



GhanAgri

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This photobook was published by the Istituto Affari Internazionali in cooperation with Akronos. The project was realised with the support of the Policy Planning Unit of the Ministry of Foreign Affairs and International Cooperation pursuant to art. 23-bis of Presidential Decree 18/1967. The views expressed in this report are solely those of the authors and do not necessarily reflect the views of the Ministry of Foreign Affairs and International Cooperation. The authors wish to acknowledge the Lavazza Group, the African Center for Climate and Sustainable Development and the Fondazione Compagnia di San Paolo for having supported the project.



The African Century: Agriculture, People and the Environment

We are going through a particular moment in history which proves, more than ever, the interconnection and interdependence among the different regions of the world, both in terms of the challenges ahead and the solutions we can find together. A fair and sustainable approach to development is needed, encompassing social inclusion, the respect and promotion of human rights as well as the environmental dimension. These are absolute priorities for both Africa and Europe, reaffirming the need to enhance cooperation between our two continents.

Working together for a shared prosperity also means addressing public and private investment gaps to favour access to health, water and sanitation facilities, improve transportation networks and facilitate the development of agro-industrial supply chains. The agriculture and agribusiness sectors are indeed crucial in improving the living conditions of the growing African population as well as for the integration of the continent in the global economy. The strategic importance of agriculture becomes even more relevant in the context of the current pandemic. The sector provides employment to 65 per cent of the African population, representing around 45 per cent of the continent’s GDP. However, it also faces a productivity which is about 60 per cent lower than the world average, with dramatic implications in terms of food security and the livelihoods of local communities, especially in times of high volatility.

It is therefore necessary to focus on a new, strategic approach that will make the agro-industrial sector in Africa more resilient, competitive, dynamic and attractive, considering the growing share of youth population entering the labour market each year.

An inclusive approach to development would also imply empowering those groups whose role has not yet been adequately taken into account, particularly women. Women can in fact become powerful game-changers, as they represent the backbone of agricultural production in Africa.

When analysing the case of Ghana, this research unveils some key areas of intervention to enhance the development of the agro-industrial value chains in the country, which can however be valid more generally, for the entire continent. Particular emphasis is given to:

- investment in education and training of a specialised workforce;
- infrastructural development in order to favour a prompt and efficient distribution of goods;
- reform of the current land ownership and land management schemes, which tend to penalise women;
- the introduction of economic and legal tools to support small producers along the various production and marketing stages; and
- digital innovation applied to the agricultural sector, to make farmers aware of the decisions they need to take.

An in-depth analysis is also devoted to the fishing sector, which can provide common opportunities to African coastal communities, in a framework of legality and sustainability.

Ex Africa semper aliquid novi: “There is always something new out of Africa”, wrote Pliny the Elder. The actions that will be taken in the near future will be crucial to assess whether Africa will present us with new challenges to face, or will instead provide us with a reservoir of new geopolitical, economic and cultural opportunities to the benefit of us all.

Emanuela Claudia Del Re
Vice-Minister of Foreign Affairs and International Cooperation

Agriculture plays a crucial role for African communities. It employs more than half of the continent’s workforce and smallholder farmers rely on it as the main source of livelihood and income. However, in several countries unsustainable farming practices have harmed entire ecosystems and exposed agriculture to tremendous climate change shocks. On the one hand, unsustainable farming practices have caused a greater consumption of soil, without leading to an increase in productivity. On the other hand, they have destroyed primary forests, decreased biodiversity and threatened ecosystems, pushing farmers to move to other patches, further exacerbating the risks of desertification and deforestation.

Ghana is not immune to these challenges. For several decades the country has been dominated by subsistence agriculture, with outdated farming techniques that did not increase fertility of the soil, while causing ecosystem erosion and depletion of natural resources. For these reasons, hunger and poverty still represent huge obstacles for the sustainable development of the country, while urban–rural and gender divides increase inequalities among regions and groups of the population. This is even more worrisome in times of pandemic, as the spread of Covid-19 could have a severe impact on Ghana’s economic and human development. Market closures, trade disruptions, labour shortages due to movement restrictions and the difficulty for humanitarian actors to operate in remote areas, could have dramatic repercussions for the most vulnerable groups of the population such as children, women and the elderly.

In this situation, investing in sustainable agriculture and taking stock of the new possibilities provided by digital solutions becomes more than urgent. Mobilising investments to adopt more sustainable agri-tech would contribute to increasing the profitability of agriculture, attracting younger generations of farmers and affording them the chance to become successful agri-businesspeople. This requires a combination of policies and investments ranging from land tenure system reforms to institutional and marketing support for new crops (like coffee), as well as a huge mobilisation of resources to improve infrastructure to link smallholder farmers to markets.

Achieving a more sustainable agriculture is crucial not only to increase GDP growth, but also to give hope to those younger entrepreneurs who are trying to pull their communities out of the vicious cycle of poverty and subsistence farming, This approach will require time, a stronger and concerted effort among Western African partners, as well as an even stronger involvement of the whole international community, in particular the European Union. It will not be an easy task, but the country has all the economic, cultural and environmental resources to make this change a reality, achieve the goals set in the Agenda 2030, particularly in a post-Covid19 period, and leave no one behind.

Nathalie Tocci

Director Istituto Affari Internazionali

Ferdinando Nelli Feroci

President Istituto Affari Internazionali

According to tradition, East Africa is the place where coffee was first discovered. Coffee is a crop deeply embedded in African traditional agriculture and it has the potential to be a driver for its future. Africa is home, in fact, to several coffee varieties, resulting in a wide palette of tastes and flavours. Moreover, this crop is able to thrive in combination with other species and not in competition with them, hence favouring biodiversity conservation. It is a crop with great potential to be economically and environmentally sustainable, representing a good paradigm for the future of African agricultural development.

However, as with other native products, in order to really boost African agricultural development, the coffee sector needs to overcome numerous challenges that also impact many other crops: climate change effects, lack of effective infrastructure and know-how, internal market development, quality enhancement and consistency, and involvement of youth.

Climate change represents a special threat to coffee availability and quality. In order to be resilient to its effects, Africa needs to find innovative ways to boost climate-smart agriculture. It needs to promote the protection of biodiversity, improvement of productivity as well as efficiency of traditional methods. In other words, it needs to boost a sustainable agriculture.

Another important aspect regarding both coffee and the agricultural sector in general, is the promotion of entrepreneurship among farmers. Farmers have to take everyday decisions on how to manage the farm, the same as any other entrepreneur. So, it is fundamental for them to have access to know-how, best practices and knowledge sharing, as well as access to technology in order to run their farms sustainably, be informed about markets and learn how to improve quality.

Coffee farming, and agriculture in general, are also strictly connected to social and societal aspects. Coffee is traditionally run as a family business; indeed, worldwide it is estimated that 70-75 per cent of coffee is produced by smallholders. It is therefore important to work for an effective engagement and recognition of the role of women in farm management. Women play in fact a crucial role for the future economic and social development of Africa.

Another fundamental stakeholder to consider is youth. Africa is a young continent, and young people who are now choosing to stay in the rural areas need to have access to the necessary tools to run their farm effectively and to find their place in the market. We need to encourage young people and promote their entrepreneurial spirit by improving access to education and technical specialisation. The African agricultural sector faces a number of challenges, but it also has the potential to become the engine of the continent’s development. If we want this to be the African century, we need to work together to enhance Africa’s great potential for a sustainable future.

Mario Cerutti

*Chief Institutional Relations & Sustainability Officer
Lavazza Group*

Agriculture for the African Century

Lorenzo Colantoni

Agriculture is Africa’s great opportunity. While it could provide a solution for many of the troubles affecting the continent, paradoxically it remains one of the most underdeveloped among sectors. Agriculture is indeed at the crossroads of the changes occurring in Africa; on one side there are hopes for an ambitious leap in technology and development, with an emerging middle class and a growing potential to address poverty and instability. On the other hand lie the hard truths of a still widespread poverty, the unsustainable exploitation of resources, and social and economic gaps that remain hard to close. Unlike other promising sectors, such as energy, the path for agriculture in Africa is less clear and more heterogeneous among regions, countries, even provinces; while the development of wind farms or solar mini-grids builds on a blank slate, farming is deeply entwined not only with the economy or with infrastructures, but also with the very social and even political fabric of African countries. Changing the mindset of farmers could take generations; yet, if the continent wants to harness the full development potential offered not only by its resources, but also by the *momentum* offered by the digital revolution and the energy transition, this change has to happen in a decade, maybe less. In some parts of the continent this shift has already started, and the paradox of African agriculture is now more evident than ever. Gigantic slash fires often shadow the hazy landscape of Ghana’s dry season, as farmers across the country torch their fields in the hope of restoring some of the long-lost fertility of the soil, in a desperate battle against desertification that this and other outdated techniques are causing them to lose. Yet, only a few kilometres to the south, shiny white drones fully charged with fertiliser perform precision spraying over state-of-the art farms run not by international corporations, but by young Africans who want to start a green revolution in their country. Two sides of the same coin, and perhaps the best example of such a fundamental contradiction between a coexisting past and present, between underdevelopment and great potential. This is a contradiction that will need to be quickly solved, if the 21st century is to become the African Century.

Africa’s agricultural dilemma

Sub-Saharan Africa needs a prosperous agriculture. This is necessary not only to promote its exports – although Foreign Direct Investment in the sector has spiked in the past ten years – but also to feed a growing population that, by 2030, will likely represent 20 per cent of the global total. The continent has the potential to achieve this result: estimates from McKinsey¹ indicate that the continent could triple its output of cereals and grains, if its production was to rise to its full capacity, and similar results are expected also for other crops. Yet, this potential has not been realised so far, as Africa’s agricultural output has been lagging behind its population growth.

In the 1960s the continent was able to cover its whole consumption of cereals. Nowadays, such self-sufficiency is a mirage for many African countries, whose agricultural exports have on average decreased by 50 per cent in the past 25 years.² The consequences of this are often severe. According to the WHO, malnutrition and its effects have increased in absolute terms in the past 15 years.³ Even countries which have recently benefitted from a rapid and strong growth are affected: in Kenya 26 per cent of children are stunted from lack of nutrients. Malnutrition takes a heavy toll on cognitive development, and thus on personal growth and on productivity as well; according to the World Bank, this burden costs up to 11 per cent of Africa’s GDP each year.⁴ The roughly 35 billion dollar import bill for food⁵ is also a heavy burden for the continent as a whole, draining much of what is earned through the export of natural resources and which could instead be directed towards infrastructure or re-invested in agriculture. The growing hunger of Africa has even led to a true epidemic of “counterfeit” food – i.e., frequently imported, low-quality or discarded food, masked with fake labels or colouring (often carcinogenic). In countries like Ghana and Nigeria the expression *plastic rice* has become unfortunately common.

Reasons are relatively easy to find. Africa has almost entirely missed the Green Rev-

1. McKinsey, *Winning in Africa’s Agricultural Market*, 2019 www.mckinsey.com/industries/agriculture/our-insights/winning-in-africas-agricultural-market
2. NEPAD, *Agriculture in Africa – Transformation and Outlook*, 2013 www.tralac.org/images/docs/6460/agriculture-in-africa-transformation-and-outlook.pdf
3. WHO – Regional Office for Africa, *Nutrition in the WHO African Region*, 2017 www.afro.who.int/sites/default/files/2017-11/Nutrition%20in%20the%20WHO%20African%20Region%202017_0.pdf
4. The World Bank, *Nutrition Overview*, 2019 www.worldbank.org/en/topic/nutrition/overview
5. African Development Bank, *Feed Africa*, 2016 www.afdb.org/en/the-high-5/feed-africa

olution – the technology transfer that, from the early 1960s, boosted agricultural production on other continents, Asia and South and Central America above all. This was the shift that, according to many analysts,⁶ contributed to the world avoiding a Malthusian famine as population was booming – but it was a revolution that did not touch most of Africa. While Asian output was growing at an astounding 3 per cent per year, African growth did not go beyond 1 per cent for a variety of causes,⁷ most of which still haunt the continent’s agriculture to this day. Foremost among these has been a governmental focus on (largely unsuccessful) attempts to develop industry, contributing to a general disregard of agriculture, which the colonial past had left well designed for exports but largely inadequate for domestic consumption. Further causes include feudal land tenure systems, lack of knowledge transfer, and political and economic instability which have undermined improvement of the agricultural workforce, which consists largely of smallholders in isolated communities, often deep-rooted in tradition. In the 1990s, countries as Mexico or India were matching exceptional population growth with a successful agriculture; in sub-Saharan Africa, aside from the prosperous yet risky monoculture and a few other exceptions, the outlook for farming had not changed much from three decades earlier. Productivity was – and unfortunately still is – the lowest in the world. Yet, in the past 20 years something has changed. The significant growth of Africa and the stability of some of its countries in the 2000s and 2010s again shone light on the potential of the continent, on its untapped sectors but, most importantly, on a new perspective for African development. A rising middle class, which has accounted of more than a third of the African population in the past decade,⁸ and increased spending by households have attracted a new wave of investors, who have started assessing opportunities to develop not only the resources of the continent, but also of its people. The 1.2 billion strong population of Africa is finally being considered as a powerful consumer base for the goods of many Chinese, European, American but also African producers – if their empowerment continues as it has over the past 15 years.

Agriculture has benefitted from this new growth, receiving greater investments and increasing production at levels comparable to the 1960s Green Revolution (some 3.2 per cent a year between 1990 and 2014⁹). This is good news; along with energy, agriculture is probably the most important enabling factor for the development of the continent. Not only is malnutrition a strong brake to Africa’s development, but the sector has also the greatest multiplier effect on the continent’s economy: as almost 60 to 70 per cent of the African population is employed in agriculture and 90 per cent of the people are dependent on earnings from farming, agriculture’s impact on the GDP is 2 to 2.7 times higher than other sectors.¹⁰ Representing such a major share of the African population, the economic but also cultural and social growth of farmers is key to reduce migration, normalise the uncontrolled urbanisation of many African cities and, above all, develop the new generation of entrepreneurs the continent badly needs.

Renewed attention to African agriculture comes also at a challenging time for its environment. In the past decades, climate change has started to show its effects on sub-Saharan Africa: 2016, 2018 and 2019 witnessed devastating droughts that threaten famine across the continent and particularly in the East and South, due to rising extreme El Niño events. In 2020, eight countries have also been struggling with the worst outbreak of locusts in 70 years, largely caused by changing climate conditions and the abandonment of the war-torn fields of Somalia and Yemen. The situation is still unclear but, according to the FAO, this could rapidly become one of the worst threats to agriculture and livelihoods in the whole of Africa in this century.¹¹ In addition to desertification, erratic rain patterns exacerbate a fragile situation caused by the unsustainable practices that have driven the development of agriculture witnessed on the continent in the past couple of decades. Indeed, most of the expansion of production has been largely due to a greater consumption of soil, rather than to an increase in yield. This, in turn, consumed precious (and often protected) primary forest, de-

creased biodiversity, threatened ecosystems and also the very fertility of the soil: overcropping, inadequate or no rotation, heavy rains worsened by lack of tree cover washed away nutrients that fertilisers could not replenish. As land became exhausted, farmers moved to other patches, contributing to desertification and deforestation. This is also the case in Ghana, where unsustainable cocoa production, coupled with new pressure on land resources from illegal mining or rubber plantations, are major drivers for deforestation and biodiversity loss. This creates a vicious cycle that, as climate change worsens, will have to be stopped.

The future of Africa’s plains

A shift in Africa’s agriculture must occur, and soon, towards a full economic, social and environmental sustainability, but productivity can be raised without further harm to the African population or ecosystems. The benefits of the Green Revolution have been evident, but also in evidence is the environmental impact of its methods over the decades: the widespread use of pesticides and fertilisers, including the still common nicotinoids (particularly harmful to pollinators), the push towards global (particularly South American) deforestation, the heavy exploitation of soil by monoculture. New tools and approaches now allow instead for a “sustainable intensification” of crop production, which the FAO defines as “policies that promote doing more with less” and which translates into the three actions of increasing efficiency, replacing harmful or unsuitable products, and the redesign of farms and cultivations.¹² Indeed, even estimates from the McKinsey consultancy agree that most of the potential for productivity expansion in sub-Saharan Africa will come from improvement in yield¹³: land expansion would deliver just half the additional cereals and coarse grains that could be provided by postharvest loss reduction alone.¹⁴

This process will need different steps – and most importantly, an integrated approach along the whole supply chain. Growth in African agriculture will start from the actual increase of yields, which will be achieved first through the construction of new irrigation schemes – and since food production on the continent is almost totally rainfed this will be the greatest investment cost to bear, some 65 billion dollars according to McKinsey.¹⁵ Fertiliser (up to eight times the current use), storage (at least 8 billion dollars in investment) and quality seeds will be equally needed. Yet, this alone will not be sufficient; Africa will need an increased access to markets and international trade, without which its new production will be left to rot, or will not deliver benefits to producers. This will require a synergic effort among countries to build roads and ports and to strengthen trade flows among African countries to expand national markets which, due to the still low levels of consumption, are often small. The African Continental Free Trade Area, effective since May 2019, could be a solid basis both to increase intra-African trade of agricultural commodities, and to expand regional investments in the sector. Greater unity among African countries will also be necessary to improve the continent’s positioning on the global stage, in terms of international standards which smaller countries (such as Togo or Benin) sometimes have difficulty in adopting alone, but also in relation to negotiating power with foreign partners (China, Europe and the US in particular).

This regards not only agreement over commodity prices, but also the ability of African countries to limit the unsustainable exploitation of natural resources by foreign actors on their territory; many governments, often pressured by heavy foreign debt and unable to face much more powerful counterparts, have turned a blind eye to often devastating and illegal fishing and mining practices by foreign companies, and to some extent to the ongoing land grab (even if the perception of this may have been larger than the reality).¹⁶

In the quest for a syncretic approach encompassing increased productivity and sustainability, digitalisation could also be one of the game changers. Applications to agriculture are varied and still largely unexplored: portable scanning systems that could be operated via smart phones are now used to detect counterfeit food, or simply to evaluate important features of fruit and vegetables (level of

6. D. Mehta, *The Green Revolution did not increase poverty and hunger for millions* in *Nature Plants*, Vol 4, No. 10, 2018 www.nature.com/articles/s41477-018-0240-8

7. A. Benin, *Agricultural Productivity in Africa: Trends, Patterns, and Determinants*, Washington, D.C., International Food Policy Research Institute (IFPRI), 2016 ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/130468

8. L. Signé, *Africa's Consumer Market Potential: Trends, Drivers, Opportunities, and Strategies*, Washington, D.C., Brookings Report, 2018 www.brookings.edu/research/africas-consumer-market-potential/

9. F. E. Mengoub, *Agricultural Investment in Africa: A Low Level... Numerous Opportunities*. Rabat: OCP Policy Center, 2018 www.policycenter.ma/sites/default/files/OCPPC-PB1802.pdf

10. A. N. Mukasa, A.D. Woldemichael, A. O. Salami, A. M. Simpasa, *Africa's Agricultural Transformation: Identifying Priority Areas and Overcoming Challenges*. Africa Economic Brief, 8(3), 1-16, 2017 www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEB_Volume_8_Issue_3.pdf

11. FAO, *Alarm over Desert Locusts increases as new generation of the destructive pests starts breeding in Horn of Africa*, 2020 www.fao.org/news/story/en/item/1258877/icode/

12. FAO, *Sustainable Intensification of Crop Production*, in *Policy Support and Governance* www.fao.org/policy-support/policy-themes/sustainable-intensification-crop-production/en/

13. L. Goedde, A. Ooko-Ombaka and G. Pais, *Winning in Africa's Agricultural Market*, McKinsey, 2019 www.mckinsey.com/industries/agriculture/our-insights/winning-in-africas-agricultural-market

14. *Ibid.*

15. *Ibid.*

16. D. Bräutigam, *U.S. Politicians Get China in Africa All Wrong*, in *The Washington Post* www.washingtonpost.com/news/theworldpost/wp/2018/04/12/china-africa/

maturity, sweetness). Drones are particularly effective due to their variety of applications: they are used in countries such as Ghana or Nigeria for precision spraying that allows 60 to 70 per cent greater efficiency in the use of pesticides or fertilisers, for monitoring the health of fields through multispectral images that detect pests or diseases even when they affect only a small portion of plants, and for soil and irrigation analysis that normally, through aerial or satellite photography, would have been inaccessible for the vast majority of African farmers. Smart and normal phones alone are already making a significant contribution, through the exchange of information regarding commodity prices, weather predictions, information on cultivation methods or solutions to pests or droughts. Knowledge sharing platforms such as WeFarm, as well as readily available YouTube videos, are expanding the skills of farmers, improving productivity and reducing costs such as those for expensive and often unavailable consultations with agronomists or veterinarians. While the economics for the digitalisation of agriculture is improving and will likely lead to a major expansion in the decade to come,¹⁷ such changes are already visible, and are above all contributing to attract young people towards an agriculture which is made more appealing by innovation and less tainted by the stigma of backwardness and poverty.

The path ahead

The outlook for agriculture in sub-Saharan Africa is mixed, but its crucial role in guaranteeing the success of the ongoing transformations in the region is evident. It is fundamental to act now and activate the sector not only to exploit a potential ripe for the taking, but also to confront challenges that will not wait for Africa to prepare. Climate change and environmental degradation are top on the list, but the threat represented by the Covid-19 global pandemic has rapidly surged: while the impact of the virus on rural African populations could be immense due to the extremely limited healthcare facilities, many farmers are already suffering from the closure of borders and the reduction of trade. It is thus necessary to boost the continent’s agriculture along the lines of a three-fold sustainability (economic, social and environmental), bearing in mind one key concept: one-size-fits-all solutions will not work in Africa. Climate, infrastructural, economic, political and social conditions are unique and differ not only from the rest of the world, but also among African countries. The delivery of such “African solutions” will influence a variety of actions, from how greenhouses should be designed to how land tenure systems have to be reformed on a regional, national or even provincial basis. However, one particularity shared by the whole continent will also need to be considered: the role of smallholders, farmers owning less than 2 hectares and who represent more than 80 per cent of the whole African production (and up to 95 per cent in countries such as Ethiopia). Such a structure for production could seem a drawback, as implementing radical changes would be much easier and more effective on larger farms, which also tend to be more efficient. It could instead be turned into an advantage: smallholders have proved to be keener on sustainability due to their inherent adaptability, the more accurate use of resources and the close relation many have with their territory. Improvements in their productivity directly affect their living conditions and thus those of the rural communities they belong to, which not only represent the majority of the African population, but also its fastest growing and most fragile parts. Infusing technology, resources and even hope into the veins of African agriculture means accessing and boosting the core of its society: such infusion will impact not only Africa’s GDP, but the self-awareness of the generations to come and of those already leading this battle. Among them are a generation of former expatriates who changed their work and their lives to define their own African solutions; youth who choose farming over urbanisation not for lack of alternatives, but attracted by the potential they see in new technologies; and communities that are coming together to lift themselves out of the damnation of subsistence farming. This process is only at its beginning, true, but the pieces are all in place; perhaps it will not be long before we are witnessing the new green revolution of Africa.

Structure of the Book

The goal of this volume is to assess how a sustainable agricultural transition can generate positive spill-over effects for the people, the primary sector and the environment. In order to achieve this, the book is divided into two parts. Part one contains a photographic section, with a series of stories collected from field work in Ghana and that highlight the path of the country towards a more sustainable agricultural transition, that leaves no one behind. Part two contains an analysis of the status of nutrition and agriculture in Ghana and it is divided into four chapters.

The first provides an overview of the nutritional status of Ghana, focusing on the main challenges that the country is facing in terms of food and nutrition security. The chapter devotes particular attention to the most vulnerable groups of the population such as children and women, and includes a section on the effects that Covid-19 may have on the country’s overall food security.

Chapter 2 focuses on agriculture in Ghana, by presenting a brief picture of the overall status of the primary sector in the country and then focusing on two specific crops that are important for the current and future development of Ghanaian agriculture – cocoa and coffee. The chapter presents the main challenges for the sustainable production of these crops, as well as a reflection on the impact that unsustainable cocoa production has generated on people (i.e., child exploitation) and the environment (i.e., deforestation). In this sense, it also highlights the role that international standards and community could play to make the cocoa supply chain more sustainable.

Chapter 3 describes the harmful impact of unsustainable fishing for the Ghanaian environment. Starting from a general analysis on the importance of this sector for the country’s socio-economic balance, it then concentrates on the repercussions caused by illegal, unreported and unregulated fishing. In so doing, it addresses the role that domestic, regional and international actors could play for introducing better regulations to preserve biodiversity and protect local communities.

Finally, Chapter 4 presents some forward looking reflections on the main challenges that agriculture in Ghana will face, showing the potential of digital solutions applied to agriculture to accelerate growth, reduce inequalities and foster sustainable development for the whole country.

17. M. Tsan, S. Totapally, M. Hallu and B. Addom, *The Digitalisation of African Agriculture Report 2018-2019*, CTA, Dalberg Advisors

Ghana, between past and future

Of all countries in the continent, Ghana is the one that perhaps best represents the crossroads at which Africa finds itself. Benefitting from a sustained growth, it is not affected by the ravaging instability and poverty of countries such as the D.R.C., and neither does it suffer from the astounding extremes of richness and poverty other African countries still show. But that is not to say that all is well in Ghana. True, the crowded streets of Accra already reveal a small but growing middle class. Yet only a few kilometres north of the capital, many farmers struggle to live an inch above subsistence farming, while most arid areas are threatened by climate change and desertification. As they use tools and techniques dating back to the 1960s, the inherent frailty of the economy of many areas in Ghana leaves them no choice but to migrate.

The best example of this contradiction is indeed the fields of Ghana, where the sound of ancient hoes striking soil as hard as stone mingles with the buzz of drones flying over nearby farms. Ghana is by definition a country where a thousand different people and landscapes blend: the journey we portrayed in this book started from the busy markets of Accra, the stalls filled with familiar cassava root and bizarre giant black snails, and continued into the misty forests surviving the deforestation along the east of the Ghana's central region. Only a few kilometres north our path again left the jungle and the bush, to join the arid savannah of the north, where bit by bit the desert is stealing farmland. Churches are matched by mosques, and the colourful clothes of Central Africa mix with the more sober white and grey garb of the Sahel. Travelling still further we turned south to reach the coast of the Gulf of Guinea, once famous for its gold and for the heinous slave trade, and now ravaged by predatory and unsustainable fishing. But the tepid waters of the Ghanaian Atlantic shores were not the end of our journey: the struggles confronting the many souls of Ghana are different, yet what really connects them is the perception that the *momentum* for change is there. And that it is ripe for the taking.

The Fires of Chamba

The Northern Region of Ghana is mostly savannah, but during the dry season only the rare dusty bush marks some distinction between this ecosystem and the not so distant offshoots of the Sahara desert. It is here and in the Upper East and Upper West Regions that most of the land under threat of desertification in Ghana is located – some 35 per cent of the whole territory. Farmers fight the apparently unrestrainable advance of the desert with the little they know, starting massive fires once the yam harvest is done, hoping to restore some of the long-gone fertility of the soil. It is an illusion; the few nutrients fire brings are easily washed away during the upcoming rainy season. The flames destroy organic matter and worsen erosion, dramatically decreasing soil regeneration after each fire. They leave nothing but the desert behind.











Bordering the desert

Tampion is a small village north of Tamale, the largest (and only) city in the Northern Region. The water-rich fields and hills of Central Ghana seem to belong to a different country, to another continent; here, farmers fight on a daily basis with water scarcity and lack of infrastructure – irrigation most of all, but roads too. The unstable production is often not enough to feed a growing population, as nomads from the Sahel have started settling in the area, pushed by desertification and climate change. Malnutrition, the silent killer of Ghana, creeps among the people of Tampion. Half of all Ghanaian adolescent girls are anaemic, one fifth of all children suffer from stunted growth, but here such issues hit the population much harder, threatening the lives of mothers and the survival of newborn infants.













Plundering the Ocean

The crumbling, ancient halls of Fort William once hosted the ominous slave trade, but now they echo the words of Nana Kojo Bonfir V, chief fisherman of Anomabo, the village born around the walls of the old British fortress. “The whites, they cheated us before, they are doing the same now. They are destroying our seas”, he says; Kojo refers to the illegal fishing perpetrated by the 20 or so large Chinese-owned trawlers that, starting from the port of Tema in the West, work all along the coast of Ghana. Unsustainable practices are annihilating fish populations in the Gulf of Guinea, while the sale of by-catch to coastal villages is leaving hundreds of thousands jobless. “We will have to move, to fish somewhere else”, says Kojo, but when he is asked what they will do if there are no fish at all in the future, he just stares at the ocean – the same ocean his family has sailed for five generations.



















Bean Masters

“If you tell a woman coffee is the new way to save the vegetation, to earn income for her husband, she will just do her best.” This is how Benedicta Tamakloe explains her choice to launch Bean Masters, her social enterprise dedicated to women and which aims at improving the quality and quantity of the coffee harvested in the mountains bordering Togo. She wants to boost the income in villages characterised by subsistence farming and economic instability; for women, this may represent the best option for their emancipation. This is why Benedicta decided to come back from Accra to the forest-surrounded village she grew up in, hoping the new sustainable practices will also help restore the original cover that destructive slash-and-burn agriculture has visibly degraded. “I want it to look like it was when I was a kid, when the jungle was so thick you could not see from one house to the other. And those women, they raised me. It is my way to give them back the efforts they put in my upbringing.”























The gift of water

In the Central Region of Ghana water seems abundant, provided by the gigantic (and artificial) lake Volta and the irrigation systems built around it in the 1960s and 1970s. Yet, the canals are short and rivers are few; the scorching sun of the dry season evaporates the water that manages to reach the cocoa field deprived of tree cover by the deforestation that has taken place in the past three decades. However, something is changing; across the country a series of projects and programmes, such as Cocolife, are training farmers to restore the cover and develop new reservoirs and channels that can bring the water of Lake Volta further into the country. Distributing such an abundance of water deep into the countryside has been one of the dreams of the Ghanaian people since their independence; now, as the impact of climate change becomes increasingly tangible, the dream has turned into an urgent need.

















Tomorrow's Africa

The drone moves rhythmically over the pineapple farm, almost grazing the spiky leaves of the plants to accurately spray them with fertiliser. Nicholas Appiah, the founder of the drone service company DroneHub, obsessively observes the process – it is automated, but its accuracy depends on the mapping of the farm produced by walking its perimeter. “The farmer saves 60, 70 per cent of fertiliser by using the drone”, he says, adding that they can do much more: scanning for diseases before they spread throughout the field, analysing the health of the plantations to understand what is needed and what is not. A young man from the Ghanaian middle class who studied in the UK, Nicholas is ambitious and forward looking, but he is not alone; he is part of a generation that believes agritech, using technologies such as drones and apps, can give a much needed push to the country's agriculture. “The time is ripe for Africa to take a giant leap. One that would see Africa fulfil its full potential”, he says, while the buzzing of his massive drone slowly fades away as it continues its spraying.

















The pineapple fields of Joshua Ayinbora, founder of the agribusiness Griotal, do not apparently differ from the rest of the vast fields that cover the surrounding area, some a hundred kilometres distant from Accra. Yet, the yield and the quality of his products is unequalled by most of competitors of a comparable size – his sugarloaf variety does indeed taste like a caramel pineapple. There is no magic involved, but only state-of-the art agricultural practices: portable scanners to check the quality of the pineapples through an app, drone spraying that saves him some 60 to 70 per cent compared to the traditional knapsack. It is all economical and so it has to be; Joshua is not rich, but only a son of a family of farmers from the north of Ghana, who managed to save a little money so he could get a scholarship, study in the UK and start his own business – with the right mindset.

Joshua is not alone. Hitching a ride back to the house with the DroneHub crew who provided the spraying for the day, he talks to the three other young men in their twenties and early thirties about the new prospects for agriculture thanks to digitalisation, about the future of Ghanaian start-ups. Their enthusiasm reveals a rising new generation of entrepreneurs, who believe agriculture is the sector that can both fulfil their ambitions and guarantee a bright and sustainable future for their country. It is a varied movement, still at its inception, but includes forerunners like Leticia Osafo-Addo. In the late 1990s, she was the first to commercially produce and distribute the traditional, spicy shito sauce; she started in her kitchen and now owns the largest food processing business in Ghana. She says this is not only a business for her, but also a statement aimed at all the people who despised her because they thought that making shito sauce was a menial task, and that adding value to Ghana's food production was meaningless. As she is now building a large new factory, her prospects are rising and so are those of others in the sector. Akofa Ata and his partners in the Ardhi group are growing cucumbers and tomatoes in their greenhouses, equipment they are also selling to farmers; yet, above all what they want is to design a system that others can replicate in this part of Africa. They do not make a sale before ensuring the counterpart is aware of up-to-date techniques, and they do not apply European or Asian methods without adapting them to tropical Africa. Their greenhouses look like small Gothic cathedrals topped with an air vent to guarantee the air circulation that the limited temperature range in Ghana does not naturally create. "African solutions for Africa" is one of Akofa's favourite mottos, and it fits this promising time: this momentum for the agriculture of Ghana and of Africa was initiated by stable growth and the appearance of new technologies, but will continue only if the continent is able to make global changes its own, through the development of a truly African way. This already is in Ghana's blood; in 1960, as the newly independent country was disputed by the two blocs in the middle of the Cold War, Kwame Nkrumah, the country's pater patriae, said this of his people:

*We face neither East nor West.
We face forward.*

Daniele Fattibene

Ending poverty to leave no one behind
Although Ghana is considered a lower-middle-income country, standards of living and public services are generally not at middle-income standards. The country ranks 142nd out of 189 countries in the Human Development Index,¹⁸ it scores 107 out of 153 countries in the Global Gender Gap Report,¹⁹ and significant poverty levels persist with huge regional differences. Although absolute poverty levels halved between 1992 (56.5 per cent) and 2013 (24.2 per cent), the Gini coefficient (43.5) – which measures the income distribution of a country’s citizens – shows that domestic inequalities are still huge.²⁰ In addition, although the levels of extreme poverty decreased from 8.4 per cent in 2012/13 to 8.2 per cent in 2016/17, the absolute number of people living in extreme poverty in Ghana increased from 2.2 million in 2013 to 2.4 million in 2017, also due to population increase. Poverty in Ghana is linked with regional, gender and urban–rural dimensions. While five regions (Greater Accra Region, Western Region, Central Region, Eastern Region and Ashanti Region) had rates of poverty incidence lower than the national average of 23.4 per cent, the remaining five regions had higher rates than the national average.²¹ Therefore, the path to eradicate poverty in line with the goals set in the UN Agenda 2030 is still a long one.

Poverty goes hand in hand with poor education, since less educated households have greater chance to be poor. In Ghana, 44 per cent of households whose head has no education are poor compared with 0.9 per cent among those with tertiary education.²² In this context, poverty represents a big threat especially for children. In Ghana there is still a high mortality rate for infants (35 deaths per 1,000 children born) and for children under 5 (48 deaths per 1,000 children born), with neonatal deaths representing more than half of all under 5 deaths.²³ Furthermore, poorer children are more likely to suffer from negative coping strategies adopted by their families, including school drop-out, child labour, and early marriages or pregnancies. Overall, the country has improved access to education at both basic and secondary education levels to achieve Free Compulsory Universal Basic Education as enshrined in the 1992 constitution of Ghana. The country experienced a steady improvement in net primary school enrolment for both boys and girls from 2005/06 to 2016/17, including for the poorest households.²⁴ However, the Greater Accra Region and the Northern Region experienced a drop in net primary school enrolment ratio for males between 2012/13 and 2016/17.²⁵

Finally, poverty reduces access to basic public goods like water, with huge differences experienced between rural and urban areas. UNICEF reports that in rural areas 30 per cent of households do not have access to basic drinking water services (compared to 7 per cent in urban areas), almost 90 per cent do not have access to basic sanitation services (compared to 75 per cent in urban areas) and more than 60 per cent do not have access to basic hygiene facilities (comparing to 55 per cent in urban settlements).²⁶ This means that in several regions people may have to rely on contaminated water sources for everyday use.

The triple burden of malnutrition
Poverty is a trigger for food insecurity and malnutrition, particularly in rural remote areas. Despite overall declining rates of undernutrition, such improvements did not occur in an homogenous way in the country, particularly in the poorest regions. This is why the Global Hunger Index reveals that Ghana ranks 59th out of 117, suffering from a moderate level of hunger.²⁷ Ghana suffers from a triple burden of malnutrition categorised in terms of protein-energy malnutrition, micronutrient malnutrition and overweight and obesity. These trends affect especially the most vulnerable groups of the population: children under 5 years of age, as well as pregnant and lactating women. First, almost one fifth of the children under 5 are stunted, particularly in the Northern Region, where about 33 per cent of children are too short for their age, comparing to about 10 per cent of children in the Accra Region. Second, around 5 per cent of children in the country are wasted – or too thin for their height. Third, a recent demographic health survey in Ghana highlighted that a significant number (3 per cent) of children under 5 are obese. According to the World Food Programme, infant malnutrition represents an annual cost of around 4.6 billion Ghana cedis (6.4 per cent of GDP).²⁸ Against this backdrop, anaemia is still a major cause of maternal mortality and it still widely spread particularly in

18. UNDP, *Human Development Report 2019* hdr.undp.org/sites/default/files/hdr2019.pdf
19. World Economic Forum, *Global Gender Gap Report 2020* www3.weforum.org/docs/WEF_GGGR_2020.pdf
20. World Bank, *GINI Index (World Bank Estimate) – Ghana* data.worldbank.org/indicator/SI.POV.GINI?locations=GH
21. *Poverty Trends in Ghana 2005-2017* http://www2.statsghana.gov.gh/docfiles/publications/GLSS7/Poverty%20Profile%20Report_2005%20-%202017.pdf
22. *Ibid.*
23. UNICEF, *The State of the World's Children 2019* www.unicef.org/media/63016/file/SOWC-2019.pdf
24. *Poverty Trends in Ghana 2005-2017* http://www2.statsghana.gov.gh/docfiles/publications/GLSS7/Poverty%20Profile%20Report_2005%20-%202017.pdf
25. WFP, *Ghana Country Strategic Plan (2019–2023)* docs.wfp.org/api/documents/8bb2998e0ff24ad486aa278cf43f2c34/download/
26. UNICEF, *The State of the World's Children 2019* www.unicef.org/media/63016/file/SOWC-2019.pdf
27. Global Hunger Index, Ghana www.globalhungerindex.org/ghana.html
28. WFP, *Addressing Sustainable Development Goal 2: The Ghana Zero Hunger Strategic Review Report* ghana.un.org/en/20828-addressing-sustainable-development-goal-2-ghana-zero-hunger-strategic-review-report-full

rural areas (74 per cent) compared to urban settings (57 per cent) and ranges from a low of 54 per cent in the Ashanti Region to a high of 82 per cent in the Northern Region, which is also the region with highest prevalence of malaria. Further complicating the situation, the World Food Programme reports that the lack of easy-to-use field equipment has always made it difficult to monitor the status of nutrients in Ghana, hence national surveys are not able to capture all nutrient deficiencies. Such deficiencies are also exacerbated by early pregnancies, as teenage girls may enter into pregnancy at a marginal state of folic acid sufficiency.²⁹

Malnutrition is also caused by inefficiencies all along the food supply chain, as rural farmers find it hard to access and sell their products to local markets, due to poor quality of infrastructure, lack of storage facilities and inadequate farming techniques. In addition, climate change can become a multiplier of food insecurity. Increasingly unpredictable and extreme weather patterns, frequent droughts and floods, longer and more frequent heatwaves and land degradation can cause yield losses, damage to crops and livestock mortality. Therefore, although hunger has decreased by 75 per cent from the 1990s, in the Northern, Upper East and Upper West regions between 20 per cent and 37 per cent of households are food-insecure. In this context, malnutrition is unfortunately a gendered issue, as households headed by women are twice as likely to be food-insecure as those headed by men.³⁰ Programmes launched by governments to increase yield productivity have produced only limited results, and have been unable to drive a sustainable transition of the agricultural sector. The paradox is that although food is mainly produced in rural areas, farmers are net purchasers of food products. Many are compelled to sell food at low prices during harvest season to get liquidity to repay loans, and buy food later at higher prices. Hence, poverty and hunger create a vicious cycle that widens inequality in the country and reduces the possibility for small rural farmers to invest in better technologies and farming techniques to increase production in a sustainable way. Addressing food insecurity, hunger and malnutrition in Ghana implies bridging multiple gaps, ranging from urban–rural divide to gender discrimination and regional disparities. Therefore, ending poverty and ensuring access to better basic services is crucial to reduce inequality and malnutrition, and foster a sustainable development for Ghanaian communities.

Protecting children and the gender gap

Children are under threat in Ghana for several reasons. Although a policy entitled Elimination of the Worst Forms of Child Labour was issued 20 years ago, child labour persists and is triggered by high levels of poverty. Child exploitation is still endemic in several sectors like cocoa plantations, mines and quarries.³¹ In this context, several measures could be taken. As for the cocoa sector, better normative and business tools are needed to increase transparency in the supply chain, such as the so called Child Labour Monitoring and Remediation Systems (CLMRS).

So far, in all pilot tests conducted, the application of CLMRSs has led to a significant decrease of child labour levels in cocoa plantations. In particular, the provision of better health care and drinking water facilities contributed to improved adult health and reduced shortages of the adult labour force, a major driver for child labour.³²

Moreover, UNICEF has reported that in several regions in Ghana children are exposed to various forms of abuse, ranging from sexual abuse and exploitation to early marriage or violence at home or school. It is important to note that tackling early marriages and improving the nutrition of pregnant or lactating women is crucial to improve the psycho-physical development of children, especially during the “1,000 day window”. This window – that starts with a woman’s pregnancy and ends with her child’s second birthday – is crucial for the psycho-physical development of the baby and may have huge repercussions for the development of entire communities.³³ These trends are unfortunately more likely to occur in poorer households in rural areas. For instance, girls from rural areas are twice as likely to become child brides as those in urban areas, whereas poorer girls are four times more likely to marry than those from the richest households.³⁴ Yet, different forms of child abuse can be detected in several regions of Ghana. In the Volta Region, due to traditional practices such as *trokosi*, young virgin girls are enslaved and sold to atone for the sins of a family member. They are given to priests, for whom they act as domestic and sexual slaves for a number of years. In addition, they are denied schooling and access to their families and their peers, thereby increasing their vulnerability to abuse.³⁵ In the Northern Region less than six children out of ten attend primary school, and the region has the lowest female literacy rate in the country (44.3 per cent).³⁶ Finally, in the Upper West Region there are among the highest rates of child labour in the country, with

one third of children between 5 and 17 involved in child labour, while one in every six children (15.4 per cent) is engaged in hazardous labour.³⁷

Against this backdrop, closing the gender gap can be a powerful tool not only to protect children, but also to ensure a more prosperous and sustainable future for the whole country. Gender discrimination is still persistent in various forms in the country and has implications for national food security. Women constitute 52 per cent of the agricultural labourers, 70 per cent of crop growers and 85 per cent of food distributors.³⁸ The same applies to the coffee production, where more than 20 per cent of owners are women, most of whom are young entrepreneurs.³⁹ Nonetheless, women still have a more limited access to land than men, as well as more difficulties in accessing extension services, credit and certifications. Finally, they are often underrepresented in farmers’ organisations, public meetings and leadership roles in communities.⁴⁰

Women in Ghana need to cope with a double burden, as they need not only to take care of the households, but are also engaged in agricultural production. Such a gendered division of labour affects not only agricultural productivity but also children’s education and nutrition in case the woman in the house is indisposed.⁴¹ In addition, in many regions cultural practices reduce chances for women to have access to productive resources, due to financial and administrative bottlenecks that limit the availability of agricultural credit and use of farming equipment. Thus, providing more access to land is crucial for women’s empowerment. This implies embarking on negotiations with governmental and traditional authorities, with the aim to change the land tenure system and ensure better productivity levels.⁴² Finally, investing in education will be crucial not only to reduce gender disparities, but also to generate positive spill-overs for the nutritional status of the country. In Ghana nearly one in five women and almost one in ten men have no formal education,⁴³ and men are generally more likely (82 per cent) to be literate than women (66 per cent). A study from FAO demonstrates that reducing those barriers that discriminate against women could increase agricultural production up to 30 per cent and reduce malnutrition by 17 per cent.⁴⁴ Therefore ending discrimination is essential for Ghana and can be an extraordinary driver for sustainable socio-economic development.

The impact of Covid-19 on Ghana’s food and nutrition security

Although it is still too early to predict the real impact that the global pandemic could have on Ghanaian food and nutrition security, it is possible to identify some challenges that the country will be likely to face in the next months. The pandemic will have an impact on both global and local food systems. At the global level, the economic downturn could have repercussions on global grain markets, although so far trade is allowing production to move from areas of surplus to areas of shortage, avoiding the drastic shortages and food insecurity associated with reliance only on local production. Yet, exporting countries could be tempted to introduce trade bans or safety restrictions, as well as close borders, with the risks of replicating the same dynamics that generated food price spikes in 2007 and 2008 with negative consequences for food access in the poorest households.⁴⁵ Among them, the most food insecure groups like children could suffer very severe consequences especially in case School Feeding Programmes are suspended for longer periods.

At the local level, the spread of Covid-19 is likely to have an impact on both urban and rural communities. On the one hand, the high population density in cities renders a huge portion of the population particularly vulnerable to the spread of the virus, with local authorities lacking proper facilities to respond to any health emergency. In addition, small businesses could be forced to close down due to restricted movements of buyers or shortage of imported stock, especially from China. Moreover, open markets could be closed, reducing household incomes and purchasing power for affected urban populations.⁴⁶ Slum dwellers with very low incomes will likely be the most affected. In this context, policies such lockdowns or physical distancing can thus become extremely dangerous for all those people working in informal sector activities (e.g., street food vendors or those working in wet markets)⁴⁷ and could lead to increased levels of food insecurity.⁴⁸ The Ebola crisis in Western Africa already showed the importance of maintaining routine health service delivery including vaccination and child health treatment. A recent study on Central Africa revealed that during the disease outbreak there were more people who died for malaria – because they were too afraid to go the hospital and get infected – than those who actually contracted the virus.⁴⁹

On the other hand, rural communities could suffer important repercussions. First, market closures, trade disruptions, rising transportation costs, and a reduction in demand for cer-

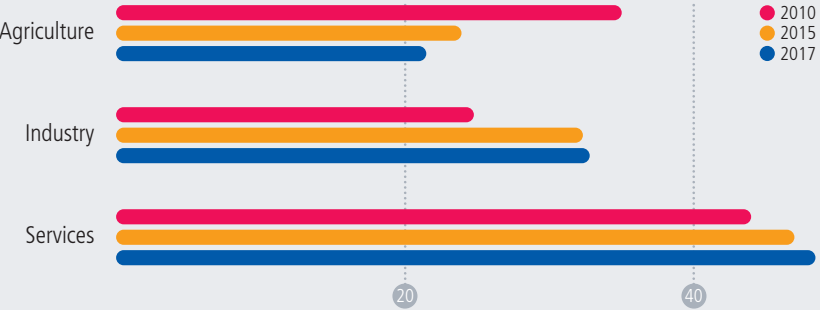
29. *Ibid.*
30. WFP, *Ghana country strategic plan (2019–2023)* docs.wfp.org/api/documents/8bb2998e0ff24ad486aa278cf43f2c34/download/
31. A. Fountain and F. Huetz-Adams, *Cocoa Barometer 2018* www.voicenetwork.eu/wp-content/uploads/2019/07/2018-Cocoa-Barometer.pdf
32. *Ibid.*
33. *1,000 Days*, 2017 housanddays.org/the-issue/why-1000-days/
34. Ministry of Gender, Children and Social Protection of Ghana, *Resource Guide on Ending Child Marriage in Ghana* www.unicef.org/ghana/media/1611/file/Resource%20percent20Guide%20percent20on%20percent20Ending%20percent20Child%20percent20Marriage.pdf
35. UNICEF, *Child Protection Regional Profiles*, Volta Region www.unicef.org/ghana/reports/child-protection-regional-profiles
36. UNICEF, *Child Protection Regional Profiles*, Northern Region www.unicef.org/ghana/reports/child-protection-regional-profiles
37. UNICEF, *Child Protection Regional Profiles*, Upper West Region www.unicef.org/ghana/reports/child-protection-regional-profiles
38. WFP, *Ghana Country Strategic Plan (2019–2023)* docs.wfp.org/api/documents/8bb2998e0ff24ad486aa278cf43f2c34/download/
39. *The Ghana Coffee Sector and Its Economic Potential*, 7 November 2018 thebftonline.com/2018/features/the-ghana-coffee-sector-and-its-economic-potential/
40. A. Fountain and F. Huetz-Adams, *Cocoa Barometer 2018* www.voicenetwork.eu/wp-content/uploads/2019/07/2018-Cocoa-Barometer.pdf
41. WFP, *Addressing Sustainable Development Goal 2: The Ghana Zero Hunger Strategic Review Report* ghana.un.org/en/20828-addressing-sustainable-development-goal-2-ghana-zero-hunger-strategic-review-report-full
42. *Ibid.*
43. *Ibid.*
44. FAO, *The State of Food and Agriculture 2010–2011. Women in Agriculture, Closing the Gender Gap* www.fao.org/3/i2050e/i2050e.pdf
45. J. Glauber, D. Laborde, W. Martin and R. Vos, *COVID-19: Trade Restrictions Are Worst Possible Response to Safeguard Food Security*, 27 March 2020 www.ifpri.org/blog/covid-19-trade-restrictions-are-worst-possible-response-safeguard-food-security
46. FSNWG, *COVID-19 Food Security and Nutrition Alert*, 30 March 2020 reliefweb.int/report/world/covid-19-food-security-and-nutrition-alert-30-march-2020
47. FAO, *Street Food Vending in Accra*, GHANA, 2016 www.fao.org/3/a-i6369e.pdf
48. FAO, *Urban Food Systems and COVID-19: The Role of Cities and Local Governments in Responding to the Emergency*. Rome, 2020 www.fao.org/documents/card/en/d/ca8600en
49. Plucinski et al., *Effect of the Ebola-Virus-Disease Epidemic on Malaria Case Management in Guinea*, 2014: A Cross-Sectional Survey of Health Facilities, in *Lancet*, Vol. 15, No. 9 (2015), p. 1017-1023

tain commodities, particularly cash crops, could reduce farmers’ incomes. Second, for export-oriented commodities reduced demand and prices may cause huge losses for local communities, especially for cocoa farmers. Third, movement restrictions could cause a drop in labour supply, as occurred during the Ebola crisis when crop production levels fell dramatically due to the lack of labour, further reducing purchasing power. This could be very problematic during the harvest season, when a shortage of labour supply could affect farmers’ ability to manage their fields.⁵⁰ Finally, the Covid-19 crisis could heavily affect the work of international humanitarian actors in the field. Social distancing and new infection prevention protocols are hard to implement in such contexts and will inevitably have repercussions on aid, particularly related to food or the distribution of medicines, with dramatic consequences for poorer households.⁵¹ Therefore, it will be important that Ghanaian authorities implement policies able both to preserve public health and reduce the direct and indirect costs of the virus spread among the most fragile groups of the population.

2. Agriculture

The state of agriculture in Ghana
Agriculture plays a crucial role in Ghana. Almost half of the population (45 per cent) is actively engaged in the primary sector and this represents the main direct or indirect source of income for a large majority of citizens.⁵² Nevertheless, the sector registered a dramatic decline in the share of GDP in the last years, dropping from 30 per cent in 2010 to 18 per cent in 2017. The agricultural sector accounted for 77 per cent of the GPD from agriculture, with cocoa playing a major role generating 10 per cent of the GDP from agriculture in 2017.⁵³ Such a decrease is worrisome for at least two reasons. On the one hand, the country cannot yet count on a developed industrial sector, despite an increase in the oil and gas industry. On the other hand, the growth of the service sector (i.e., banking, insurance or telecommunication) is not boosting industrialisation as it instead serves to support buying and selling imported products.⁵⁴

Table 1: Sector Growth Performance (in %)



Source: International Coffee Organization 2018

Agriculture in Ghana is dominated by smallholder farmers (90 per cent of holdings are less than 2 hectares in size), with also some large commercial monocropping farms and plantations, particularly for rubber, oil palm and coconut and to a lesser extent, rice, maize and pineapples.⁵⁵ In most cases, smallholder farms rely on rain-fed agriculture, with low levels of mechanisation, improved seeds, fertilisers and machinery. These problems affect the overall productivity of most traditional staple crops (i.e., plantain, cocoyam, sorghum, millet, groundnuts and cowpeas), and they have led to declining production levels. Furthermore, the lack of inadequate infrastructure coupled with poor post-harvest techniques contribute to generate huge losses. In 2013 the World Bank esti-

mated losses of around 3.2 million tonnes of food worth around USD 8.9 billion.⁵⁶ Better productivity levels have been registered for maize, rice, cassava, yam and soybeans, also thanks to the promotion of donor-funded programmes and projects. For all these reasons, the primary sector has become less and less attractive for younger generations, leading to a high average age of farmers (55 years) in the country.⁵⁷ Many perceive agriculture not as a business opportunity, but rather as a subsistence activity for the poorest and those with no formal education.

Against this backdrop, climate change represents an important threat for the agricultural sector. In several regions unpredictable rainfalls (resulting in both floods and dry spells), soil degradation, water scarcity and desertification are seriously undermining the livelihoods of rural communities. The programmes launched by the government to support the primary sector, raise yield productivity and increase incomes have achieved only limited results. Therefore, making agriculture profitable for current and future farmers is crucial to improve the country’s food and nutrition security and reach the zero hunger target set in the Agenda 2030. This does not mean merely increasing overall productivity, but rather investing in more sustainable and resilient farming systems that allow for a true emancipation of Ghanaian smallholders. The table below shows that in the northern regions even though revenues and profits per hectare increased in absolute terms in Ghana, high inflation rates actually reduced income available for farmers.

Table 2: Comparison of household revenues and profits over time (2012 and 2015 production years) in the northern regions ⁵⁸

	Revenues per hectare		Profits per hectare	
	GHS	USD	GHS	USD
2012	852	456	332	178
2015	1230	323	641	168
%	44	-30	94	-6

Source: Elaboration by the authors from *World Food Programme 2017*

Cocoa

Ghana is the second largest producer of cocoa in the world after the Ivory Coast, with an estimated annual production of over 800,000 metric tonnes that generates around 10 per cent of national GDP.⁵⁹ Cocoa is a major source of employment, especially for smallholder farmers that represent more than two-thirds of the 800,000 farmers involved in cocoa production. Cocoa is mainly cultivated on the southern coast, which benefits from abundant rainfall and good weather conditions. Other important production regions are the Western Region (which produces approximately 60,000 metric tonnes of cocoa every year), and the Bia district at the border with the Ivory Coast. The harvest season occurs twice a year, during which different volumes of beans (i.e., light crop and main crop) are produced. Whereas the main crops are mostly destined for export, the light crop⁶⁰ harvest goes to local grinders at a lower price (usually 15 per cent less than the main crop).

COCOBOD is the national authority that oversees all levels of the cocoa supply chain, from harvest to export. It is entitled to authorise the Licensed Buying Companies operating in Ghana to buy cocoa from farmers for a fixed price and then export it. All farmers are paid a “farmer’s gate price” that does not include transport costs and that is usually a percentage of the world cocoa price (usually 70 per cent) and is set twice a year. Therefore, cocoa price is very much dependent on global price fluctuations and these may have huge repercussions for Ghanaian farmers.⁶¹ The 30 per cent decline in global price experienced between 2016 and 2017 (from US 3,000 dollars to 1,900 dollars within a few weeks) caused huge losses for smallholder farmers and risks repeating as the spread of Covid-19 has already caused a tremendous decline from 3,000 USD dollars in mid-February to around 2,250 USD dollars at the end of March 2020. Such a dependency not only impoverishes farmers, but makes it harder to invest in alternative, more sustainable agricultural practices, and even labelling or certifications. In recent times poverty has increased as farmers’ share of profits has plummeted from 15

50. FSNWG, *COVID-19 Food Security and Nutrition Alert*, 30 March 2020 reliefweb.int/report/world/covid-19-food-security-and-nutrition-alert-30-march-2020

51. R. Kumar, *For the Global Development Community, COVID-19 Poses Big Questions*, in Devex Articles, 1 April 2020 www.devex.com/news/96899

52. FAO, *Ghana and FAO Promoting Sustainable Development for Agricultural Transformation, Economic Growth and Rural Development*, 2019 www.fao.org/3/az484e/az484e.pdf

53. International Coffee Organization, *Country Coffee Profile: Ghana* www.ico.org/documents/cy2017-18/icc-122-8e-country-profile-ghana.pdf

54. WFP, *Addressing Sustainable Development Goal 2: The Ghana Zero Hunger Strategic Review Full Report*, 2017 docs.wfp.org/api/documents/WFP-0000071730/download/?_ga=2.42224161.588582973.1586094238-1700982036.1585129077

55. International Coffee Organization, *Country Coffee Profile: Ghana* www.ico.org/documents/cy2017-18/icc-122-8e-country-profile-ghana.pdf

56. African Development Bank, *Africa Progress Report, 2014*, cited in WFP, *Country Programme – Ghana (2012-2017) Standard Project Report* docs.wfp.org/api/documents/WFP-0000069833/download/

57. Ministry of Food and Agriculture of Ghana, *Youth in Agriculture* mofa.gov.gh/site/business/youth-in-agriculture

58. 1US dollar = 1.86 in 2012; 1US dollar = 3.81 in 2015 (average for the years)

59. Touton, *The Business Case for a Landscape Approach to Sustainable Cocoa Production in Ghana*, 2018 www.idhsustainabletrade.com/uploaded/2018/06/IDH_Business-case-study_Touton_Ghana_cocoa-1.pdf

60. They usually have more shell and thus make more waste

61. K. Strauss, *How Does the Cocoa Market in Ghana Work?*, in Fairafric, 30 October 2018 fairafric.com/how-does-the-cocoa-market-in-ghana-work

per cent to between 4–6 per cent in the past 25 years.⁶² In the last years, the cocoa sector has both faced many challenges and become a driver for environmental problems. First, cocoa production in the country suffers from one of the lowest productivity rates per hectare in the world (between 400 and 450kg). This is a consequence of a lack of high-yielding planting material, pesticides and fertilisers, skills training and finance. Moreover, the country’s cocoa fields have a very high average age (almost one quarter of the tree stocks are more than 30 years old) and are threatened by rising global temperatures.⁶³

Second, cocoa has been a key driver for deforestation in Ghana, with agricultural expansion drastically reducing the country’s forest cover. Cocoa has traditionally been a “slash-and-burn” crop, with farmers cutting new rainforest to grow new cocoa fields, and moving to other areas once the trees get older. It is estimated that natural forest cover in Ghana, Côte d’Ivoire and Burkina Faso has plummeted by more than 70 per cent in the past three decades. This is why the latest *Cocoa Barometer* warns that up to 40 per cent of the cocoa harvested in the Ivory Coast may come from protected areas, causing huge damage for biodiversity and micro-climates, and even leading to an oversupply of cocoa on global markets that contributes to decrease of global prices.⁶⁴ Deforestation has also led to an overall degradation of soils, water scarcity, unpredictability in rainfall and crop failures.⁶⁵

Third, the poor land tenure system affects the overall sustainability of the cocoa sector. In Ghana only one fifth of the land is publicly owned, whereas 80 per cent is ruled by various arrangements via chiefs and other customary authorities. This means that many cocoa farmers do not own the land, even though they have user rights on the trees. Such tenure insecurity makes it harder for them to access credit and invest in new more sustainable agricultural techniques or to replant new trees. In addition, it is an incentive to cut new forest rather than replant old trees, including in protected areas.⁶⁶

Finally, competition over land with other resources such as rubber or gold has posed serious threats to smallholder cocoa producers. In particular, some smallholders claim that the 25 per cent state-owned Ghana Rubber Estate Limited has acquired more than 51,000 acres of land that was already planted to cocoa trees through agreements with local chiefs, damaging farmers who had been cultivating cocoa for decades. This has resulted in a serious economic downturn for several communities, with many children dropping out of school and younger people abandoning their villages to search for better jobs opportunities. This is why although only a fraction of Ghana’s 1.7 million hectares of cocoa has been converted to rubber plantations, cocoa farmers fear the practice could spread to other regions and cause Ghana to lose its position as Africa’s number two cocoa producer.⁶⁷ As for gold, artisanal mining (also known as Galamsey) has rapidly increased, causing serious environmental damage. The mercury used to extract the gold poisons the water, while contaminated mud run-off from the mines causes additional destruction to rivers and lakes. Poverty is an accelerator of these practices, as poorer farmers allow small-scale miners to use their land in exchange for cash compensation, leading to a further loss of land for cocoa farming.

Making the case for sustainable cocoa production?

For these reasons, many are advocating to make cocoa production more sustainable, for instance by investing in cocoa agro-forestry,⁶⁸ although such a practice cannot guarantee the same level of biodiversity protection as natural forest conservation. In the last years, the amount of sustainable cocoa sourced in Ghana has undoubtedly increased. Yet, stronger efforts are needed by all actors of the cocoa supply chain to increase the sustainability of the Ghanaian cocoa industry.

As for companies, it is crucial that the private sector starts paying a fairer price to small cocoa producers. Farmers still bear too many risks linked with global market price volatility, and there is no concerted effort by industry or governments to alleviate even part of the burden of this income problem. Farmers cannot switch easily to another commodity when the price drops, given the long life-span of cocoa trees and the fact these small farmers do not have any savings or social protection schemes or indeed access to credit and finance. Fairtrade International has recently claimed it is essential to ensure a living income to all cocoa farmers. For Côte d’Ivoire, it calculated that this would amount to roughly US\$2.51 per day, much higher than the farmers’ actual income of around US\$0.78 per day.

In Ghana the wages of the majority of cocoa workers are one third below the poverty line of US\$3.20 per day.⁶⁹

Certification can play an important role in this respect, even if it is not the silver bullet as certified cocoa farmers are often still poor, and there are considerable loopholes in certification schemes.⁷⁰

On the one hand, chocolate companies still tend to opt for the cheapest label, while on the other hand certification companies and agencies cannot have direct control over a number of variables essential to farmers’ livelihood (e.g., schools, health care, roads and access to markets, access to credit, etc.).⁷¹

In addition, a recent study showed that there is still great confusion amongst producers in Ghana about how certification operates and whether or not they are certified.⁷²

A sustainable production of cocoa requires a stronger fight against human rights violations, starting with ending child labour. It is estimated that more than 2 million children in the Ivory Coast and Ghana are working in cocoa fields, in stark contrast to the Harkin-Engel Protocol whereby cocoa companies pledged to reduce child labour in cocoa fields by 70 per cent by 2020.⁷³ Ending child labour requires a combination of actions that address its root causes such as structural poverty, increased cocoa production, and a lack of schools and other basic infrastructure. Therefore, private companies should not only commit to achieve a living income for farmers, but also set up Human Rights Due Diligence as part of their Code of Conduct, in order to ensure consumers that the products they sell are fully compliant with high human rights standards. In this sense, a recent study on due diligence requirements through the supply chain in the EU analysed the feasibility and the related costs of issuing a new EU regulation – in line with the current one⁷⁴ – requiring companies to report on the steps they have taken to avoid any human rights and environmental impacts in their own operations or those of the third-party supply chain.⁷⁵

Local governments will also play a key role in this quest for sustainability, as they have to invest not only in diversification of agricultural policies, but most of all improve rural infrastructure (particularly secondary roads) as well as schools and health care, introduce and enforce protection of remaining forests and launch reforestation programmes in illegally deforested areas. Finally, consumer countries are important players not only because they import most of the cocoa produced worldwide, but also as they host the headquarters of the biggest cocoa and chocolate multinationals. Among others, cocoa is one of the main vectors of imported deforestation in the European market.⁷⁶ The most recent data shows that EU Member States import and consume 36 per cent of crops and livestock products associated with direct deforestation in the countries of origin.⁷⁷ Therefore, the Union should review its current policies (e.g., Common Agricultural Policy, Forest Strategy, Biodiversity Strategy 2020) to reduce potential negative externalities on third countries’ deforestation. An option could be to apply current regulation on imported deforestation to agricultural commodities, and to support third countries to apply a floor price, in line with the recent declaration by the European Commission.⁷⁸ Including biodiversity and human rights protection principles through due diligence regulations could shape not only the internal EU market, but also future agri-food-related trade agreements.⁷⁹

Coffee

Despite still being a marginal crop in Ghanaian agriculture, coffee has recently regained importance at the nationa level, especially thanks to its potential to generate wealth. After an initial revamping occurred in the 1990s, low prices and poor marketing systems pushed coffee farmers to abandon or cut down their plants in the early 2000s.⁸⁰ Ghana is currently the third-smallest coffee producer in sub-Saharan Africa, behind Liberia and the Central African Republic,⁸¹ and production is also very low considering neighbouring countries, like the Ivory Coast which produced 103,514 tonnes in 2017, compared to 727 tonnes in Ghana.⁸² Farmers grow robusta-type coffee with a growing season running from October to September. The coffee sector is dominated by small-scale farmers who produce on average 300kg per hectare, and is regulated by COCOBOD.

Factors such as enhanced access to extension services, renewed government interest,⁸³ favourable weather for the robusta plants, a competitive and growing local market, reliable and increasing farm-gate prices and growing interest on the part of younger generations are combining to push this revival.⁸⁴ The farm gate price significantly increased from GH¢ 40 per 64kg bag in 2010 to GH¢ 250 per 64kg bag in 2016. The average price for hulled green coffee in 2016 was estimated at GH¢ 540 per 64kg generating a net income of GH¢ 16,800 per hectare and an annual average net revenue of GHc 80,640.⁸⁵

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Table 3: Average price per 64kg bag of unhulled robusta coffee versus cocoa (in Ghana cedis)

Average Farm Gate Price (GHS)						
	2011	2012	2013	2014	2015	2016
Cocoa	40	60	55	100	200	250
Coffee	205	212	212	310	425	475

Source: Elaboration by the authors from COCOBOD in International Coffee Organization, 2018

Growing domestic consumption is another factor pushing coffee production in Ghana, also in terms of development of processing and roastery facilities, through hulling machines or centres.⁸⁷ Small coffee producers are popping up around the country, working mainly for the domestic markets (e.g., hotels, guesthouses, small shops and retailers). Currently Ghana has a 65 per cent supply deficit that needs to be filled and the government is trying to address this issue by providing new coffee seedling varieties and revamping old farms to increase productivity. Yet, Ghanaian coffee is also exported both to regional and European markets. In 2015, the country exported 12,250 tons of green coffee beans, benefitting from an increase of about 550 per cent in coffee prices.⁸⁸ Finally, coffee has a much lower environmental footprint than other crops like cocoa, rubber or palm oil, which are strong drivers of deforestation in Ghana. For all these reasons, the government is planning to increase the planted area to 100,000 hectares over the next years, estimating that from 2021, about 10,000 tonnes of coffee could be produced annually which will subsequently increase to a minimum of about 200,000 tonnes over the next decade.⁸⁹

Yet, expanding the coffee sector will require addressing a series of challenges. First, coffee still suffers from weak institutional support comparing to other major crops like cocoa. Second, poor marketing hampers the capacity of farmers to expand their productivity to meet domestic and foreign demands. Before the sector was liberalised, COCOBOD was responsible for buying coffee directly from farmers and bearing the costs of warehousing, quality assurance and export. After the liberalisation of the coffee sector, coffee makers sell seeds to local processors, private exporters, even foreigners from neighbouring countries and a few Licensed Buying Companies. Hence, as with cocoa, it would be important to review current regulations to allow COCOBOD develop and establish marketing centres in all identified coffee districts to buy coffee produced in the district at a minimum farm-gate price.⁹⁰ Third, for roasted coffee, shipping costs and export documents still represent a huge barrier for coffee producers.

On the one hand, the larger the quantity, the less sustainable the costs are for the producer. For instance for shipping around 100kg of processed coffee, the producers need to pay around US\$235 in VAT, plus other delivery costs.⁹¹

On the other hand, producers need to comply with a baffling series of certificates and standards such as food and drug certificate standards, Standards Authority certificate, license export certificate from the export promotion authority, phytosanitary certificate, handling charges and finally a certificate of origin. These costs represent a huge burden for new, young and small coffee producers who are calling for stronger governmental support.⁹² Fourth, although coffee is a much more resilient crop, weak research and extension support do not allow testing of farming techniques that would protect crops from pesticides or adverse weather conditions (e.g., severe rain or heavy winds causing falling leaves and flowers). Finally, uncertain land tenure represents a burden for younger entrepreneurs who see the potential of investing in this sector, resulting in an increase of the average age of farmers. In many cases in order to implement these changes, coffee producers need to get a green light from original landowners and this may be a disincentive to apply new solutions.

Digital solutions can represent an important tool for boosting coffee production and overall quality in Ghana. Some producers highlighted the importance of buying a more sophisticated moisture tester for green beans, as well as the use of GPS to monitor and map cropping fields. Yet, these solutions are expensive and would require more financial support from the government.⁹³ In addition, to apply new technologies and solutions capacity-building is fundamental, as most farmers continue to rely on outdated techniques based on traditional knowledge and practices, thereby reducing opportunities to boost coffee productivity.

The coffee industry is undoubtedly regaining importance in Ghana and the recent creation of the Coffee Federation of Ghana is an important milestone. A more sustainable coffee production could help the country increase the quality of its products and strengthen its presence in external markets. A stronger coffee sector in Ghana could be beneficial for the whole region and raise Africa’s position in global coffee chains. Even though coffee was first discovered in Ethiopia, African countries supply only 10 per cent of global coffee volumes, with very limited production, inefficient supply chains and low quality. Hence, the time is ripe for the country to reinvest in this sector and offer new and better opportunities to younger generations of coffee producers.

3. The Environment

Introduction

Unsustainable farming has exposed Ghana to several climate-change-related threats, ranging from soil degradation to deforestation and desertification. Yet, there is another sector that contributes a significant share of the country’s GDP, where unsustainable production practices risk causing irreversible environmental damage. Unsustainable fishing is not only endangering entire ecosystems, but is also exposing Ghana to social, economic and political challenges. There are four main reasons making fisheries a relevant case for advocating stronger protection of the environment and biodiversity in Ghana.

First, the sector plays a crucial role in the national economy, employing millions of Ghanaians and contributing to the social and economic livelihoods of entire communities. Second, in the last years fishing has become a true metaphor for the environmental fight in Ghana, as the reckless spoliation of resources has not only caused severe environmental damage but risks becoming a multiplier of several forms of insecurity, from food insecurity to economic insecurity. This may lead not only to an increase in malnutrition, but also trigger internal mobility towards cities and eventually external migration. Third, protecting marine resources from domestic and international overexploitation through stronger law enforcement is crucial to ensure Ghana’s food sovereignty against old and new forms of economic colonisation. Finally, making the fishing sector more sustainable is essential to foster greater regional and international cooperation not only with non-African partners (i.e., the EU and China), but most of all among African partners.

Therefore, the following chapter describes the role of fishing in Ghana, focusing on the repercussions caused by Illegal, Unreported and Unregulated (IUU) practices, and presenting the role that domestic, regional and international actors could play for introducing better regulations to preserve biodiversity and protect local communities.

The importance of fishing for national economy

Illegal, unreported⁹⁴ and unregulated⁹⁵ fishing has become a huge global problem, that causes devastating consequences at the economic, social and environmental level. It is worth over 10 billion euros worldwide, and accounts for almost one fifth of global catches.⁹⁶ IUU represents a serious threat for Ghana, where fish constitutes the main source (60 per cent) of animal protein, with a per capita consumption of 25kg per year.⁹⁷ The sector employs about 10 per cent of the population directly or indirectly and contributes up to 3 per cent of total GDP. Overall, in 2016 the country produced 379,000 tonnes from marine fisheries and inland waters, and imported 357,000 tonnes. China is the biggest markets for Ghanaian exports (10,914 tonnes of fishery products in 2017), followed by Iran (9,533 tonnes) and Thailand (7,285). Yet, European countries also import Ghanaian fish (i.e., tuna), in particular the United Kingdom, France, Italy, Portugal and Spain.⁹⁸

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Graph 1: Ghana’s export volume of fishery products by country of destination (in %)



Source: EUMOFA (2018)

The marine fishing industry in Ghana consists of four main categories: the artisanal, semi-industrial (inshore sector), industrial (deep sea) and tuna-targeting fleets. Small-scale, traditional, artisanal fishing is the most common type of inland fishery, with the Lake Volta and coastal lagoons representing the main reservoirs of freshwater fish.

In order to meet very high domestic demand, Ghana also imports a considerable amount of fish, particularly from Japan, Belgium, Mauritania, China and Morocco. These trends are likely to increase in the next years, especially as a consequence of crunching domestic supply. After years of overexploitation, the fishing sector has experienced a serious decline in the volume of catches, except for aquaculture, which is however not enough to satisfy domestic demand.⁹⁹ Between 2000 and 2016 total catches fell by 37 per cent, from 364,000 tonnes to 229,000 tonnes, with significant losses experienced especially in the catch of pelagic species.¹⁰⁰ This has had important repercussions for the country's socio-economic balance. Recently it was estimated that more than 10,500 direct jobs have been lost in the fishing sector in Ghana since 2017, with very high social and economic consequences for those communities that rely on fish as their main livelihood.¹⁰¹ Illegal fishing is probably the main threat for the whole sector, and it is usually translated using the word *Saiko*.

The challenge of *Saiko*

Saiko describes the illegal trans-shipment of frozen fish from industrial trawlers to special canoes offshore in Ghana. Although in the past this practice used to be a way for small fishermen to buy the unwanted by-catch of industrial vessels, in the past years it has transformed into a huge economic activity that risks destroying entire ecosystems. Industrial trawlers have started to illegally catch juvenile fish, thereby affecting the everyday life and food security of a number of communities.

A recent report by the European Justice Foundation (EJF) has highlighted that approximately 100,000 metric tonnes of fish were landed illegally through *Saiko* in 2017, with a value between 40 and 50 million dollars as fish sold at sea and between 52 and 81 million dollars for fish sold at the landing sites.¹⁰² This is even more striking if we consider that the number of licensed vessels has shrunk compared to the past and that there was a two-month closed season for the trawler fleet. This means not only that official statistics are able to report less than half of the fish landed in Ghana, but also that the combination of fish legally and illegally landed by trawlers in Ghana is nine times bigger than reported in the National Fisheries Management Plan 2015–2019.¹⁰³

Some fishermen complain that there is no more life under the sea and this has already impacted surface artisanal fishing with a 40 per cent decrease in incomes registered in recent years.¹⁰⁴ The lack of fish has also pushed some fishermen to use chemicals and explosives (i.e., dynamite) to catch more fish and this is causing further ecological damage as well as health issues for consumers. Decreasing fishing has impacts on several aspects of Ghanaian ordinary life, such as school drop-outs, health problems and food insecurity.¹⁰⁵ The sector feeds more than 3 million people in Ghana, hence a collapse could be a disaster to the whole socio-economic balance of the country. In addition, the reduced productivity – and thus attractiveness – of fisheries could increase internal mobility towards bigger cities and even become a root cause for external migration flows.

IUU fishing is thus harming not only the environment but also local communities. Although the capacity of industrial trawlers to land fish equates to that of 450 artisanal canoes, their employment capacity is very limited. The EJF report estimates that illegal fishing has 40 times less employment capacity than artisanal fishing, with the artisanal sector employing directly over 100,000 fishers across 292 landing sites in 186 coastal villages, compared

to the 1,500 workers employed directly by trawlers.¹⁰⁶ Therefore, countering IUU fishery in Ghana would provide important benefits not only for the environment, but most of all to the entire socio-economic balance of the country. Law enforcement will be crucial to achieve this goal. Even though the country has several laws that prohibit Saiko and envisage high fines (up to US\$1 million) for trawlers catching juvenile fish or using prohibited fishing gear, there is very low respect for these provisions. In addition, although the national law does not allow foreign trawlers to fish in Ghana, the EJF report states that up to 90 per cent of industrial trawlers practicing illegal fishing practices are linked to Chinese beneficial owners.¹⁰⁷ The latter engage local intermediaries and frontmen to conduct destructive fishing practices and unfair competition, because they know there are very low chances of being punished or arrested. Ending Saiko thus requires a set of policies and actions that go beyond national borders and that require stronger coordination with other key regional and international partners.

Is there a role for the EU in ending *Saiko* in Ghana?

The European Union has definitely become a key global player in the quest for more sustainable fishing practices. Since the early 2000s the EU has started to fight against IUU fishing, trying to put sustainability, biodiversity protection and better sea governance at the centre of its Common Fisheries Policy. This is even more important if we consider that the Union has one of the largest fishing fleets in the world, and is the biggest trader of fishery and aquaculture products at the global level, with imports peaking at 25.3 billion euros in 2017¹⁰⁸ from 16 billion in 2007.¹⁰⁹ Therefore, having stricter regulations is essential to avoid a scenario where EU trade policies could generate negative externalities for third countries. The EU regulation is based on the so-called “IUU Regulation”¹¹⁰ that aims to prevent, deter and eliminate the trade of IUU-caught products into the EU through a multi-layered procedure.

Such procedure consists of establishing a dialogue with non-EU countries where IUU fishing is reported, and starting a “pre-identification” procedure (also known as yellow card), during which the country needs to take concrete measures to stop illegal fishing practices. If the country respects these provisions, the Commission can decide to de-list it. On the contrary, if the country does not cooperate the Commission can decide on a “identification” procedure (also known as red card). Should this be the case, the Commission proposes to the Council to place the country on the list of non-cooperating countries, and may launch trade-restrictive measures such as ban on imports of fishery products from the listed country as well as on EU vessels operating in its waters. In addition, the EU has issued a regulation concerning authorisation for fishing activities¹¹¹ as well as a regulation establishing a Community Control System for ensuring compliance with the rules of the Common Fisheries Policy.¹¹²

As of February 2020, 113 the Commission has given a yellow card to eight countries¹¹⁴ and a red card to three countries.¹¹⁵

The EU has applied its approach also to the Gulf of Guinea, where European fleets have been targeting tropical tuna since the 1950s. Although the EU has not signed a fisheries agreement with Ghana, in 2013 it issued a yellowcard, which was essential to boost domestic actions to improve the governance of the fisheries sector and in combating IUU. Moreover, through the West Africa Regional Fisheries Programme, the country has put in place legislative measures as well as international collaboration and resources to manage and regulate the fishing sector. This is why the European Commission revoked the pre-identification in 2015 and conducted an evaluation report to assess the feasibility of a sustainable fisheries partnership agreement and protocol between the European Union and the Republic of Ghana.¹¹⁶ However, and probably due to the reports and calls from local and international non-governmental or civil society organisations, the EU has again directed its attention to the status of fisheries in the country. Therefore, we cannot exclude that, unless several and radical measures are taken, the EU could reconsider issuing a new yellow card to Ghana.

A more sustainable fishing sector Ending IUU fishery in Ghana implies investing in law enforcement, which goes hand in hand with the critical fight against corruption. This means not only reducing the number of licensed vessels and expanding the closed season, but also procuring coast guard vessels and training inspectors in the national ports (i.e., Sekondi and Tema), to ensure a proper monitoring of national sea reservoirs. In addition, it requires stronger coordination and concerted efforts with Chinese authorities, with the aim of identifying the owners of industrial trawlers and ensuring that they abide by the national law. Finally, as IUU fishery impacts all countries in the Guinea Gulf, it would be essential to strengthen regional cooperation among all countries that are part of the Fisheries Committee for the West Central Gulf of Guinea (FCWC).

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113. European Parliament, *Illegal, Unreported and Unregulated (IUU) fishing*, 2020 www.europarl.europa.eu/RegData/etudes/ATAG/2017/614599/EPRS_ATAG(2017)614599_EN.pdf

114. Panama, St Kitts and Nevis, Kiribati, Sierra Leone, Trinidad and Tobago, Liberia, Vietnam and Ecuador. For an overview please cf. ec.europa.eu/fisheries/sites/fisheries/files/illegal-fishing-overview-of-existing-procedures-third-countries_en.pdf

115. Cambodia, Comoros and St Vincent and the Grenadines. For an overview please cf. ec.europa.eu/fisheries/sites/fisheries/files/illegal-fishing-overview-of-existing-procedures-third-countries_en.pdf

116. EU, *Ex Ante Evaluation of a Sustainable Fisheries Partnership Agreement and Protocol Between the European Union and the Republic of Ghana*, 2017 op.europa.eu/en/publication-detail/-/publication/0750e79f-fff2-11e6-8a35-01aa75ed71a1/publication/0750e79f-fff2-11e6-8a35-01aa75ed71a1

Enhanced regional cooperation is crucial to fully implement the 2017 Strategy to Combat Illegal Transshipment at Sea,¹¹⁷ which has specific provisions about trans-shipment of fish among Member States. In this sense, some projects like the Improved Regional Fisheries Governance in West Africa (PESCAO) could play an important role in ensuring food security and alleviating poverty in West Africa by helping countries fighting IUU fishing. The programme brings together the Economic Community of West African States, the EU, the member countries of the FCWC, the Sub Regional Fisheries Commission, and the European Fisheries Control Agency. The project will not only spur regional cooperation, but most importantly improve national and regional monitoring, control and surveillance activities, by creating a Regional Vessel Monitoring Centre in Accra that will be able to monitor the movements of 90 per cent of industrial fishing vessels within the region.¹¹⁸

4. The Way Forward

Ghana has a huge potential for unlocking a sustainable development of its agricultural sector. There are more than 8.5 million farmers in the country. Most of them still use traditional techniques and strive for better standards of living. Hence, the time is ripe to invest in the sector in order to allow them to become truly agri-businesspersons. This will not be an easy task, and will require radical changes at all levels. Ghana still ranks 118th out of 190 countries in the World Bank Doing Business Report 2020.¹¹⁹ Although it enjoys very good weather conditions for agriculture, the country imports around 20 per cent of its food¹²⁰ including from neighbouring countries with worse weather conditions, like Burkina Faso. This means that Ghana spends an average of US\$2.4 billion each year to import rice, sugar, sorghum, frozen chicken and meat, among other food items, for domestic and industrial consumption.¹²¹ There is a huge potential for investing in a stronger processing and marketing industry.

For many years, it was widely felt that greater agricultural productivity would automatically lead to development and poverty eradication. Nonetheless, several programmes and projects have revealed that what is needed is a mix of policy reform, infrastructure development, financial incentives, Public Private Partnerships and investment in education. Increasing agricultural productivity in a sustainable way, the so called “sustainable intensification”, requires first and foremost the creation of a proper enabling environment for farmers, especially younger generations. For many farmers it is barely possible to acquire land, not only due to traditional land tenure systems, but also because of lack of access to the credit system. Hence, reforming land tenure as well as the finance sector is crucial to build a new generation of agri-businesspeople. It is important to create a more transparent land registry system to understand who the land belongs to, and address some of the unresolved issues linked to land property rights. This is even more urgent if we consider that there is consistent land availability in Ghana and that land prices in the country are relatively low compared to other regions. Such a transformation requires a stronger link between the farming sector and the educational sector. Universities and vocational schools need to give future farmers the right knowledge, training and equipment to invest in more sustainable techniques and to speed up change in the country.

The government and international donors need to support this change, by increasing transparency and accountability in the way taxes (e.g., revenues from cocoa taxes) and development aid is spent. This is crucial to launch an ambitious infrastructural development programme that connects rural communities to markets. Secondary roads are still a big obstacle for Ghana’s development. The lack of adequate roads impedes farmers not only

from selling their products at a better price, but also from reducing post-harvest losses and becoming familiar with and applying better farming techniques. The government should also facilitate the emergence of farmers’ cooperatives as a way both to increase their leverage and bargaining power and to share the costs of new agri-cultural investments, for instance in agri-technologies. Information communication technologies can play a very important role in this respect. Precision agriculture and digitalisation, although still in their embryonic phase, can make agriculture more profitable, more equitable and more climate-resilient in sub-Saharan African countries. On the one hand, farmers are able to collect more accurate data on individual farms and fields, offering valuable information to optimise production, control pests and reduce losses. On the other hand, these technologies allow governments to launch tailored macro-economic policies, while paving the way for creating more connected, intelligent, real-time agricultural ecosystems. The digital sector is growing at a very fast pace in Africa, and a recent study estimates that over 33 million smallholder farmers and pastoralists were registered on digital platforms for agricultural solutions between 2018 and 2019.¹²² In addition, the study reveals that digital solutions applied to agriculture can catalyse donor funding, which may mobilise up to 175 million euros annually. Furthermore, the study highlights that applying digital solutions to agriculture may lead to an increase in yield of between 50 and 300 per cent, while generating 20 to 100 per cent greater revenues and income. All these data show that in the next years, digital solutions have the potential to generate many jobs in the primary sector, although it is currently hard to predict the magnitude of such potential. However, the prospects are very positive and it is widely acknowledged that digitising agriculture may produce positive impacts on the job market, opening new opportunities in the fields of agricultural technology, digital support, agricultural processing and agricultural manufacturing.¹²³

However, implementing digital solutions in agriculture in the next years will require important short- to mid-term steps. First, it will be necessary to increase farmers’ access to technology and connectivity, for instance through mobile phones. In this sense, future scenarios look very promising as the penetration rate is very strong in sub-Saharan Africa, and this may allow more than 60 million farmers access to digital solutions in the next years. Although it is difficult to obtain an accurate number of unique subscribers, it is estimated that today there are 747 million SIM connections in sub-Saharan Africa, representing 75 per cent of the population.¹²⁴ As for Ghana, a recent study by the Pew Research Center highlighted that the country has an 80 per cent ownership rate of mobile phones.¹²⁵ This means that in the next years, millions of farmers will potentially have more access to up-to-date digital solutions. Yet, this will require stronger investment in the missing middleware infrastructure, particularly to reach out to remote communities and deliver high-quality services to farmers, including farmer registries, digital agronomy data, soil mapping, pest and disease surveillance and weather data infrastructure.¹²⁶ Second, it will be crucial to invest in human capital, digital literacy and digital skill building among smallholder farmers to make them adopt digital solutions and attract support and funding from governments or external donors. Third, digital solutions could be crucial to fill the gender gap in agriculture. So far, women struggle to apply digitally advanced solution to their businesses and there is much room to manoeuvre for companies to prioritise gender as part of their product design, marketing and user engagement efforts.¹²⁷

Ghana is already experiencing important innovations in the agri-food sector, for instance by expanding the use of mobile money. This has already led to an increase in the adoption of related services and has proved to be a safer alternative to in-person cash payments.¹²⁸ Moreover, it has proved to be an effective tool to help farmers and the broader population trust and understand digital products and services. Nonetheless, the key challenge now for the government is to invest in farmer literacy so as to improve the adoption of these services in the farming sector. These investments will go hand in hand with infrastructural investment, as some regions remain too unproductive for agri-tech solutions providers to enter, either because soil quality is too poor, transportation infrastructure is weak, or insecurity is high for mobile payments. Digital solutions will also increase farmers’ access to credit, for example by improving their ability to use their officially adjudicated land as collateral. In addition, drones are also being applied to agriculture. Many such companies are blossoming, using drones to map land, monitor yields and pest management, or to check the spread of diseases. Finally, new sensors are being developed to test the quality of products before selling them, in order to prevent and reduce losses that in some cases reach about 30–50 per cent. Digital solutions can thus make it faster for farmers to collect data and

117. Fisheries Committee for the West Central Gulf of Guinea, *Strategy to Combat Illegal Transshipment at Sea*, December 2017 [fcwc-fish.org/download/3100/regulations/5582/fcwc-strategy-to-combat-illegal-transshipment-at-sea.pdf](https://www.fcwc-fish.org/download/3100/regulations/5582/fcwc-strategy-to-combat-illegal-transshipment-at-sea.pdf)

118. Fisheries Committee for the West Central Gulf of Guinea, *Improved Regional Fisheries Governance in Western Africa (PESCAO)*, 2019 [fcwc-fish.org/download/3090/brochures-leaflets/14413/2019-fcwc-pescap-leaflet.pdf](https://www.fcwc-fish.org/download/3090/brochures-leaflets/14413/2019-fcwc-pescap-leaflet.pdf)

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120. Ghana – Food Imports (Percent of Merchandise Imports), in *Trading Economics* tradingeconomics.com/ghana/food-imports-percent-of-merchandise-imports-wb-data.html

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122. Technical Centre for Agricultural and Rural Cooperation, *The Digitalisation of African Agriculture Report, 2018-2019* www.cta.int/en/digitalisation/all/issue/the-digitalisation-of-african-agriculture-report-2018-2019-sid0d88610e2-d24e-4d6a-8257-455b43cf5ed6

123. *Ibid.*

124. GeoPoll, *Mobile Phone Penetration Throughout Sub-Saharan Africa*, 8 July 2019 www.geopoll.com/blog/mobile-phone-penetration-africa/

125. L. Silver and C. Johnson, *Majorities in sub-Saharan Africa Own Mobile Phones, But Smartphone Adoption Is Modest*, 9 October 2018 www.pewresearch.org/global/2018/10/09/majorities-in-sub-saharan-africa-own-mobile-phones-but-smartphone-adoption-is-modest/

126. Technical Centre for Agricultural and Rural Cooperation, *The Digitalisation of African Agriculture Report, 2018-2019* www.cta.int/en/digitalisation/all/issue/the-digitalisation-of-african-agriculture-report-2018-2019-sid0d88610e2-d24e-4d6a-8257-455b43cf5ed6

127. *Ibid.*

128. S. Oz yurt, *Ghana Is Now the Fastest-Growing Mobile Money Market in Africa*, 9 July 2019 qz.com/africa/1662059/ghana-is-africas-fastest-growing-mobile-money-market/

knowledge on soil and test new cropping techniques. Therefore, they can be a powerful tool to bring younger generations back to the agri-food business, making it a profitable and attractive alternative.

Final recommendations

Investing in sustainable agriculture is pivotal to ensure Ghana a prosperous and brighter future. For too many decades, the country has invested in farming techniques that have caused ecosystem erosion and depletion of natural resources. As shown in the Human Development Report,¹²⁹ resource degradation in Ghana is about half of the national GDP whereas more than half of its native forests have been cut in favour of agricultural land, exposing it to climate shocks and desertification.¹³⁰ Such a strategy has not led to hunger eradication, but rather has exacerbated domestic differences and inequalities (e.g., rural–urban divide, gender discrimination) especially as a consequence of steady population growth. Therefore, eradicating hunger through a more sustainable agriculture will be essential to reduce poverty, close the gender gap and protect the most vulnerable groups in the country. It will not be an easy task, but the country has all the economic, cultural and environmental resources to make this change a reality. The European Union and Italy can play an essential role in this quest for a more sustainable development path for Ghana.

The European Union should:

- keep supporting Ghana in its transition towards sustainable agriculture by ensuring that its investments augment capacity building and training of farmers, as well as fill the infrastructure gap that affects the livelihoods of the poorest households;
- keep investing in development aid cooperation to support the most vulnerable groups in the country who are most in need of humanitarian assistance and who risk being further hit by the spread of Covid-19;
- use its regulatory instruments to ensure fairer supply chains for some commodities like cocoa. These will help reduce the amount of imported deforestation in the Union, as well as ensure that current and future policies (e.g., the next Common Agricultural Policy, the Farm to Fork Strategy, the Forest Strategy and the Biodiversity Strategy 2020) reduce any potential negative externalities in Ghana;
- include new mandatory due diligence requirements at the EU level to push big and small companies to carry out due diligence to identify, prevent, mitigate and account for actual or potential human rights and environmental impacts in their own operations and supply chains, or in third-party supply chains or value chains, to expand the current EU Non-Financial Reporting Directive;
- maintain its global leadership in the fight against illegal, unreported and unregulated fishing, by adopting all necessary measures to preserve the status of fisheries in Ghana and by investing in cross-regional programmes to strengthen the capabilities of countries in the Gulf of Guinea to protect their ecosystems from biodiversity loss.

Italy should:

- strengthen its bilateral trade cooperation with Ghana, supporting the country's agriculture along its path towards sustainable development, on an equal footing. This will include boosting business-to-business relations as well as promoting capacity building and vocational training to fully unlock the potential for sustainable agriculture development in the country;
- support investments in the application of digital solutions to Ghanaian agriculture, for instance by facilitating education exchange programmes involving Italian and Ghanaian universities. This is crucial to consolidate dialogue, knowledge transfer and cooperation at the education level and speed up the application of new technologies to the farming sector. This will be crucial both to increase the productivity and the profitability of the farming sector for younger agri-businesspersons and as a long-term investment to tackle the root causes of poverty, inequality and migration in the country;
- support and lead the European efforts to create fairer food supply chains, as a way to ensure better living incomes for Ghanaian farmers and foster dialogues with the agri-food players operating in Ghana. This is essential to abide by international conventions and commitments to eradicate forced labour and human rights violations (e.g., child labour) in the food supply chains and guarantee the respect of higher human rights and environmental protection standards of Italian companies operating in Ghana;
- ensure an adequate level of aid financing to Ghana in the next years, avoiding a scenario where the impact of Covid-19 on the national economy could lead to a drastic reduction of resources allocated for development and aid cooperation in Ghana. This will be essential to protect the most vulnerable groups of the population like children and women, tackle poverty and inequality, and leave no one behind.

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unu.edu/projects/forest-and-soil-degradation-in-ghana-implication-for-developing-sustainable-landscape-management-strategy.html

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