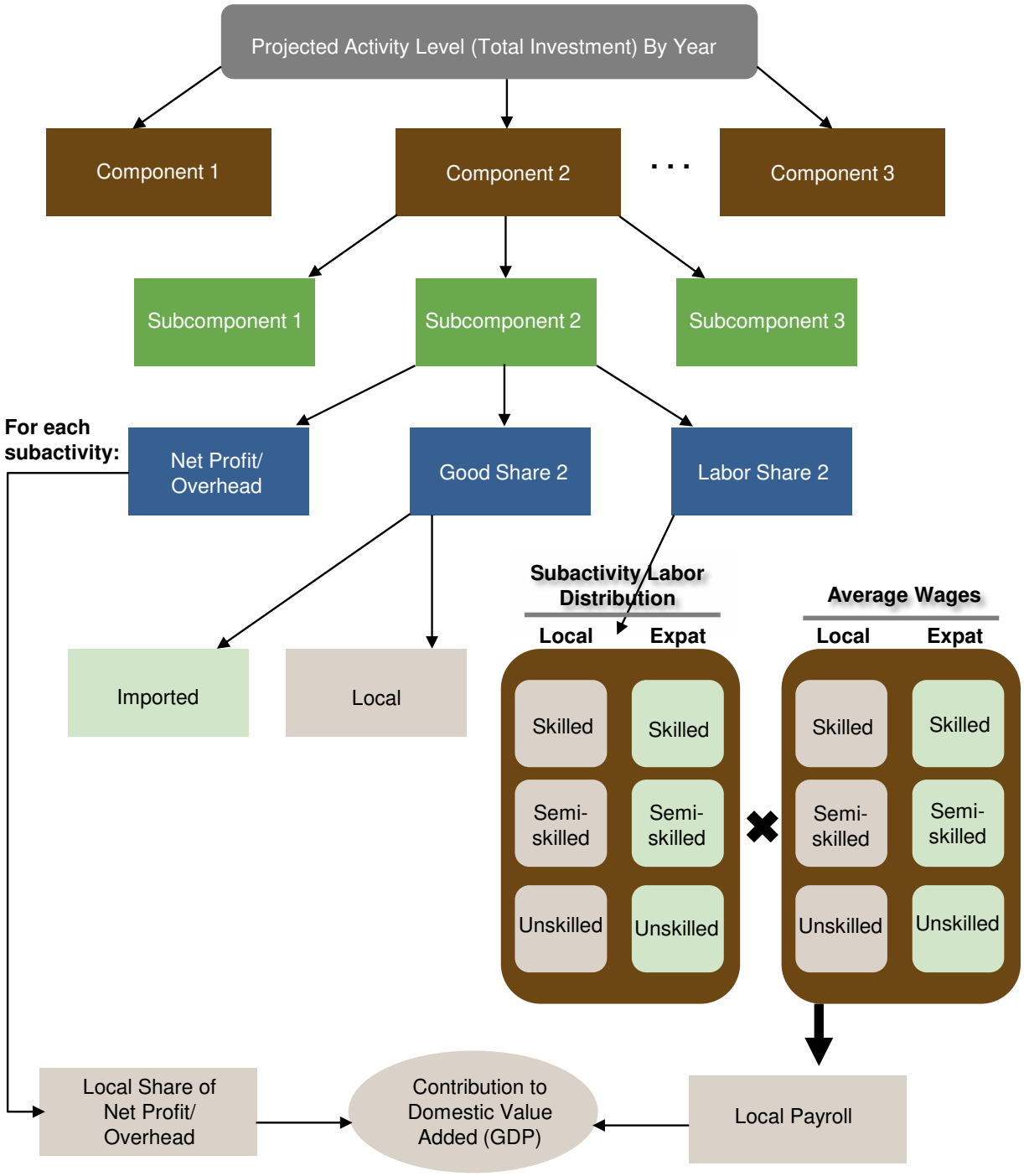
For each investment project, the analysis starts with the total "price tag," the planned investments, and the expected duration for completion of the construction. A hypothetical example might be an investment in a processing plant of US$500 million, to be completed in 24 months. To arrive at an analytically tractable description, the first step involves a breakdown by major investment *components*, such as site clearing, foundation laying, building construction, electrical work, etc. For each investment project, the Tangha model allows for up to 10 components. It determines investment at the component level by applying an estimated percentage to the total for the activity or investment project. The process is outlined schematically in Figure 22.

Each component in turn involves a number of *subcomponents*. For example, for a component labeled "Pipe systems," the subcomponents might include "Steel pipe installation (various sizes)," "Non-metal pipe installation (PVC) — various sizes," and "Pipe insulation." Ideally, these subcomponents should be defined to delineate specific markets for goods and services.[68] Currently, the model allows for up to three subcomponents for each component. The share of each of these subcomponents in each of the components of the total investment again uses a percentage breakdown. This step yields estimates of total investments at the level of the subcomponents over the entire construction period.

[67] Hubbard outlines the case for decomposition to measure unknowns with an anecdote involving Enrico Fermi, who challenged his students to estimate the number of piano tuners in Chicago. When his students demurred, he guided them to build a model involving the constituent elements. The result was the following equation: "Tuners in Chicago = Population/people per household x percentage of households with tuned pianos x tunings per year per piano/(tunings per tuner per year x workdays per year)" Hubbard (2014, p. 18). Fermi's students could relate to estimating (and sometimes guessing) these elements more easily than trying to estimate the number of piano tuners directly.

[68] In the Tanzania case, the model used an industrial nomenclature (International Standard Industrial Classification—ISIC) to define "markets" for local businesses and workers. That approach, however, proved too cumbersome.

FIGURE 22: MODEL STRUCTURE



The next step requires an estimate of the time profile of these investments at the subcomponent level. Laying out the time profile is easier at this level, since it can take into consideration dependencies among subcomponents—for example, pipes have to be installed before they can be insulated. While there is overlap among subcomponent activities, the likely phasing is clearer at this level. For each subcomponent, the analyst—based on inputs from standard industry practice and observations from OGP representatives—estimates the percentage of the total to be spent in each time period. In the case of

Ghana, the basic period covers a year.[69] In the model, the estimate of the time profiles uses a matrix of percentages over time to allocate the investment among subcomponents across the years as determined by the expected duration of the overall project. Separating the estimation of total investment levels by subcomponent from the (percentage) time profiles of the spending patterns at the subcomponent level greatly facilitates the task of varying assumptions for specific scenarios.

The final product of this first step is therefore a matrix that shows the time profile for each subcomponent (and aggregated at the component level), along with the estimated investment expenditures. The basic notion is to create a tool that allows for easy changes in the underlying assumptions to explore their impact on the variables of interest, measures of socioeconomic progress for the region.

A CHECKLIST FOR MODEL CALIBRATION: OGP INVESTMENTS

Once the components and subcomponents have been identified and estimated, the analyst introduces estimates of local capacity. First, for each subcomponent the model calls for estimates of the percentage of total (construction) activities that could be contracted to local businesses. For specialised construction, that percentage is low, but can increase as we move to such activities as catering, security, cleaning, etc. This process involves the following steps:

1) Adjust the activity estimates (in US$ million) for net profits or overhead as a percentage of the estimated subcomponent level. For simplification, the assumption is that some percentage is taken off the total activity level, either as net profits for subcontracts to outside businesses, or as an overhead for "self-performed" activities by international oil companies (IOCs). The value of interest here is the percentage of net profits accruing to local businesses. It may be possible to assume different parameters for net profits and for overhead, but for now, we assume that the projected subcomponent levels are adjusted for overhead, in the case of activities self-performed by IOCs or engineering, procurement, and construction companies, and net profits for contracted activities. As a start, the analysis adopts the 20 percent assumed in recent studies of a similar nature. If this amount goes as net profit to local businesses under subcontracts, it will be counted as a factor payment (for capital).

2) Assess the distribution of the total expenditure by subcomponent between goods purchased and labor required for each subcomponent. In most instances, the goods component is likely to vary over time, but one can accept the simplifying assumption that the breakdown between goods and labor is constant (or varies within some confidence interval). The goods portion should reflect the intelligence gathered from the IOCs, and triangulated by high-level interviews with one or two major local players.

3) Estimate the composition of goods to be purchased between imports and local procurement. Much of the information for estimating this parameter comes from the IOCs, and can be partly validated by examining the structure of input-output relationships as reflected in Social Accounting Matrix (SAM) and interviews with key local businesses. This step requires some sensitivity to the fact that many goods offered locally may in fact be imported—a sensitivity that can be refined somewhat through interviews with local players. In the case of catering, the model explicitly calculates this parameter on the basis of assumptions regarding the breakdown between local procurement and imports focused on each part of a "typical meal," which is relatively stable over time. In other instances, the composition may change over time. For now, the analysis assumes that the decomposition is time-invariant, or varies only within some confidence interval between low and

[69] For Tanzania, the model used a breakdown by quarters (three-month periods). It offered a little finer decomposition for the allocation of subcomponent investments over time, but did not add much to the analysis. In any case, for any assessment of GDP contribution, the appropriate period is a year, and the model uses monthly employment figures.

high estimates. These steps result in an estimate of the total cost of goods and their local/import split in dollar terms.

4) Allocate the estimated payroll for labor (subcomponent adjusted for net profits/overhead minus the goods component) to employment along two axes—skill level and domestic/expatriate. For each subcomponent, estimate the composition of total labor by skill and origin in terms of percentages (that add up to 100 percent for each component). In some instances, the labor distribution is the same for all components, but it generally varies across components. For example, in the case of catering, labor requirements are assumed to vary between the procurement of ingredients, meal preparation, and serving and cleanup. There may be a case for changes over time. For example, in catering, the portion of supervisory activities might be fairly constant, while the number of semi-skilled and unskilled jobs is likely to change in direct proportion to the number of meals served. The model offers the option to consider changes over time, but for the initial runs, the employment composition by skill class and origin, is treated as a constant. The distribution between local and expatriate labor by skill category reflects any gap assessments conducted as part of the investigation or taken from other sources. Discussions with IOCs will identify areas where local labor, perhaps with some additional training, can perform adequately. In other areas, a dearth of local skills may force employment of expatriate staff. Since local labor costs are a main driver of the estimates of domestic added value, the model makes it possible to explore the implications of different assumptions on the process.

5) Estimate the average salaries for each of the six labor categories (skilled, semi-skilled, unskilled by local/expatriate). The composition of these relative wages is then used to allocate the total payroll among labor categories.

6) Add up the portion of the total payroll going to the three skill groups for local labor. The local payroll constitutes one component of domestic added value contributed by the component.

7) Estimate the component of the estimated net profits/overhead component going to local businesses. That step in effect requires some estimate of what portion of the component will be contracted to local businesses. One option might be to use the projected local capture of total (demand) activities for estimating this parameter.

8) The initial estimate of domestic added value contributed by the respective component is then the sum of domestic labor cost, plus some estimate of net profits going to local businesses.

9) The estimated local purchases of goods could then be introduced as an “external shock” in the SAM to explore any second and higher-order impacts.

DECOMPOSITION FOR OGP OPERATIONS

The model specifications for the appraisal of the economic impact of OGP operations differ from the treatment of investments in two aspects. First, the calculation of annual spending levels by subcomponent is determined by the straightforward decomposition of total operating expenditures. For the oilfield operations (Jubilee, TEN, and MTA), the total operating costs are expressed as a function of the projected production levels in terms of barrels of oil per day. These levels are then multiplied by projected operating expenditures (opex) per barrel. The estimated annual expenses are then allocated among subcomponents by applying the percentage breakdown by component and subcomponent.

For other operations (Atuabo Free Port, Atuabo gas processing plant, and the operation of the expanded Takoradi-Sekondi port), the operating expenditures are estimated as exogenously determined, reflecting general industry experience. For the initial runs, the annual opex for these projects is taken as constant, in constant dollars.

The second difference for operations appraisals refers to the supply side. Since the time frame for the analysis is longer—10 years at this point—the model allows for improvements in the local capacity for delivering goods and performing on subcontracts.[70] Thus, the model allows for varying the share between imported goods and those locally procured over time. In addition, the parameter for the share of local subcontracts in the performance of the different subcomponents also can vary over time.

[70] A later version may also allow for this type of "learning by doing" for the composition of the workforce, in particular the split between expatriate and local labor. Currently, this element is constant.