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Chad

AFCW3 Growth and Diversification Leveraging Export Diversification to Foster Growth

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Abbreviations and Acronyms

AGOA	Africa Growth and Opportunity ACT
ANIE	National Agency for Investment and Exportation
BEAC	Central Bank of Central Africa
CAADP	Comprehensive Africa Agriculture Development Program
CAR	Central African Republic
CAOFCO	China National Cereals, Oils and Foodstuffs Corporation
CEQOQDA	Chad's Food Quality Control Center
CEMAC	Economic and Monetary Community of Central Africa
CET	Common External Tariff
CGE	Computable General Equilibrium
DB	Doing Business
DTIS	Diagnostic Trade Integration Study
DTF	Distance-to-Frontier
ECOWAS	Economic Community of West African States
CET	Common External Tariff
COBAC	Commission Bancaire de l'Afrique Centrale
CPO	Community Producer Organization
EM	Extensive Margin
ES	Enterprise Survey
ETC	Export Trading CO
EU	European Union
FCFA	Franc Communauté Financière Africaine
GAP	Good Agriculture Practice
GCC	Gulf Cooperation Countries
ICT	Information and Communication Technology
IM	Intensive Margin
MENA	Middle East and North Africa
OLS	Ordinary Least Squares
RCA	Revealed Comparative Advantage
REER	Real Effective Exchange Rate
ROW	Rest of the World
SAM	Social Accounting Matrix
SCD	Systematic Country Diagnostic
SME	Small and Medium Enterprise
SSA	Sub-Saharan Africa
SWOT	Strengths, Weakness, Opportunities, Threats
TFA	Trade Facilitation Agreement
TFP	Total Factor Productivity
UAE	United Arab Emirates

Preface

This report describes the key policies for Chad to sucessfully leverage export diversification to foster economic growth. After several unsuccessful attempts at diversifying in the 1990s, since the early 2000s, Chad has deepened its dependence on commodities, mainly relying on oil; which came to replace cotton. However, the experience of other countries, in Africa and other parts of the world, shows that while large scale production of oil resources offers great opportunities, it comes with major shortcomings. These include the tendency to grow beyond potential in cycles of booming prices; high GDP growth volatility that translates into a fragile fiscal stance; a resource curse that favors production of non-tradable goods; and a growth pattern biased toward rent-seeking activities, all of which prevent the expansion of job-creating activities that lead to sustainable growth. Chad's Vision 2030 is aiming to diversify its exports as a way out of this curse. Below, we shall not try to summarize the main conclusions of the present report, but rather emphasize the following ten messages which -- we believe – can shape national consensus toward export-oriented policies that foster sustainable economic growth.

First message. International experience shows a strong correlation between export diversification and growth acceleration. Diversifying the economy is critical for reaching Vision 2030, which aims to make Chad and emerging economy, driven by more diversified and sustainable drivers of growth. *This report fully supports Vision 2030, and cautions that under its present oil export-based model, Chad's economy would, at best, reach modest and highly volatile average growth rates; while export diversification policies – mainly focused on agricultural productivity, competitive value chains, and trade infrastructure and backbone facilitation services – would allow Chad to reach higher and sustained growth rates*.

Second message. *Unless Chad breaks with its recent past practice of exclusive oil reliance, the economy will be hindered from diversifying*. Such resource curse is not only a natural obstacle to structural change, i.e. labor reallocation from low to high productive activities that is the mirror pattern of diversification, but other factors also hinder it. Over the last decade, and on a rising trend, oil accounted for over 84 percent of total export. The sectoral composition of the economy remained broadly unchanged, with a low share of manufacturing oscillating around a low 8 percent of GDP—centered on State-Owned Enterprises--and an atypical declining share of the services sector. Above 80 percent of Chad's population kept relying on agriculture for their livelihoods and working as subsistence farmers in low-productive informal activities; with Chad's domestic market too small and non-competitive to foster agricultural productivity. Not surprisingly, modest but positive structural change was led by low-job creators oil, mining and financial services sectors.

Third message. Exclusive *modern services- or broad Industrialization-led strategies are unlikely to deliver structural change in Chad*. On the former, shifting resources from low productive sectors of agriculture and informal trade to high productive modern services sector requires skilled labor which is scarce in Chad and most of Modern services do not create abundant jobs. On the latter, shifting resources from low productive agriculture to broad manufacturing industries seems also inappropriate because of Chad's poor SOEs' financial performance, including those involved in productive activities (like Cotton Chad), and a failed record of import substitution policies regionwide.

Fourth message. *In contrast, an outward oriented agri-based light manufacturing (agribusiness) strategy can deliver diversification and create abundant and better paying jobs for low skilled Chadians*. Such agribusiness strategy would be based on a mix of (i) an improved provision of agricultural inputs and new production technologies to increase productivity; (ii) diversification within agriculture toward new value chain crops and light manufacturing industries producing more sophisticated exports (e.g. new garments of the cotton-textiles value chain); (iii) ensuing expansion of accompanying modern backbone—Financial, Transport and Communications—services; and (iv) reinvigorated private sector and FDI investment.

Fifth message. *Hence,* Chad *may consider climbing a four-step ladder of an export diversification strategy.* From simple to more complex endeavors, making these complementary steps would require upgrading the country's capacity at (i) exporting more of the same; (ii) opening new markets – regional

and global – abroad, (iii) piloting emerging and more sophisticated export winners – especially agri-based; and (iv) moving into a full-fledged agri-based light manufacturing diversification strategy.

Sixth message. *Reducing export product and markets concentration* (first two steps) *can be implemented in the short term*. Chad is the 8th most export product concentrated and 2nd least markets diversified economy in Sub-Saharan Africa (SSA), and both diversification indexes are deteriorating. *While regional neighboring markets remain a priority for agri-exports marketing, Chad is under-exporting to the US, India and France, Thailand and Singapore. A revamped export promotion-oriented ANIE should help gathering commercial intelligence and commercial databases, approaching new FDI business partners, and facilitating upgraded interactions between buyers and sellers*.

Seventh message. When it comes to piloting new products (third step), selectivity is more important than an accelerated, dispersed and costly expansion of untargeted export promotion policy. *Chad does not have many options: only 11 agri-based products seem to have revealed comparative advantage: gum arabic, sesame seeds, maize, raw cotton, woven fabrics, and wadding of mandmade fibers. Potential winners in the list of processed to-be-upgraded agri-foods are cereals, jams, jellies, tropical fruit juices, sugar and vegetable oils. Puzzingly enough, livestock does not show up with revealed comparative adavantage.* A well sequenced and monitored export promotion approach should focus on presently emerging export products in the short term; with a gradual move to more sophisticated products in the medium term, in tandem with available fiscal space and private investment.

Eighth message. A full-fledged agri-based diversification strategy (fourth step) should combine streamlined business regulations with a revamped trade facilitation infrastructure and new backbone services to remove constraints to private sector growth. Chad performs poorly, not only on Doing Business (DB), but in Logistic Performance (LP) rankings. Cumbersome trade and customs regulations, low access to finance, poor telecommunication and transport services, lack of support in markets, and poor marketing conditions remain important constraints to exporters. *The emphasis in the DB agenda should be at simplifying procedures for land registration and building permits, and managing public contracts.* The generalized setting of backbone services like a trade information portal and single window, online registration and digital payments for trade-related operations should materialize streamlined export (and customs) procedures. The former would contribute to reduce opportunities for corruption arising from opaque and antiquated administrative procedures. *Underway reforms are the full adoption of ASYCUDA World, a National Single Window at Customs, and a revised Customs Code to allow for e-payments*. Addressing the infrastructure and logistic gaps that plague trade transit requires a focus on the key corridor linking its economy to the port of Douala. *A bilateral transit facility should improve the efficiency of freight transport along the N'Djamena-Douala corridor*.

Ninth message. Chad has two potential game-changers with gum arabic and sesame seeds: it is the second largest producer of the former in the Africa gum belt, but still a small producer of the latter. Both value chains (VCs) are in their infancy and feature low participation in global markets, but this is not an obstacle to enrich and rapidly diversify, even though recent production trends reveal worrisome declines in the volume. *Most of sesame and gum arabic production is located in the regions of Sila, Logone Occidental and oriental, Salamat and Chari Baguirmi*. Key constraints include lack of institutional policy support, inconsistent quality, low productivity and production volumes, limited agro-processing capacity and absence of accompanying leading foreign firms—like Olam--investing in VC process upgrading. *Chad could learn from successfully sesame seeds and gum arabic exporting neighboring countries: such as Ethiopia and Tanzania, and Sudan and Nigeria, respectively*. These four countries have successfully grown their agriculture sector by focusing on strategic investments to develop agri-food processing and on complementary business climate reforms to attract foreign direct investment.

Tenth message. To succeed, the country needs to work at upgrading its selected GVCs. *Stepwise and complementary policy priorities should aim at (i) improving sesame seeds and gum arabic production, yields and quality; (ii) upgrading the skills and the organization of the chains actors; (iii) complying with international certifications and traceability standards; (iv) attracting investment by lead regional and international firms; and (v) developing their accompanying infrastructure and backbone services.*

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TABLE OF CONTENTS

List of Figures:

List of Boxes

List of Tables

Executive Summary

The Government of Chad (GOC) is aware that diversifying the economy is critical for reaching its Vision 2030, which aims to make Chad an emerging economy, driven by diversified and sustainable sources of growth. The goal is to triple the average GDP per capita at current prices, by increasing it from US$ 730 in 2014 to US$ 2300 in 2030, while drastically reducing the poverty rate from 46.7 percent in 2011 to 8 percent during the same period. Presently, Chad's economy is overly dependent on crude petroleum, which makes it vulnerable to external shocks. Therefore, to achieve this development goal, only an export diversification strategy may foster a larger menu of goods and services than can become growth-accelerating and job-creating activities, as well. Its implementation challenges are formidable, but the country has little choice, as the social unrest following recurrent oil price slumps, its burgeoning youth population and regional security threats may foment more violence in an already fragile and volatile economy and keep investors away. Hence, this report outlines a strategy to achieve this Vision centered on the diversification of its non-oil economy (mainly agricultural-based exports) away from natural resource-based commodities.

1. Past diversifiucation efforts in Chad have failed. Three reasons explain such outcome.

- First, the high frequency of violent conflicts did not only prevent private investment, destroyed infrastructure and disrupted trade, but shifted government consumption toward military expenses.
- Second, oil-boosted growth was short lived and did not translate into sustained long-term growth, as the country missed great opportunities to translate oil revenue into more investment into human capital and infrastructure.
- Third, oil has also made Chad's economy less competitive and vulnetrable to shocks. Dutch disease dynamics shifts resources toward non-tradable sectors and unproductive (low-skilled) services, while reducing external competitiveness in tradable sectors.

Hence, oil discovery has led to the downsizing of government intervention in the most diversification-proned agricultural sector—averaging about 4 percent of GDP over the 2003-2012 period, a ratio among the lowest in Sub-Saharan Africa (SSA), low agricultural productivity and small involvement of the private sector in the Chadian agriculture.

2. However, Chad has three important reasons for diversifying its exports.

- *Reduce growth and fiscal volatility*. Despite initial rapid gains in GDP per-capita and poverty reduction since oil discovery in the early 2000s, ensuing oil price fluctuations and most recent price collapse have led to unprecedented fiscal adjustments with negative spillovers on the economy and massive layoffs.
- *Create jobs*. Oil is highly capital-intensive and import-dependent: its small impact on domestic employment makes it unable to absorb the staggering demographic boom. At the same time, the agriculture sector is highly undeveloped and holds untapped potential for jobs.
- *Foster private investment and markets*. Its domestic market is too small and underdeveloped, making it unattractive to foreign investment in the quantities needed for also nurturing an incipient private sector dominated by small and medium enterprises.

But perhaps the most important two reasons are the impacts of export diversification itself, which would allow Chad to accelerate inclusive growth.

3. A simulation exercise shows that increased trade openness, a desirable outcome of export diversification, would indeed be growth-enhancing, as it would generate significant growth gains for Chad.

- If Chad became as open to international trade as its peer, Cote d'Ivoire, the annual growth rate of GDP per capita would increase by about 0.43 percentage points (ppts). The trade-to-GDP ratios of Chad already surpasses those of Uganda, Tanzania, and Ethiopia, perhaps reflecting a stronger trade integration within West/Central Africa, supported by monetary unions, compared to East Africa.
- If Chad's trade ratio were on par with Vietnam and Malaysia, two Asian economies that Chad might aspire to emulate, its GDP growth per capita would increase by roughly 0.7 ppts or 1.2 ppts, respectively. The benefits of openness are well known: well supported by structural reforms, it brings diversified assets and investment, better institutions, competition and less oil-rents capture.

4. **Export diversification also contributes to inclusive growth**. As oil is capital intensive, this prevents most Chadians poor living in the rural sector to benefit from its growth spillovers and job-creation effects. Oil-dependence does not foster development of human capital/skills that are the hallmark of every modern economy. Oil extraction is invariably capital-intensive and its growth does not translate into a natural increase in the demand (or supply) for skills. In contrast, global competition arising from export diversification applies a natural pressure on firms to stay abreast of technologies and skills. This is also particularly true for agribusiness that uses a relatively high share of unskilled workers.

5. However, the country faces multiple structural challenges to diversify.

- As a landlocked country, Chad's difficult access to external markets and slow progress towards regional integration is exacerbated by weak and costly transport infrastructure and trade logistics, and crossborder insecurity.
- Its demographic boom (second highest fertility rate worldwide) is a major determinant of the cheap and unskilled labor force, which severely limits its economic opportunities: 58 percent of its population has zero schooling, and its education system ranks at the bottom of quality surveys.
- The country's exports are excessively concentrated in oil (above 94 percent), with very small shares in cotton, livestock and other agri-products. Chad's declining export supply barely consists of about 120 products; in contrast to countries like Senegal and Cameroon, with more than 2,000.
- Scarce fiscal space (public savings) is devoted to deal with exogenous shocks (oil price, security and humanitarian crises) rather than to sustain public investment; while private savings for domestic investment (including on export activities) is constrained by difficult access to finance.

6. In addition to these structural challenges to diversify, international experience shows that Chad's growth prospects rely on its performance to achieve structural change.

- As the mirror process of economic diversification, structural change is the dynamic reallocation of labor from low- to high-productivity sectors/activities, frequently associated to exports.
- International and regional experience shows that inclusive and sustainable high growth requires structural change through diversification of exports away from oil, based on developing the private sector through agribusiness, improved corporate governance, public private partnerships and domestic and external trade.

Resource dependence is a natural obstacle to structural change, but other factors also hinder structural change

7. Structural change, typically associated with industrialization, was modest but positive in Chad between 2005 and 2015.

- Aggregate labor productivity grew on average 3.6 percent per year and, contrary to regional and extra-regional peers, structural change accounted positively for about 35 percent of labor productivity over such period. Technological change, capital accumulation and reduced misallocations—the sectoral "within" component of productivity--accounted for the rest.
- Chad appears significantly under-industrialized compared to SSA peers (8 percent of GDP in 2015), but contrary to SSA *de-industrialization*, it had a mild positive trend arising from public investment on the construction of an oil refinery, cement factories and agri-food industries.
- While Chad's industrialization pattern has been mainly centered on a few State-Owned Enterprises (SOEs), the sectoral composition of the economy remained fundamentally unchanged, with the primary sector (including extractives) accounting for half of GDP; and an atypical slightly declining share of services reflecting widespread informality (Commerce 14 percent of GDP).
- In absolute terms, mining and quarrying had the highest labor productivity, followed by Finance, Insurance, Real Estate & Business Services, and Transport, Storage and Communication. In contrast, Agriculture and Wholesale Retail Trade, Hotels and Restaurant (WRTHR) had the lowest labor productivity.
- When Chad's labor force has left agriculture, it has moved into Mining and Quarring and financial services that also observed slightly higher productivity. Structural change could have been much stronger had the labor force relocated to other productive sectors than those volatile low job-creator sectors, affected by frequent oil price collapses and shallow and outdated financial services.

8. A Modern Services or a broad Industrialization-led (agribusiness) strategy are unlikely to deliver structural change in Chad. These two options can be discarded upfront:

- *Option 1*: Policies that shift resources from low productive sectors of Agriculture and informal trade to high productive Modern Services require skilled labor which is scarce in Chad.
- *Option 2*: Policies that shift resources from low productive Agriculture to high productive *broad* industrialization are also inappropriate because of Chad's small fiscal space, poor SOE's performance—including those on productive activities like Cotton Chad, low job creation and failed import substitution record.

9. In contrast, a more focused agriculture-based light manufacturing (agribusiness) strategy might deliver structural change by creating abundant and better paying jobs for low skilled Chadians. It would strike a balance between agriculture and related-manufacturing and foster private sector development. Such agribusiness strategy is low risk, as it is based on Chad's comparative advantages in agriculture at the initial stage and can be implemented in stages. It rests on:

- The adaptation of new production technologies to increase productivity in both agriculture and light agro-manufacturing.
- Diversification within agriculture toward new export-oriented crops, such as new segments of the cotton-textiles value chain and other new agro-processed exports from a more productive and diversified agricultural sector.
- Demand for associated modern backbone services growing naturally pressed by the new agribusiness need: services such as digital financial, and Communications.

10. As Chad cannot afford to delay diversification, the GOC has to initiate a diversification strategy soon. Global experience suggests that governments can apply certain general guidelines at the macro level to support private sector development:

- Sustained political commitment and sound macro-fundamentals are prerequisites. This includes a healthy and steady fiscal policy stance and dealing with security concerns.
- A productivity-enhancing partnership with the private sector. Even if the private sector is weak and some investor-unfriendly business climate still prevail (see below), the government should mainly become a facilitator, strengthening efficient institutions that protect investors and enforce property rights, supporting producer development strategies and issuing business-friendly regulations.

11. **A coordinated set of well-targeted complementary macro policies is recommended for a successful agribusiness strategy**. Three sets of additional macro policies are recommended:

- Raising investments in education with early attention to technical and digital skills. The benefits would accrue to farmers and firms through increased productivity.
- Facilitating access to credit, business-specific skills development, and technological change. Access to new technologies is costly but dissemination to farmers and firms is essential and could benefit from foreign assistance just as all successful countries have done.
- Making selected public investment in agriculture and related services (trade, transport and certification) to reduce costs: irrigation, power and telecom/trade-supportive infrastructure, and agriculture and food standards.

Climbing a four-step ladder" of a non-oil export diversification strategy is an urgent task for Chad.

12. At the micro level and using it as an organizational tool rather than as a silver bullet, the ladder is described next.

- The steps are: (i) exporting more of what it already produces as non-natural resource-based products; (ii) diversifying its export destination markets; (iii) piloting non-traditional and more sophisticated (higher value added) non-oil emerging products; and (iv) based on the previous steps, moving into a full-fledged sectoral diversification exporting higher value-added non-oil products.
- So far, Chad's simultaneous progress across the ladder has been rather modest in terms of products intensity (first step) and in term new markets expansion (second step); still embryonic, albeit promising while piloting emerging products (third step); and stagnant on structural change (fourth step).
- Some policies might *de facto* address different ladders and be mutually reinforcing. For instance, moving into niche markets might expand demand for additional export volumes. Similarly, pilot higher value-added products often involve active exploration of new markets to make them profitable.
- But the overall trust of the strategy is that climbing the four ladders requires a gradual but sustained demand- and private sector-driven productive upgrading shift, from low to high complexity agri-products/processes.

In Step 1, Chad should aim to export more volume of its existing exports

13. **Exporting more of the same is the logical first step, but such task is not as easy as it should be.**

- Chad's (TCD) falling openness is similar to other landlocked countries in Sub-Saharan Africa (SSA); as such it is becoming further disadvantaged to trade than countries with access to the sea.
- Behind the decline in trade openness, there is a rapid fall in exports. Chad's exports have more than halved from around US$ 4 billion in 2008 to around US$ 1.7 billion in 2016.

- Chad is the 8th most export product concentrated economy in Sub-Saharan Africa (SSA), and this relatively high level of concentration of exports—around oil—has increased over the past three decades from 0.71 in 1995 to 0.84 in 2015.
- Chad's trade composition trends show only a marginal orientation away from oil. Since the decline in oil exports is greater than the increase in non-oil exports, actual diversification away from oil is minimal, with some modest surge of textiles, vegetable, stone and glass exports in 2015.

In Step 2, Chad should make efforts at opening new markets in South Asia and Africa, thus preventing a missed opportunity

14. Export products diversification should preferably be accompanied with market's diversification, and Chad's exporters face a continuous dichotomy between addressing regional versus overseas markets.

- Chad is the 2nd most market concentrated economy in SSA. Worst, with oil, its destination markets have become significantly more concentrated today than it was 20 years earlier: Chad's market concentration index has even deteriorated from 0.71 to 0.88 in 2015. This is well above other low-income countries featuring 0.63 on average. Even by SSA standard (which has an average index of 0.59), Chad's export market concentration is very high.
- The US has become Chad's main export destination, accounting for 59 percent of Chad's total exports in 2015, largely dominated by crude petroleum and gold. Asia, on the other hand, has become the second most important trade partner (36 percent in 2015), with India alone accounting for 16 percent of Chad's total exports. In contrast, Europe has lost its importance as a major export partner.
- Gravity model findings--geo and trade-based--show that Chad is under-exporting to the US and India despite being its major trading partners, as well as to Japan, and France. Chad also under-exporting to Thailand and Singapore; while its exports to China, Germany and Great Britain, are closer to potential. .

15. Hence, *in the second rung of the ladder*, as data show promising signs of Chad breaking into non-traditional markets, strong geographic diversification efforts should be pursued to explore greater access to Asian markets, a key driver of global trade.

- While diversification is low, Chad's non-oil exports are in dynamic product categories and markets. Except for oil, Chad's emerging products are in growing categories of word demand; including semi-precious stones, gums and resins, and oil seeds. Similarly, Chad's top export partners are among the world's top importers, but effort is needed to build relationships with Thailand and China
- This should be further deepened through revamped export promotion institutions—like ANIE—to gather commercial intelligence, facilitate interaction between buyers and sellers and maintain commercial database on each country or region.

In Step 3, Chad should pilot higher-value added export products, pre-identified as potential winners.

16. *The third rung of the ladder* requires piloting higher value agri-export products, as indicated in its Vision 2025. In this regard, the GOC has identified several products with high export potential, but a more rigorous analysis reveals that the list of possible emerging products is a shorter one.

- World Bank analysis, based on revealed comparative advantage (RCAs), shows that Chad has relative comparative advantage in 11 export commodities. This means that Chad's share of world exports in these 11 commodities in 2015 is larger than what would be expected from the size of its export value and from the size of such product's world market: besides oil and cotton,

these are: vegetable products, especially gum arabic, sesame seeds and maize (corn) flour, animal leather and hides, reptile skins, manufactured products (food and textiles), and high speed steel wire.

- It is possible to cluster non-oil products into a two-pronged strategy (see below). While some are raw products (like vegetables), others are agro-based light manufactured products (like juices and woven fabric/textiles), albeit on the peripherical ends of the product space, but feasible given Chad's capability stock.
- Country-specific advantages that support Chad's capabilities are: (i) low labor cost, (ii) abundance of natural resources that supply raw materials such as vegetables, skins and hides, and cotton for the foodstuffs, leather and garment industries; and (iii) opportunities to increase yields on cultivated land.

Overall, and in close consultation with the private sector, the Government should develop a stepwise selection or sector and products to promote, which combines short-with a medium-term planning, and includes sound implementation mechanisms.

17. Short-term export diversification policies should focus on those products where Chad currently has product knowledge and relative comparative advantage, which also have strong job-creation potential.

- These products are (i) sesame seeds, (ii) maize (corn) flour, (iii) natural gum arabic; (iv) raw cotton, (v) dyed woven fabrics, and (vi) wadding of man-made fibers.
- *Other food-processing products have potential.* Currently, the processed food industry is still young and growing and includes cereals, jams and jellies, juice, sugar, and vegetable oils.
- *Upgrading the quality of existing agricultural exports is also an option critical to meet regional and global buyers' requimerents (so as to compete not just on price):* Sesame seeds, and tropical fruits can benefit from it.

18. Medium-term policies should aim at gradually developing a larger pool of local industrial skills/capabilities producing more sophisticated agri-based light manufactured exports and services. Key options are:

- *Upgrading textiles/apparel products*. Beyond raw cotton, Chad's potential for expanding its production of high-quality cotton favors a renewed production of clothing. To do this, particular attention also needs to be given to dedicated trade logistics: establishing a green channel for apparel at Customs, providing free and immediate access to foreign exchange, reducing the cost of letters of credit, and setting up industrial zones near Douala (Chad's main seaport).
- *Upgrading leather and reptile products*. Leather is more labor intensive than apparel. Currently, Chad has handful of tanneries, but targeted policy support could enable Chad to produce higher amounts of high quality leather. In addition to reptiles, Chad also has a large cattle stock. Access to high-quality processed leather would imply promoting better breeds, controlling cattle diseases, enabling the use of cattle as collateral, and improving trade logistics among informal networks.
- Str*engthening the transport and Information, Communication and Technology (ICT) sectors is critical for being globally competitive.* The most pressing challenge is to tackle the need for competitive transportation and telecommunication infrastructure, with market-based pricing, private sector participation and appropriate regulation. Expanding backbone ICT services will also require provision of skilled labor force.
- *A typical strategy for expanding backbone ICT services supporting trade includes: e-Government, e-commerce and e-agriculture*. E-government components often include streamlined online services in e-tax administration (e.g. tax payments, VAT refunds), e-Customs

(e.g. payments, trade information portal and single window) and e-procurement (e.g. bid announcements, and public tracking platform). E-commerce starts by facilitating registration procedures (single window) of new firms. E-agriculture nowadays provides e-vouchers for agricultural inputs and ontime extension services to farmers.

In Step 4, Chad should complement its export diversification strategy with an export-prone trade policy, streamlined business-friendly regulations and a revamped trade-facilitation infrastructure

19. **High and distorted Customs tariffs resulting from the little respect of regional trade arrangements and non-tariff barriers (NTBs) keep Chad's economy highly protected.**

- Chad has no independent control over two instruments of trade policy--the exchange rate and tariffs. Chad has adopted the CFA as common currency, whose parity is linked to the euro. CEMAC member states have also adopted a common external tariff (CET). The recent depreciation of the CFA has favored Chad's export competitiveness, but high tariffs make diversification harder.
- Chad applies CEMAC's CET but in practice does not strictly adhere to it. CEMAC's CET has 5 bands: some cultural and aviation-related products (0 rate), essential items (5 percent), raw materials and capital goods (10 percent), intermediate goods (20 percent) and consumer goods (30 percent). Since 2012, Chad has exceptions on 45 tariff lines (26 lines with increases above the CET).
- Chad's simple average protection level at 18.1 percent is well above East Asia (double) and South Asia tariff rates (triple). CET offers high protection to agriculture *vis-a-vis* manufacturing and mining.
- Moreover, the presence of para-tariffs exacerbates the effect of protectionist tariffs. These added duties and levies have increased both the level of effective protection and an already highly escalated tariff structure, triggered complaints from WTO members and encouraged corruption.

20. **Trade facilitation also plays against Chad's competitiveness, with landlocked exporters facing three major constraints: high trade and transport costs, and poor logistics; cumbersome business regulations; and infrastructure bottlenecks that create inefficient transit corridors.**

- Chad's access to trade beyond the Nigeria and Central Africa region confront inefficiencies not only of its own transport network but of the transit chain to Cameroon. Chad is completely dependent on its transit neighbor's corridor and administrative procedures. Douala manages around 90 percent of its foreign trade, the nearest sea port at about 1800 km from N'Djamena.
- Aggregate trade costs of Chad are not only high per se, but highest among selected landlocked countries; and the country experienced a notable increase in these costs between 2004 and 2014.
- The international freight-sharing quotas schemes signed with Cameroon and other coastal transit countries, coupled with corrupt-prone queuing system and cartels practices, constitute strong obstacles to increased market access and undermine transport service quality in Chad.
- Chad performs poorly compared to its peers in its Logistic Performance Index. LPI measures the efficiency of customs and border management clearance, the quality of trade and transport infrastructure, the competence and quality of logistics services, and the ability to track and trace consignments. Chad's 2016 LPI is 2.3, well below the global average of 2.9, similar to 2007.

21. **Streamlined business regulations require tackling major constraints to private investment, as identified by firms surveyed in the World Bank Enterprise Survey (ES) in Chad.**

- *The five major constraints are political instability (61.9 percent), tax administration (42.2 percent), access to finance (40.9 percent), corruption (39.6 percent), and access to electricity (34.8 percent).* Three out of five constraints reflect the inefficient institutions and poor governance, illustrated by perceived obstacles and corruption-related fees. The third constraint reflects shortcomings in factor markets: poor access to finance; while the last constraint highlights a key infrastructure gap: electricity. *A second tier of issues, rated with less intensity, are in the areas of competition, access to land, crime, and Customs and trade regulations.*

- *Businessmen have a generalized perception that the tax system favors large and foreign firms unfairly; while briberies appear as particularly important in obtaining construction permits and government contracts*. According to ES respondents, in Chad 69 percent of firms acknowledged paying briberies to get a construction permit; while the bribery cost to secure a contract averages 3.5 percent of its total value: more than twice the global average (1.5 percent) and above the SSA average (2.7 percent). Even obtaining access to electricity is affected by a similar constraint: about 35.8 percent of firms acknowledged bribes were required to obtain an electrical connection, compared to 22.3 percent for an average SSA firm. These illegal payments lead to a substantial increase of the overall cost of doing business.

22. These constraints are more pronounced when it comes to Chad's export and services sector. firms. Exporters (and service sector firms) broadly report similar responses to constraints identified by the general survey, they do so with higher ratings. For instance, political instability and corruption are cited by 84.7 percent and 64 percent of exporters as major constraints.

- Exporters appeared doubley affected by taxation: this is the group which complains most about tax rates (65.9 percent) and their unfriendly interaction with tax administration (71 percent). It is likely that tax regime inefficiencies, such as those in VAT reimbursements and tax exemptions regime, present significant hurdles to the exporting activity.

- A significantly higher share of exporters acknowledged lack of access to finance as their major constraint. About 72.9 percent of exporters complained about it, almost double the average percentage for the entire set of ES firms (40.9 percent). This is counterintuitive as, in general, global experience points to the fact that exporting firms tend to be in a better position to obtain credit than domestic firms. But not the case in Chad, which forces exporters to rely on their own financing. Actually, most Chadian firms (60 percent) were not interested in acquiring credit at all, citing as primary reason the high cost of guarantees, collateral and interest rates.

- About half of exporting firms also cited trade regulations--and specifically the complexity of changing applications of trade agreements--to be a significant obstacle to a firm's exports to main partner markets. And the next most significant obstacles were lack of support to prospect new markets, high costs of transport services and customs procedures.

- Chad features a complex system of overlapping Customs procedures. Physical inspections are made for 100 percent of import and exports, and the same goods may be inspected by border control officers, regional customs branches and the special Customs police. All procedures are manual, since not all branches and border crossing posts are equipped with ASYCUDA. This produces added costs and delays for merchandise and opportunities for irregular payments.

23. In response to trade policy constraints and their strong anti-export bias, an export diversification-prone trade policy should have Chad focusing on revisiting the CET toward its simplification and reduced rates, removing non-tariff barriers (NTBs), and improving trade facilitation by reduced border and transport costs. Eliminating the top tariff band of 30 percent and converging to a tariff schedule with only 4 instead of 5 bands would simplify the tariff regime and lower the average level of tariff protection to about 14.5 percent. This would reduce import prices for consumers and the high tariff dispersion that currently affects importers/consumers. These tariff reductions would however need to be framed in a broader discussion of tax reform as they would involve losses in fiscal revenue that might require

compensatory tax measures. Other possible measures include: Eliminating non-transparent trade barriers and enforcing non-applied rules of origin; and allowing for a harmonized application of the WTO Trade Facilitation Agreement (TFA) would also facilitate trade and reduce opportunities for corruption.

24. **Chad also needs to address the underlying shortcomings of its business regulations.** As indicated above, the emphasis should be on streamlining the concession of building permits and the management of public contracts; gradually introducing digital payments in the public administration and simplifying Customs Procedures (single window); fully adopting and training in ASYCUDA World and IT support automation; and introducing border HAATS.

25. **A revamped transport and trade facilitation infrastructure should help improve competitiveness.**

- The road transport sector is characterized by passable quality paved roads and a multitude of trucking companies operating in a poorly competitive and conducive environment. The sector is dominated by a large number of aged and poorly maintained fleet of individual or family-type transporters. Competition can contribute to better quality and lower costs.
- As several other routes exist between N'Djamena and N'Gaoundéré, and from N'Gaoundéré to Douala but they are seldom used due to their poor condition, the most feasible option is to improve the exiting transport infrastructure along Ndjame-Douala, including the rail transport option. Other corridors are mainly used by informal trade especially agriculture, which does not favor Chad's integration into the global economy

Chad has two game-changers at hand: Sesame Seeds and Gum Arabic exports can succeed, but only if major upgrading shifts are implemented in their regional and global value chains

26. **In general, as an agricultural seller, strengthening Chad's participation in global value chains requires densification and economic upgrading to higher value-added activities**.

- Densification is about engaging more local actors (firms and workers) in its agricultural GVC network. This contributes to the overall goal of increasing a country's value added as it creates spillovers across sectors and resilience to external shocks (likely to increase with greater export orientation, other things equal.
- In turn, economic upgrading is about gaining competitiveness in higher value-added products, tasks and sectors. Three types of economic upgrading exist: (i) moving into more sophisticated products; (ii) increasing value-added shares in existing GVC tasks with technology; and (iii) moving into new value chains with higher value-added shares. Chad's policy makers need to decide on the type of economic upgrading.

27. **The sesame seeds market is worth over two and a half billon U.S. dollars. High global demand, particularly from Asia, is driving growth in production in Africa.**

- Ethiopia, India, Sudan, Nigeria, and Tanzania are the largest producers and exporters of sesame. The sesame seed markets include the United States and Europe's food industry, Asia's edible oil and condiments industries and the Middle East's tahini, snack and bread industries. The highest value in sesame is in the processed and branded products.
- Globally, demand for oilseeds will increase, while price volatilities will also rise. At the same time, regulation and buyer requirements will continue to become more stringent with increasing emphasis on food safety, traceability and quality.
- Large global trading houses and processors such as Olam are the lead players in the chain. Olam is the lead investor in African sesame and works directly with smallholders. Wilmar is starting to invest in in African sesame and is building a sesame and sunflower processing facility in Ethiopia.

28. The global gum arabic sector is projected to reach US$20billion in 2020 at an annual growth rate of about 4.3 percent.

- The African gum belt stretches from Somalia to Senegal and is the only producing region of Acacia, a natural non-timber forest product. Sudan is the largest producer, followed by Chad and Nigeria.
- Over exploitation of trees, especially Acacia Senegal, the premium gum, is a concern and leading to deforestation in some regions. Exploitation of Acacia Senegal is increasing in response to growing demand from India. Most gum trees are difficult to access. Advocacy groups demand higher transparency, traceability and sustainability.
- The resource is almost exclusively processed to intermediate and branded products by multinational firms in Europe and North America. Nexira, a French-based firm, is the largest buyer and processor of gum Arabic. The gum is a stabilizer and thickener in multiple industries.
- The food and beverage industry is the largest consumer of Gum arabic and consists of large multinational firms such as Coca Cola and Nestle. Sudan is the only African country that has spray-drying facilities, invest in research and development, and allows private firms to do processing.

29. Chad has great opportunities for the expansion and intensification of the sesame seeds and gum arabic value chains in the global markets.

- Chad is the second largest producer in the African gum belt and a small producer of sesame seeds.
- While, Chadian Sesame seeds' exports are annually growing at about 83 percent from 2012 to 2016; Chad's growth rate in in gum arabic exports contracted by almost -14 percent from 2012 to 2016, which is contrary to the global trend of growing demand.
- Many producers and exporters involved in the sesame seeds are participating in gum arabic and other agro-products such as cotton, peanuts and staples.

30. Both the sesame and, to a lesser extent, gum arabic value chains in Chad are in their infancy, but have potential.

- Chad has a low position in both the global sesame seeds and gum arabic value chains, but this is not an obstacle to enrich and diversify their export markets. Both chains are underperforming due to the high informality of the chains, lack of organization, opportunistic trading, insecurity, lack of training and lack of finance and limited public support.
- Existing promotion policies lack focus, little if any budget allocation, and alignment with market realities. Stakeholders do not find the role of the government as supportive; and rather blame it for the decline in gum arabic production (as a consequence of its disengagement after oil discoveries and focus on the cotton sector).
- Chad exports in both chains are volatile and are de facto backup supplies to lead exporters in Africa. Chadian producers and exporters are at risk of losing markets in both value chains. The reduction of exports from Nigeria and an increased demand are the main reasons that are driving recent increases in Chad's exports. But market shifts such as alternative agro-products, climate variability, regional oversupply, low prices, and demand shifts may have an adverse effect on Chad's exports.
- Most of sesame and gum arabic production is located in the regions of Sila, Logone Occidental and Oriental, Salamat and Chari Baguirmi. These regions face significant infrastructure—water and roads—gaps.
- A global value chain analysis reveals that both chains in Chad face severe production, quality and market share shortcomings. The weakest links in the chain are in the production segment, which is disconnected to the buyer specifications and global and regional dynamics. Producers

face high pressures from wholesalers and exporters, who control relationships with buyers and logistics.

- At the same time, exporters are not reinvesting gains by upgrading, have no public support, do not have access to loans (due to low access to finance), and exert pressure on their suppliers to keep transaction costs low and revenues high. These findings suggest that process upgrading in *product intensification* and through quality improvements, certifications and empowering of producers are the most critical and immediate upgrading trajectories.

31. **Chad also lags behind other African countries in terms of strategic policies and investment strategies that target the development of both chains.**

- The four comparative country-cases: Ethiopia—with Olam--and Tanzania's—with Tata—on sesame seeds; and Sudan and Nigeria on gum arabic have been successfully growing their agriculture sector by focusing on reform, private sector development and attracting strategic foreign direct investments to develop agri-food processing.
- All four best practices are improving harvesting tools and techniques, developing commodity exchanges and other institutions to improve trade and commodity prices; creating focal point organizations to resolve bottlenecks; and attracting foreign lead firms to develop their value chains.

32. **In sum, the potential upgrading trajectories for Chad's sesame seeds and gum arabic value chains should focus on five stepwise policy priorities.** These should aim at (i) improving sesame seeds and gum arabic production, yields and quality; (ii) developing the capacity and the organization of the chains actors; (iii) complying with international certifications and traceability standards; (iv) attracting investment by lead regional and international firms; and (v) developing their accompanying infrastructure.

Implementing to succeed in 2030

33. **Despite there is no magic universal recipe for an export diversification strategy,** its key pre-requisites are:

(a) A shared national vision that would provide clear goals on the export strategy;

(b) A strong policy commitment to reduce trade costs and be competitive;

(c) A clear, transparent and predictable business-friendly investment climate that facilitates adequate incentives to domestic and foreign private investors;

(d) Targeted investments in infrastructure, connectivity and trade logistics to increase agricultural productivity and reduce transportation costs; and

(e) Effective Government coordinated interventions aiming at the support and monitoring of identified "strategic bets" in terms of Regional and Global Value Chains.

34. **Any strategy for Chad's export diversification should also interact with the parameters of the World Bank Group's (WBG) Regional Integration Strategy.** On May 7, 2018, the World Bank approved the FY18-23 Regional Integration and Cooperation Assistance Strategy (World Bank 2018b). Such strategy responds to the Africa Union (AU) Vision 2063 which includes regional integration as one of its five aspirations. The document acknowledges that the overall performance of Africa with regional integration has been mixed. Among five dimensions of regional integration, the 2016 regional Integration index for Africa ranks trade integration, free movement of people and regional infrastructure with the highest scores, and productive integration and financial and macroeconomic integration with the lowest scores. As a result, its overall assessment of the state of play is described as a "glass half full."

35. **The WBG document revisiting the case for regional integration points to diversification and global value chains as two "accelerators" of regional integration**. The strategy acknowledges the benefits of diversification in terms of growth and job creation, especially through their channels of expected improvements in productivity and capacity to attract private investments. Following success stories in raw agri-based products, like cocoa and cashew, strengthening regional value chains should also be a stepping stone to some important products for the region. And to do so, a multiple countries commitment is necessary. As a result, among four major priorities of the RI strategy, boosting competitiveness and rapid economic diversification is critical. And to do so, the WBG support should focus on (i) improving agricultural productivity; (ii) strengthening value chains; (iii) reforming policy on land tenure, subsidies and access to finance; and (iv) providing support to infrastructure through SOE regulatory reforms and private sector solutions and de-risking strategies of the MFD agenda. Given the limited fiscal space, IFC's catalyzing role on private investment will also be essential to its implementation. Concrete expected outcomes for FY18-23 are to generate economic dynamism (increased regional trade) along 8-10 regional economic corridors and to develop 4-6 regional value chains in important agricultural-related products, including through leveraging private financing.

36. **The trade policy component of the AU export diversification strategy should also be consistent with the Framework Agreement establishing the African Continental Free Trade Area (CFTA) signed by 44 countries in Kigali in March 2018, and ratified by Chad last July**. The CFTA holds the potential to stimulate the diversification of exports away from a few traditional primary commodities, which would reduce vulnerabilities totheir commodity prices. Th framework agreement proposes to work on 4 directions: (i) liberalize specific tariff lines (removing tariff lines on 90 percent of products); (ii) modify restrictive rules of origine; (iii) address non-tariff barriers that harm trade (permits and licenses, difference in standards and Customs procedures); and (iv) liberalize trade in services. Our policy recommendations proposed below address these guidelines.

37. **Table ES.1 summarizes the menu of core complementary policies that would provide the fundamentals of an export diversification strategy for Chad**. This Table reflects the main policy recommendations on "what to do" as priority actions. Far from being exhaustive in their content, more granularity is included in the last section of their corresponding chapter.

Table ES. 1: What to do: Summary of key policy recommendation

Objective	Main options for consideration
1. Implementing a Business-Friendly Policy	
Facilitate business creation, especially SMEs	Allow the company's creation notice and the registry online, and remove the requirement for a company *seal* in commercial contracts. Conduct a functional and financial audit of the one-stop shop. Issue a decree making the participation of a notary optional in registration procedures.
Facilitate compliance with tax administration	Unify the tax ID for all taxes and contributions, with online application allowed. Convert CIT, social security and VAT refunds and reporting to a quarterly basis. Implement online service for paying taxes by all firms' taxes. Digitalize tax payments.
Streamline obtention of construction permits and reduce their cost	Adopt and implement building code and make technical inspection of buildings during construction phase compulsory Reduce the fees associated with obtaining a construction permit and digitalize their payment. Reduce the costs of building registeration (actually 5 percent of the property value)
Increase access to credit	Introduce new instruments designed to promote export finance (e.g. export guarantees)
Facilitate access to electricity	Create a single window for SME registration and payments online. Reform procurement law with regard to fuel and power generation to facilitate new firms' entries.
Facilitate trade	Implement a Trade Information Portal and a Single Window for trade, with electronic processing of documents and digital payments. Full implementation of risk-based inspection system, supported by scanners and communications.
2. Developing a Trade-Facilitation Diversification Agenda	
Simplify the trade regime and accelerate its liberalization	Update the evaluation of the impact of the current CET on Chads trade liberalization and bring it to CEMAC high authorities. An ensuing new 3-year roadmap for tariff simplification should consider eliminating the top tariff band of 30 percent and converging to a tariff schedule with only 4 instead of 5 bands. Adopt plan to remove parafiscal para-fiscal border taxes/fees and NTB barriers. Appoint a monitoring body to design and follow up such reform.
Rationalize tax and duty exemptions	Redefine tax and duty exemptions in compliance with CEMAC directives. Audit firms' compliance with tax exemptions and re-examine investment-promotion programs to make them more effective. Export promotion tools should focus on trade-related infrastructure, export services and grant to value chains.
Eliminate illegal fees on trade corridors	Launch a national awareness campaign among CEMAC traders on transit traffic. Establish a reporting mechanism for traders encountering road harassment.
Open new regional and global markets for agricultural and livestock products	Define entry requirements of strategic clusters around selected product varieties, in European and East Asian markets. Train commercial counsellors in overseas missions and Chad's Chamber of Commerce on commercial information and trade exhibition opportunities.
Establish border "haats"	Undertake a feasibility study exploring the potential for a pilot border "haat" (or market)" for SMEs and women traders at Gamboru Ngala in Borno State border.
Reduce trade costs with modern and Streamlined Customs regulations	Implement risk-based management and post audit efforts in Customs border posts. Accelerate the mapping and harmonization of export and import documents along web-based single window among all relevant agencies & trade-related business re-engineering.

Objective	Main options for consideration
	Complete the provision of IT infrastructure at all Customs points (especially Nguéli and other key transit points). Massive training and use of ASYCUDA++ World and IT management Set a task force to design a 2nd generation Customs reform (based on digital-based e-payments)
Negotiate with Cameroon new transit facilities	Based on a feasibility study, revamp multimodal transport and container facilities, and transport infrastructure. Establish a transit authority in Douala to facilitate reform implementation.
Promote a competitive and efficient transport sector	Implementing harmonized CEMAC rules of access to and exercise of transport professions based on competence, training and the solvency of the companies. Assign proper budget for road maintenance to N'djamane-Douala corridor.
3. Fostering Existing and Future Product Export Capabilities	
Short term: Investing on existing industries	
Agricultural/livestock products	Sesame seeds, maize (corn) flour and natural gum arabic. Beef, sheeps and goat.
Agro-processing	Cereals, vegetable (palm) oils, juices.
Medium term: Developing products with higher value-added capabilities	
Light manufacturing	Woven fabrics, raw cotton and wadding of man-kind fibers.
Services	ICT and transport.
4. Upgrading Sesame Seeds and Gum Arabic Value Chains Competitiveness Abroad	
Develop institutional capacity to promote industry growth	
Process and institutional upgrading	Expand and develop the Chadian sesame and gum arabic Councils; rethink the mandate of ANIE toward a PPP export promotion agency; develop the capacity of community producer organizations (CPOs) to become production clusters/hub with marketing power. Redefine tax, licensing and incentives regimes; and set score-cards to evaluate key performance indicators by beneficiary stakeholders. Redefine access to finance policies by small farmers in both chains and introduce digital finance mechanisms.
Build reliability by increasing quantity and quality toward certified products	
Product upgrading	Develop the capacity of the Chad's Food Quality Controls on global certification and regular training on quality standards. Invest in a GIS system and train ITRAD to update forestry data and expand planting of new trees; taking into account irrigation, harvesting and environmental requirements. Ensure safe transportation from farm to port, with proper wharehousing.
Improve efficiency and reliability by shifting industry decisions and coordination to the farm level	
Process and institutional upgrading	Invest in training CPO pilots to collect and distribute agriculture and market information, and develop processing capacity. Provide regular training in cleaning and drying of both products.
Raise producers and harvesters' incomes by increasing demand for Chadian crops	
Market upgrading	Develop premium market branded products, such as organic and fair trade (including artisanal products: e.g. soaps, cosmetic sesame oil and salad dressing). Participate in global campaign improving reputation of Chadian products in new end markets in Africa and Asia countries. Develop market monitoring information systems.
Strengthen linkages between sesame seeds and gum arabic projects to other projects	
Process Upgrading	Identify trade-related infrastructure project clusters for pilot CPOs and engage in active coordination efforts with ministries and donors in their implementation.

38. **Last but no least, in addition to the "what to do", it is also important to define the "how to do it", which is closely linked to a possible sequence of actions**. Leaving trade policy recommendations to be managed at the regional level, a desirable sequence could be as follows:

i. Carry on a rigorous selection process on the very few (2-3) value chains (VCs), regional and/or global, to promote (the main reason being that there is no fiscal and institutional capacity to develop all of those identified with potential simultaneously). Preferably, it should it be self-selection based (ideally with a well identified FDI-partnership which would also bring know-how/technology) rather than government-managed selection.
ii. Make a thorough evaluation of the potential for attracting specific FDI/foreign firms to support those particular RVCs/GVCs selected. The list of well identified agri-based firms with experience and interest in Africa is not long and well known, and a dedicated event could address them. Once these are identified, a dedicated and well-planned effort should be done to invite those specific firms to be approached/invited to Chad on those products.
iii. *Design a geo-spatial prioritization of the production areas related to those RVCs/GVCs to prioritize and their needs*. Such design should be linked to (i) the decision on the selection of the strategic trade corridors and their needs in terms of infrastructure/backbone services/Customs procedures simplification); and (ii) the identification of the infrastructure gaps required to support the production and marketing of the products selected.
iv. Carry on an assessment of the producers' organizational upgrading status and needs. This action requires to rely on the international lessons described in the chapter 5 that covers the 3 or 4 best practices that are relevant to Chad.
v. *Fill the key gaps in the entire value chain upgrading* (read Table 5.5): training in technical standards, key business regulations to eliminate/simplify, etc. The key point here is to identify the minimum set of "gaps" that require to be filled in the short and medium term.
vi. *Design and implement a renewed export promotion policy*. It should be led by a renewed ANIE, in tandem with fiscal space available, and supported by new policy instruments (matching grants, digital money, online markets search, etc.).
vii. *Materialize external donors' support to selected GVCs development needs*. Donors can provide not only financing to new players,but contribute to correct market failures and provide guarantees to encourage private sector participation.

Chapter 1: Why Export Diversification Matters to Chad[1]

Abstract

- Since oil discovery, and despite substantial revenue from the oil sector and ensuing investment in infrastructure, Chad has failed to translate such windfall into sustained high growth.
- Three major constraints have prevented Chad from moving away from this growth labyrinth: repeated violent conflicts, short-lived growth gains and low competitiveness from Dutch disease.
- Chad's Vision 2030 rightly aims for an emergent economy driven by diversified sources of growth.
- Three reasons to diversify exports: oil busts collapse the non-oil economy; oil production can not create enough jobs; and its domestic market is too small to attract private investment.
- Beyond oil dominance, diversification faces other structural challenges: weak infrastructure, low human capital, rapid demography, frequents shocks and a weak financial sector.
- Export diversification is akin to economic diversification and may proceed in parallel steps: exporting more of the same, finding new markets, piloting higher value exports and mainstreaming such pilots into emergind new sectors.
- Modest but positive structural change occurring between 2005-15 signals Chad's trend moving labor force toward non-oil more productive sectors like services and agri-manufacturing.
- If Chad would increase its trade openness ratio toward the levels of export-led Vietnam and Malaysia, its GDP per capita would increase by 0.7 and 1.2 percentage points respectively.

1.1 Diversification as a Top Priority for Chad's Development

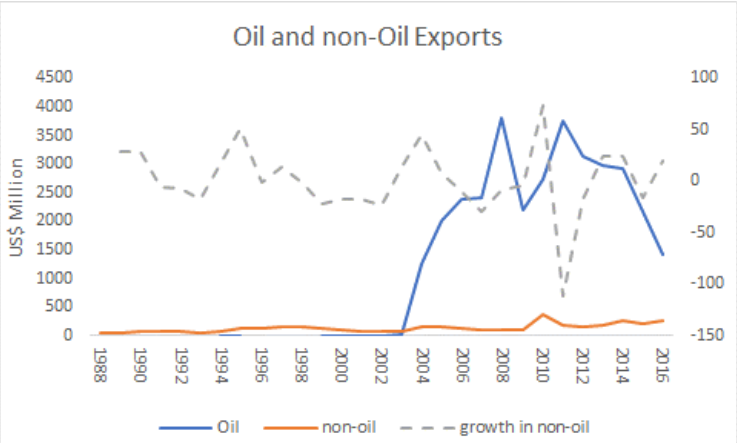
1. **Chad is a geographically large country of about 13 million people, located at the cross-roads between east and west, north and central Africa**. Like Mali and Niger, Chad is landlocked--it borders Niger, Nigeria and Cameroon to the west; Sudan and South Sudan to the east; Libya to the north and Central African Republic (CAR) to the south. Like many landlocked countries in Sub-Saharan Africa, Chad has a long tradition of subsistence agriculture, livestock and pastoralism. Moreover, the high poverty levels in Chad are related to the country's enormous size, its harsh environment and its population distribution into smaller regional enclaves. Virtually every aspect of social and economic welfare can be viewed within the context of the country's extreme isolation and poor internal integration.

2. **Since its discovery, Chad has benefited over the last 15 years from substantial investments in the oil sector and revenues from oil exports (Figure 1.1)**. Over the same period, the combination of high spending along with weak institutions has brought Chad to heavy dependence on a single commodity, with high trade costs, poor infrastructure and low competitiveness hindering the development of alternative sectors—particularly agriculture, whose growth has remained stagnant since the discovery of oil. In recent years, a number of shocks have raised the urgency of improving on these circumstances,

[1] This chapter is based on Beguy (2018), background paper for this study.

including world oil price shocks, refugees, security problems, environmental degradation, and an acceleration of extreme weather events.

Figure 1. 1: Oil versus Non-Oil Exports



Source: Bank staff estimates

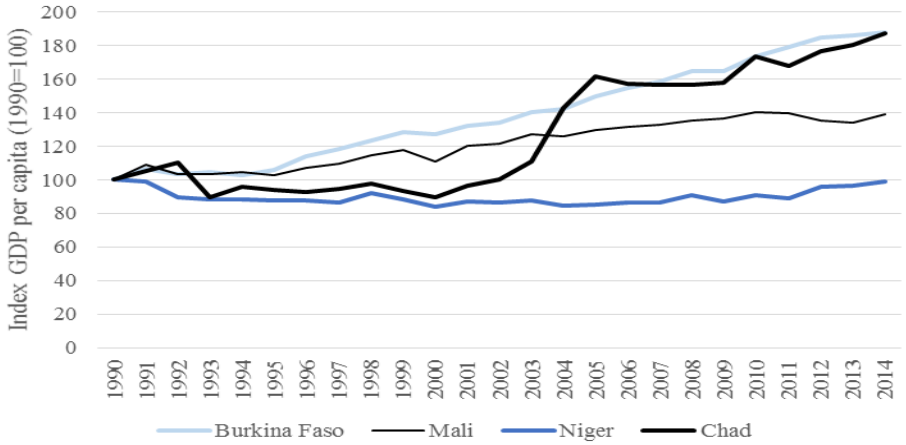
3. **Oil discovery has also made past economic diversification attempts more inclined to fail**. As Chad's economy (and exports) became more centered on the oil industry, several market failures made it harder to benefit from the potential of diversification on growth. World Bank (2018a) identifies the three major constraints that historically prevented Chad from finding a way out of its "growth labyrinth" through diversification. First, the high frequency of violent conflicts has not only prevented private investment, destroyed infrastructure and disrupted trade, but shifted government consumption toward military expenses, with a difference between average GDP growth rate in years without and with conflict close to almost 7 percentage points. Second, oil-boosted growth was short-lived and did not translate into sustained long-term growth, as its mismanagement led the country to miss a great opportunity to translate oil revenue into permanently faster growth GDP growth through more investment into human capital and infrastructure. Third, oil has also made Chad's economy less competitive and vulnetrable to shocks, with large capital inflows triggering oil production and exports and, following Dutch disease dynamics, increasing resources toward non-tradable sectors and unproductive (low-skilled) services, while reducing external competitiveness in tradable sectors. As a result, the downsizing of government intervention in the agricultural sector—equivalent to about 4 percent of GDP over the 2003-2012 period, a ratio among the lowest in Sub-Saharan Africa (SSA)—also led to low agricultural productivity and small involvement of the private sector in the Chadian agriculture. _

4. **To counter these historic failures, Chad's Vision 2030 aims for an emergent economy, driven by diversified and sustainable sources of growth.** The goal is to triple the average GDP per capita at current prices, by increasing it from US$ 730 in 2014 to US$ 2300 in 2030, while drastically reducing the poverty rate from 46.7 percent in 2011 to 8 percent during the same period. To achieve this goal, the average economic growth rate needed during this period is estimated at two (2) digits. This would be made possible by the effective implementation of the 2030 Vision through three (3) consecutive five-year national development plans (2017-2021; 2022-2026 and 2027-2030), its operationalization instrument. Thus, the ongoing 2017-2021 Five Year Plan builds on the political and strategic orientations of the 2030 vision.

5. **The severe impact of the recent oil price collapse, makes Chad's Vision 2030 goal to diversify its economy even more critical (Figure 1.2).** The first five-year (2017-2021) National Development Plan (NDP) already sees Chad's economic diversification centered on Chad's comparative advantages, away from oil and focused on the development of outward oriented value chains in agriculture, livestock, fisheries and mining. Diversifying the economy would make it less vulnerable to fluctuations in oil

revenues. And as a major driver of growth, exports should rapidly diversify, both by expanding the range of agriculture products and by transforming them into higher local value-added products. The drastic fall in oil prices since 2015, and the decline in oil reserves makes export diversification more pressing over the next few years. Chad's estimated oil reserves are projected to be depleted within the next 15 years[2]. In addition, the benefits from the development of extractive industries have proven to be capital intensive and very limited in terms of job creation. This converts exports diversification into a long due risk mitigation development strategy.

Figure 1. 2: Compared to its neighbors, Chad's GDP per-capita sharply rose during the advent of oil production since 2002, and continued on a positive path during 2005-2014, before the oil price collapse



Source: The World Bank (2015).

6. **A strategy of export diversification is akin to foster economic diversification.** According to the 2017-21 NDP, to diversify its economy, the country should rely on a few agricultural products already identified (DTIS 2013): leather, gum arabic, sesame, onion, garlic, spirulina, textile, natron, dates, peanut and shea sectors. The corresponding agri-value chains will be promoted by setting up competitiveness clusters in the regions in which they are produced. These clusters will bring together all the main stakeholders of the sectors (producers, cooperatives and industrialists, etc.). To support these chains, the GOC intends to diversify the economy through the construction of the adequate infrastructure (electricity, roads, ICT, etc.) in these regional poles, and also encourage the creation of warehousing, processing and preservation of commodity-industries.

7. **Thus, Chad has three main reasons for diversifying its exports**. First, despite initial rapid gains in GDP per-capita and poverty reduction since oil discovery in the early 2000s, ensuing oil price fluctuations and most recent collapse have led to an unprecedented fiscal adjustment with negative spillovers on the non-oil sector.[3] Thousands of layoffs have followed in urban areas and pressed for an urgent diversification of its oil-dependent economy. Second, oil is highly capital-intensive and import-dependent: its small impact on domestic employment makes it unable to absorb the staggering demographic boom. Third, its domestic market is too small to attract a minimum of foreign investment in the quantities needed for nurturing private sector-led growth. Not surprisingly, its private sector

[2] Chad has about 1.5 billion barrels of proven reserves, which represent about 145 barrels per capita (p.c.). This amount is fairly modest when compared to 502 barrels p.c. for Angola and 243 barrels p.c. for Nigeria. With annual extraction rates of about 8 percent (proxied by production as a share of recognized reserves), oil reserves are expected to be almost depleted by around 2035. The successful exploitation of other oil fields would not significantly alter the downward path of oil revenue, since those are smaller than the size of the main Doba oil field.

[3] Between 2003 and 2011, Chad's poverty rate dropped from 55 to 47 percent, though not rapidly enough to offset the rapid population growth. As a result, the number of poor increased by 15 percent.

remains incipient: in 2014, according to the general census of enterprises, the formal private sector had about 30,761 enterprises (INSEED, 2015).

8. **These reasons confirm international experience showing that reliance on natural resource-generated wealth hardly achieves sustained growth accelerations and carries on multiple shortcomings:**

- **Tendency to grow beyond potential in booming times (over-heating)**: In the initial phases of a commodity boom, domestic demand tends to grow too fast as its expansionary fiscal policy has an inflationary impact. Additional spending affects both tradable and non-tradable goods. Increased commodity production increases exports supply and, through the use of generated foreign exchange, it also serves to finance imports; while non-tradable goods also rise to satisfy excess domestic demand in the country. Hence, the commodity boom-generated demand for non-tradables comes accompanied by larger-than-usual current account deficits, thus overheating the economy. Some of these undesirable effects may be mitigated by well-applied fiscal stabilization mechanisms (such as fiscal rules and stabilization funds), but fiscal institutions are not yet enough strong among Central African Economic and Monetary Community (CAEMC) countries.[4]
- **High GDP growth volatility**. Commodity prices are very volatile, i.e. they have high standard deviations (often above 30% per year). In addition, their terms of trade shocks tend to be persistent--if not structural as the present one--thus creating great uncertainty over the long run of wealth of the economy. This also makes resource-based GDP growth highly volatile, which causes non-resource-based GDP to follow such pattern. This transmission mechanism is by itself another obstacle to diversification. To counter this, public spending needs to rely on buffers, built during booming commodity prices.
- **Dutch disease (and ensuing tendency for real exchange rate appreciation)**. Booms let the price of tradable goods be pinned down by excess demand of imported goods, often at declining prices, i.e. an exchange rate appreciation that favors non-tradable sectors. The ensuing loss of competitiveness hits the tradable sectors, further hampering the potential for export diversification and making non-tradable sectors (i.e. construction) more attractive. A continued real appreciation of the currency should be contained to preserve non-resource emerging exports competitiveness.
- **Budget priorities biased toward rent seeking non-competitive activities**. Government commodity-generated revenues tend to be allocated to non-priority needs, following a non-transparent political process in which many vested interests participate. Often, such allocation of resources favors unproductive public outlays in non-tradable activities, rather than in those needed to promote higher value-added and competitive tradable goods.

9. **But perhaps the most important reason for Chad to diversify its exports is the existence of a positive correlation, at a cross country and national levels, between export diversification and higher growth**. And while correlation per se does not imply that diversification *causes* growth, literature supporting this positive relationship is abundant. A comprehensive treatment of the topic is found in Newfarmer et. Al (2009) and Al Marhubi (2000). More in particular, there is strong evidence on how export diversification makes the economy less vulnerable to terms of trade shocks and reduces the volatility of growth (which, in turn, could in the long run foster growth) (see Imbs and Wacziarg, 2003; de Ferranti et al. 2002; Jansen, 2004; Bachetta *et al.* 2007; and Lederman and Maloney, 2012, among others). Their overall conclusion is that countries with more concentrated production and export structures typically have lower income levels compared to countries that are more diversified. More recently, McIntire et al. (2018) find that among small states, those countries with more diversified exports reach lower output volatility and higher average growth than the others less diversified. For their part, Calderon and Cantu (2018) investigate the effects of trade openness, diversification, and the role of natural resources on growth in CEMAC countries, also including Chad. Two important findings

[4] Under an agreed multilateral surveillance framework for CAEMC countries, Chad has committed to reach the regional convergence criterion of 3 percent of GDP for the overall fiscal deficit (including grants) by 2019.

emerge from their analysis: First, Trade openness has a positive, significant and causal relationship with growth; product concentration has a negative and significant relationship with growth per worker; and market concentration has a small positive and significant impact on growth. The share of natural resource exports in total exports also exhibits a negative and significant relationship to growth. This implies that growth is fostered by higher trade integration, a more diverse basket of products to export, and lower dependence of natural resources in the structure of exports. Second, the rationale of these results---the so-called channels of transmission—are that: Trade openness has a positive impact on both growth of capital per worker and TFP, as a more diverse structure of exports would lead to greater growth in capital stock and TFP; and conversely, a greater dependence on natural resources in the export basket hinders the growth of capital stock and TFP.

10. **This introductory chapter addresses the following four intertwined questions**: (i) what structural challenges prevent Chad's diversification; (ii) what options for exports diversification are open for Chad; (iii) where Chad stands in terms of structural change, the mirror feature of economic diversification; and (iv) what rationale is behind the headlines of its structural change dynamics.

1.2 Chad's Structural Challenges to Achieve Economic Diversification

11. **Chad's diversification faces multiple structural challenges**.[5] These challenges do not prevent the country to export, but behave as major constraints to develop an export-led diversification strategy in the medium term and therefore cannot simply be ignored (Figures 1.3 a-f).

12. **As a landlocked country, Chad's access to external markets and progress towards economic integration is exacerbated by weak transport infrastructure**. Transport costs in Chad are high by regional standards and the low quality of transportation services represent a major constraint to access to regional and external markets. Underdevelopment of the road network, the instability of certain soils, the age of vehicles on the roads, the lack of professionalism among carriers, insecurity, and the legal and illegal levies imposed on road transport are the main reasons for the sector's lack of development. Nevertheless, thanks to oil revenues, the network of paved roads has sharply increased in recent years – from 346 km in 2000 to 1,800 km in 2016, helping Chad moves from last to second behind Cameroon, in the Central Africa zone, in terms of its paved road network. However, the overall road network remains underdeveloped with respect to the country's land area, population patterns, and needs; and while Chad benefits from access to several international trade corridors, all of them represent distances farther than 1,800 km.[6]

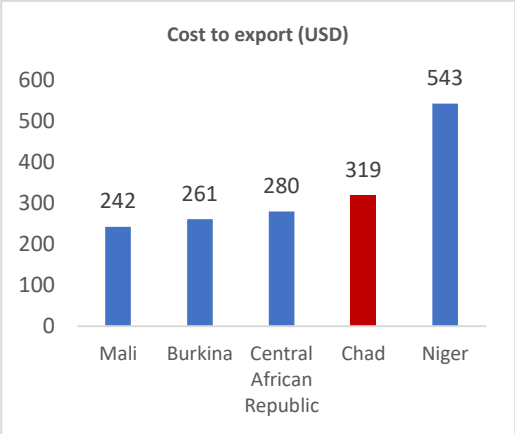
13. **Its demographic boom is a major determinant of cheap labor force.** According to the 2009 census, Chad's natural population growth rate was at 3.5 percent per year against 3.0 percent in 1980s and accelerating. This is the result of the declining mortality rate, but more notably a high fertility rate. In 2010, with about 7 children per woman, Chad had the second highest fertility in the world after Niger's estimated 7.6 children per woman. In addition, one out of every two Chadians is under the age of 15, and more than two in three Chadians are under 25 years old. In this context, the next 20 years should feature a doubling of the total population and a doubling of the number of young people entering the labor market; also including a tripling of the urban population (and that of N'Djamena), and a near doubling of the rural population. These trends will put pressure on creating job opportunities for the numerous youth who will increase the labor force and make it cheaper, and on preventing social and political crises in response to insufficient job creation and slow improvement in living conditions.

[5] This section is based on World Bank (2015).

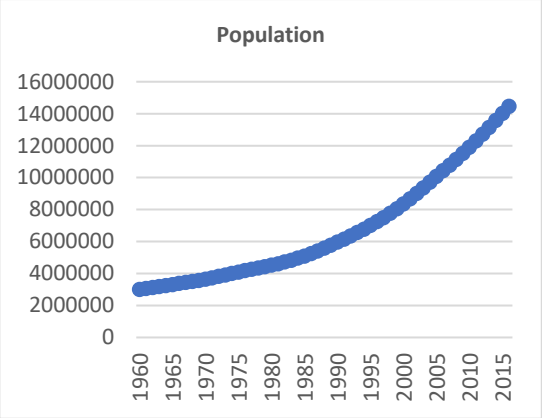
[6] The shortest distance—1,800 km—is between Douala and Ndjamena. It is the most important transit corridor and accounts for about 85 percent of the total traffic. Lagos is 1,900 km away, but it is not really used since the advent of conflict related to Boko Haram. Other ports are farther away and represent a modest part of transit for Chad: Cotonou 2,000 km away, Lomé 2,100 km away, and Tema 2,300 km away. Other alternatives are through Sudan (3350 km) and Libya (3500 km).

Figure 1. 3: Structural challenges to economic diversification

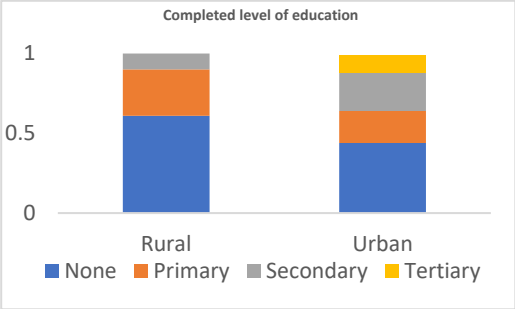
a. Chad is landlocked, exporting (transport) costs are high, and access to markets is far away even with neighbors.



b. Rapid population growth puts a strain on job creation and living conditions.

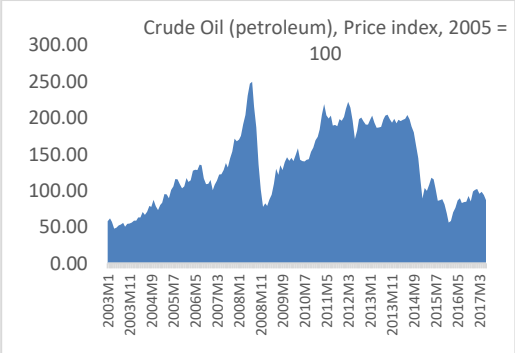


c. Human capital features low levels of education among rural, female and older populations, and widespread malnutrition.

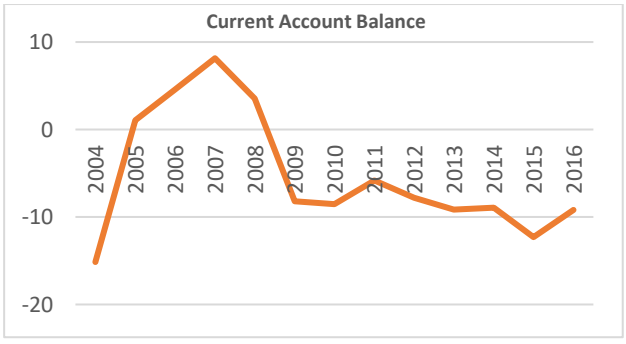


d. Chad's growth shows wide booms and busts, due largely to the fact that the economy is not diversified, reliant on rainfall and, since 2002, the price of oil.

e. Oil prices slumps have dramatically deteriorated the fiscal positions, but the present one has a longer and more structural nature.



f. Current account deficits are large, reducing the country's savings capacity for financing investment.



Source: Rainfall: http://www.cameroon.climatemps.com/; Education Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA) 2011; exports: Doing Business (DB) 2016; population: WDI 2016; uranium price: IMF 2016.

14. **Rapid demography also contributes to perpetuate a weak human capital base and a largely unskilled labor force, which severely limits its economic opportunities.** The stock of human capital is low particularly among rural, female and older populations, and despite significant progress in school enrollment. According to the 2013 household survey (ECOSIT, 2015), only 2.3 percent of the population has higher than a secondary education. In contrast, by far the largest category is the 'no education' category: more than half (58.2 percent) of the working age population reports having zero years of schooling. Moreover, the quality of the education system is very weak. Of the 10 countries that participated in Program for the Analysis of Education Systems (PASEC, 2014), Chad ranks ninth at educating its children and its poorest girls, and 10th at providing equal access to quality education. Hence, Chad faces a big challenge in producting a highly skilled labor force; informality remains massive, especially in the rural sector, and even basic jobs in electricity, repairs, plumbing or other services are left to better-educated foreigners.

15. **Since 2002, the Chadian economy became heavily dependent on oil.** Chad's dominant oil sector has driven economic growth, and the recent fall of global oil prices have led the Chadian economy to recession since 2016. After growing at an average rate of 6.3 percent during 2013-14, oil prices plunged by end-2014: the export price for Chadian crude oil fell from an average of US$100 per barrel in 2013 and 2014 to US$34 in 2016. Oil revenue dropped from 11.7 percent of nonoil GDP in 2014 to just 3.8 percent in 2016. As a result, Chad's GDP contracted by 6.4 percent in 2016. And in the absence of adequate buffers, the government could not undertake any counter-cyclical fiscal policy to support economic recovery and protect social spending effectively.

16. **The country's exports are mainly concentrated in oil and, to a lesser extent cotton and livestock.** According to the DTIS (2013), Chad is one of the least diversified countries in the region, with less than 200 products exported in total, at par with Central African Republic (CAR). In contrast, countries such as Senegal, Nigeria, Cameroon and Ghana have diversified their export offer, which has grown from an average of 1,000 products in 1998 to nearly 2,000 exported products in 2011. During 2011-15, Chad's exports decreased at an annualized rate of -6.1%, from $2.8 bn. in 2010 to $2 bn. in 2015, making it the 129th largest exporter in the world. In such year, Crude Petroleum represented 93 percent of total exports, followed by Raw Cotton, which accounted for 1.6 percent. Livestock do not appear in official statistics[7], but annual estimates of informal exports of livestock to Cameroon and Nigeria added to $275 million, making it the second-largest export product after oil. Food goods comprise the main imports: almost 15 percent of total imports in 2015. Chad is structurally food deficient, suggesting a potential market for domestic production provided productivity in agriculture can be raised. In contrast, driven by a past boom in public investment, capital goods comprised about 37 percent of total imports in 2015.

17. **Exogenous shocks (oil price, security and humanitarian crises) prevent the country to raise public savings in order to sustain high public investment growth and reduce a large current account deficit.** As fiscal pressures deepened in 2016, and government revenue significantly underperformed,[8] non-oil tax revenue dropped to 7 percent of non-oil GDP, its lowest level since 2009. As domestic resources—tax and non-tax revenue—remain the dominant source of financing for infrastructure, it deterred encouraging greater private savings and financial depth, and affected private sector participation in infrastructure.

18. **A weak financial sector also remains a major challenge.** While the use of financial services by Chadian households has risen somewhat over the years along with the deployment of commercial banks' physical presence, it is still very limited. For example, the agricultural sector which represents about 25 percent of GDP, receives about 2 percent of total credit provided by commercial banks. A shallow financial sector is heavily dependent on government's bonds, which is the largest source of

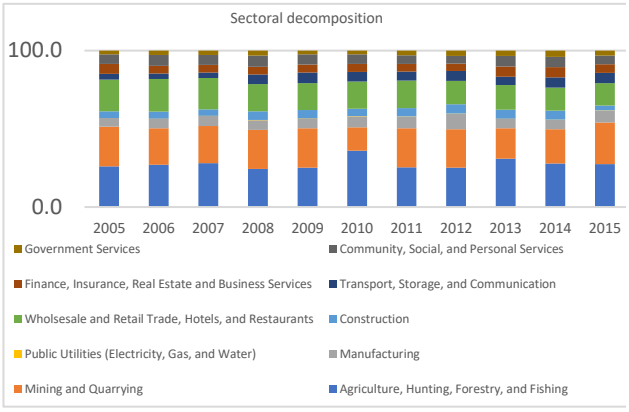
7 Besides gum arabic, statistics do not take into account the emergence of new agricultural export products: shea, groundnut (which often replace cotton as a cash crop in the cotton zone), maize, sesame, rice, onions and garlic, and other products exported occasionally and in fluctuating quantities.

8 Net oil revenue available for the budget also fell dramatically to only CFAF 34 billion (includes net sales revenue, profit tax and other fees) after accounting for the service of the Glencore loan and its operational costs.

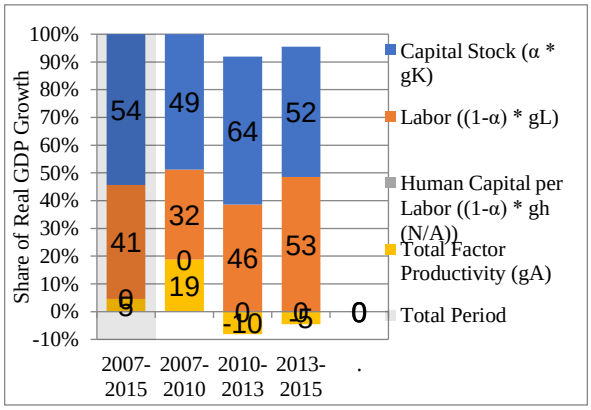
exposure for Chadian banks.[9] Thus, Chadian banks are very sensitive to public finances, and by the same token to fluctuations in the prices of key exports such as oil and cotton. The financial sector is exposed to public enterprises, government suppliers or public servants. Access to financial services and formal financial intermediation are low..Banks' credit to the economy is about 7 percent of GDP.

Figure 1. 4: Stylized facts about GDP growth and the external sector

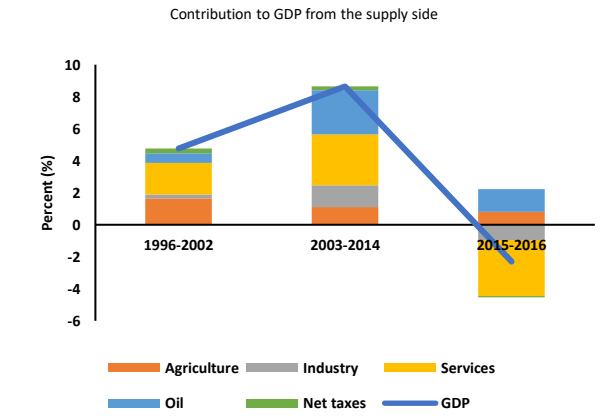
a. The economy is dominated by the primary sector (agriculture and mining) while services are declining.



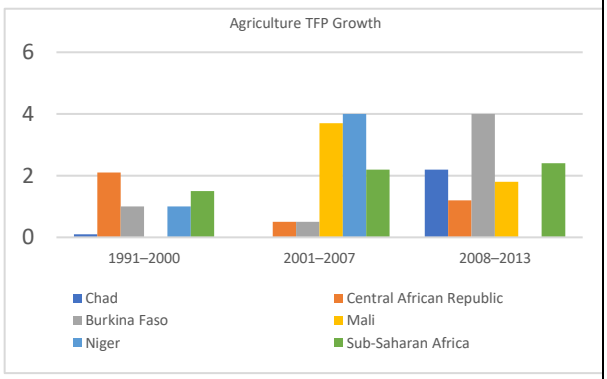
b. On the factors' side, major contributions to recent growth come from physical capital and labor.



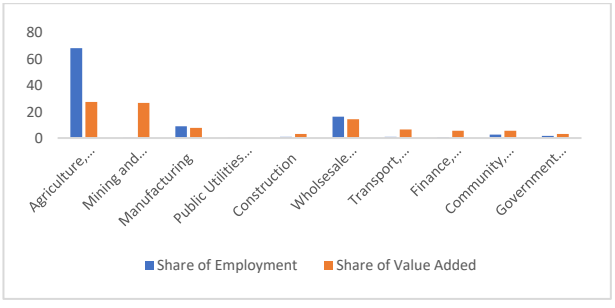
c. Sectoral growth is driven by oil and agriculture, which provide the major recent contributions to growth



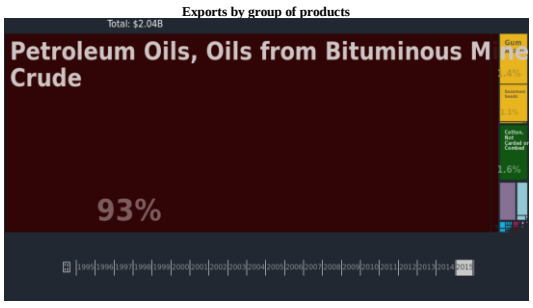
d. Chad agricultural TFP growth rates have been negative or very small in past decades, below those of its neighbors, pointing to low agriculture productivity.



e. Agriculture makes up the largest share of employment.



f. Crude oil comprises the bulk of exports.



Source: IMF 2016, Government of Chad, WDI 2016, Bank Staff estimates. *Note:* TFP = Total Factor Productivity.

19. **Furthermore, Chad's growth patterns should also be taken into consideration when facing its structural challenges**. If anything beyond its volatility characterizes Chad's economy, it is its resistance

[9] Chad has fewer than 22 depositors, 3 borrowers and 1 commercial bank branch per 1000 adults, compared to a Sub-Saharan African average of 128, 21 and 3.7.

to change. Exploring these factors is key for understanding its trend toward diversification (Figures 1.4 a-f).

20. The sectoral composition of GDP remained fundamentally unchanged in the past 10 years. In 2015, the primary sector, including the extractive sector, continued to account for more than half of economic activities. Within the primary sector, agriculture (including livestock, forestry and fishing) was the main economic activity with a share of 27 percent of GDP. Manufacturing (8 percent of GDP), construction and public works (3 percent of GDP), and production of electricity gas and water (0.1 percent of GDP) remain very weak. Chad's secondary sector is constrained by the country's weak electricity and water infrastructure. Over the last decade, growth in the secondary sector has been driven by construction activities, especially oil-related construction and public works, as well as light manufacturing and handicraft, which is mostly concentrated in the informal urban economy. For their part, the share of services did not increase in the past ten years reflecting the slow modernization of the economy and widespread informality. Commerce, represented the most important activities in the tertiary sector with shares of 14 percent of GDP. The share of Telecommunications was small but had the fastest growth in the tertiary sector (12 percent growth per annum on average between 2007 and 2016), followed by the public sector which increased 9 percent per annum over the same period. The rest of the service sector is dominated by informality. Due to the oil sector's impact on the urban economy, both the formal and informal services sector have growth rapidly over the last decade, but disconnected. The formal service sector faces unequal competition from informal firms, which do not pay taxes or adhere to regulatory requirements. Meanwhile, informal firms often lack access to key formal services, particularly financing, and are unable to work directly with the public sector.

21. Oil and agriculture remain the main contributors to growth, but both sectors feature high variability for different reasons. On the one hand, rainfall is a core determinant of agriculture output and productivity. Annual variation in rainfall is strongly correlated with annual cereal production. Moreover, inadequate yields, poor diversification of incomes, climate change, and increasing pressure on land due to population growth are other reasons why economic and food insecurity persist and make Chad a net importer of food. On the other hand, Chad also has significant crude oil wealth with many new oil fields commercially exploited but relying on the vagaries of commodity prices.

22. A growth accounting exercise shows that increases in capital stock have driven most growth in Chad, followed by increases in labor accumulation. This is in line with the country's massive public investments fueled by oil revenues before the recent crisis, and the high growth population rate. In exchange, total factor productivity (TFP) has contributed modestly to economic growth. This is consistent with the low efficiency of very large public investments of the last decade (World Bank, 2011). It is also consistent with either the fact that public investment did not attract private investment in similar magnitude – except maybe for the transport industry which benefited from better road infrastructure—and the very low contribution of human capital and its poor economic return. Furthermore, data on value added and employment shares suggest that labor productivity in agriculture is the lowest among all other sectors.

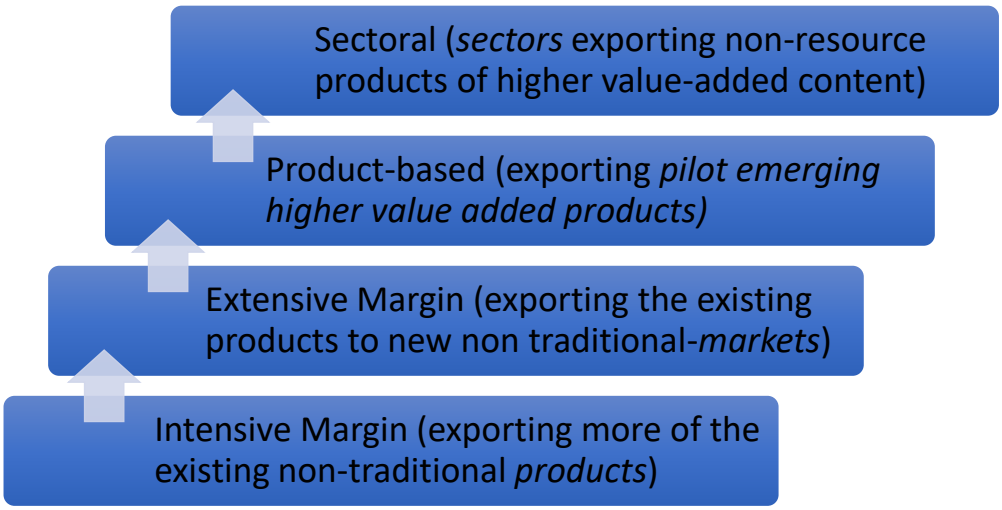
23. While crude oil dominate exports, some agricultural and livestock products are emerging. Apart from crude oil, Chadian exports have for a very long time been based on three main sectors: cotton, gum arabic and live cattle, but their corresponding export values are modest. According to DTIS (2013), livestock do not appear in official statistics, but annual estimates put informal livestock exports to Cameroon and Nigeria at US$ 275 million, making it the second-largest export after oil. Cotton exports which was the first export product before the oil advent in Chad, does not reach US$ 50 million since many years, and gum arabic exports were at US$ 26 million, not counting informal exports to Nigeria, from where it is often re-exported. Other products are emerging and exported on a regular basis and substantial quantities: shea (400,000 tons), groundnuts (342,000 tons), maize (120,000 tons), sesame (90,000 tons) paddy rice (68,000 t) as well as onions and garlic (24,500 t). (US$ 3.5 million) are worth mentioning. and hides (US$ 0.9 million). Fish exports amount to euro US$36 million a year, and Chad produces and exports between 150 to 200 tonnes of spirulina powder ("blue seaweed"). Leather, gum

arabic, sesame, onion, garlic, spirulina, textile, natron, dates, peanut and shea sectors have already been identified with potential value chain linkages with industry and services, and should be planned to be promoted as competitiveness clusters in the regions in which they are produced.

1.3 Options for Export Diversification

24. **There is no single export diversification strategy that fits any country, which presents Chad with many options among multiple non-exclusive avenues.** Based on the lessons from international experience, a clear typology of export diversification helps define what policy choices the country has. Such typology should not be considered as a recipe, but as an organizational tool that allows to combinemultiple objectives of alternative diversification strategies. The Chadian Government may consider each of them in the design of its own strategy (Figure 1.5).

Figure 1. 5: The ladder of export diversification



25. **If Chad aims for a non-oil-based export diversification, such strategy can actually be decomposed into four steps (stages) of the so-called "ladder of export diversification."** In the first step, a country exports more volume of what it already produces as non-oil products (so-called growth in its « intensive margin [IM]»). In the second step, the country exports what it produces as non-oil exports to an increased number of markets (so-called growth in its « extensive margin [EM] »). In the third step, the country moves to new, and often pilot, higher value-added non-oil products. This is the case, when countries target the promotion of few non-traditional emerging products (also called « strategic bets »), mainly those agri-based. In so doing, this leads to less export concentration on a limited basket of commodities in the medium term. Finally, in the fourth step, emerging new higher value-added non-oil export goods (and services) lead to the re-composition of sectoral outputs in favor of the increased production of new non-resource-based products, thus modifying the sectoral structure of the economy (the so-called « sectoral diversification »). In this regard, the accompanying mirror shift of labor force moving from the low- to high-productivity sectors in the economy is known as « structural change».

1.4 Diversification and Structural Change Dynamics[10]

26. **Several Sub-Saharan African (SSA) countries, like Chad, have formulated plans with the goal of achieving middle-income status by 2030, which requires, inter alia, an acceleration of their processes of structural change, the mirror pattern of export diversification.** This section deals with two major questions that are at the core of sectoral diversification options: Is Chad actually de-industrializing? And in relation to that, how much of Chad's economic growth can be explained over the past decades by its so-called "structural change", i.e. the dynamic reallocation of labor from less productive sectors to

[10] This section is based on Daki and Lopez-Calix (2017).

those with higher productivity? On the first question, Chad appears significantly under-industrialized but contrary to a SSA regional trend, progress has been observed thanks to public investments for construction of plants such as oil refinery, cement factories and agri-food industries. On the second question, about 40 percent of Chad's growth since 2005 is explained by structural change. And again, contrary to a seemingly SSA regional pattern, structural change is indeed happening, albeit slowly, in Chad's economy.

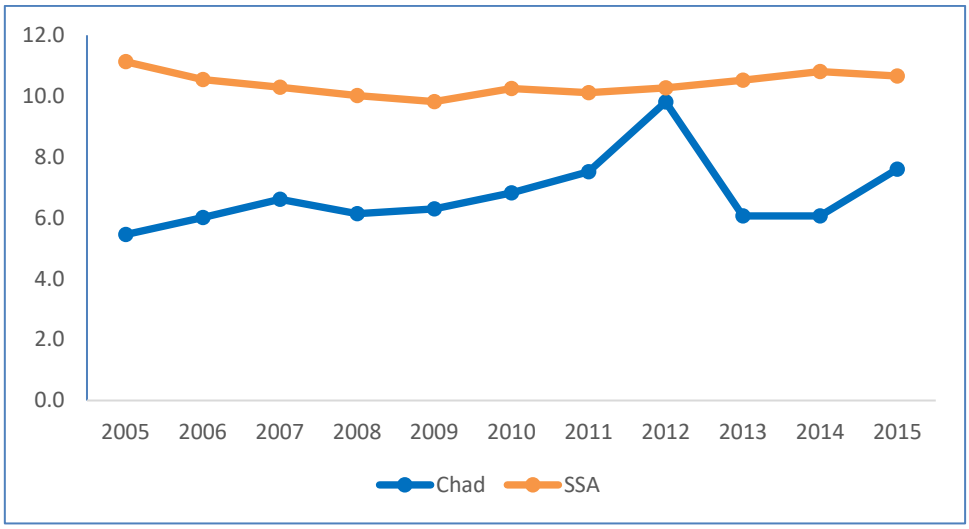
27. **Typically, both processes--industrialization and structural change--are associated.** Both processes tend to converge as countries that have managed to attain high levels of structural transformation have also been characterized by the reallocation of labor and other resources towards modern activities, often located in manufacturing or modern services, which leads to a general increase in productivity and income levels. Hence, during the 1970s and 1980s, countries in East Asia successfully transformed their economies from agrarian to manufacturing economies. In contrast, SSA economies like Chad typically specialized in agriculture and developed oil activities. And in doing so, their structural transformation emphasizing generation of economies of scale, adoption of new technologies, and the development of capabilities in production, investment and innovation centered in manufacturing (or services) also occurred but at a very slow speed. In fact, the speed at which this structural transformation occurs, however, becomes an important determinant of the success of the process (McMillan et al. 2014).

28. **The pattern of structural transformation tends to be associated with a hump-shaped curve for manufacturing output (as a fraction of GDP).** In general, the turning point seems occurring at much lower levels of income for developing countries, such that their decline in manufacturing begins at levels of income that are a fraction of those at which advanced economies start to de-industrialize. Thus, developing countries transition into service economies earlier than developed ones, a phenomenon that is referred to as premature de-industrialization. This is the case of many SSA countries that have experienced a decline in manufacturing shares in both employment and real value added since the 1980s. As policy response, a familiar argument has been made that their prospects for diversification still depends critically on fostering new manufacturing industries (Rodrik, 2016), but this argument requires refinement (see Chapter 5).

29. **Chad 's industrialization has been mainly centered in State Owned Enterprises (SOEs), but its sustainability is questionable.** Its manufacturing share of GDP steadily increased from 2005 to 2012, before breaking the trend and declining with fluctuations between 2013 to 2015 (Figure 1.6). Such share was above half the Sub-Saharan African (SSA) average in the mid-2000s,but increased sharply until 2012 following the coming on stream of oil refinery, cement factory as well plants of tractor assembly, ironmaking, bicycle assembly, fruit juice production and the revival of the textile and leather industries. However, these industries are all SOEs and their development has been financed by the government through its own budget and loans from China and India. And while these investments have had positive and significant impacts on job creation and economic diversification, their survival relies on sound management and a favorable business climate, as the government is obliged to subsidize these enterprises in a substantial way[11]. IMF (2013) noted that SOE subsidies are widespread and had increased to 4.8 percent of non-oil GDP in 2012, which already represented a major drain on the budget.

[11] In the case of the cement plant and the refinery, these subsidies were necessary because the government imposed a ceiling on the selling prices of their products in order to make them more affordable. The refinery, inaugurated in June 2011, was shut down in January 2012 by the authorities because of the Chinese company's refusal to deliver the fuel at prices below the cost of production.

Figure 1.6: Chad: Manufacturing's share of GDP vis-a vis SSA) (value added, %)



Source: WDI and Chadian authorities

Output, productivity and employment patterns in historical perspective

30. **In real terms, Chad's total GDP gross value added (GVA) increased more than two-fold between 2005 and 2015.** Key highlights are next (Figure 1.7):

- Agriculture, and the Extractive sectors (mining—including oil--and quarrying) were the main contributors to GVA in this period. Agriculture and the Extractive sector represented respectively 27.4 and 26.6 percent of total GVA in 2015. They also experienced almost the same non-negligible average yearly growth of 8.2 percent during the entire period. For its part, even if it represented only 0.1 percent of GDP in 2015, Public Utilities (Electricity, Gas, and Water) experienced the highest average growth (59 percent) during this whole period thanks to the construction of a new power plant and the supply of electricity from the refinery.
- Looking more recently at the 2010 to 2015 period, government services (14.6 percent) experienced the highest average growth (10.6 percent), followed by mining and quarrying; while public utilities and manufacturing declined (-15.6 and -10.0 percent respectively) (Beguy, 2018).
- While in absolute terms, agriculture created the largest number of jobs, in terms of total employment, its share declined slightly from 74.5 percent in 2005 to 68.2 percent in 2015.

31. **Average growth rates in employment varied by sector (Figure 1.8).** Agriculture had one of the lowest growth rates (3 percent average per year), in contrast to manufacturing having the highest rates--growing by an average of 12.7 percent over the full period (and of 22.6 percent between 2010 and 2015)—and public utilities growing at an average of 7.0 percent over the full period (and 11.8 percent between 2010 and 2015). Likewise, Finance, Insurance, Real Estate and Business Services employment grew by an average 6.9 percent over the full period (and 9.2 percent between 2010 and 2015).

32. **Labor productivity patterns varied per sector**. Previous figures allow to estimate trends in labor productivity and show that overall labor productivity increased by 41.8 percent between 2005 and 2015, with an average yearly growth rate of 3.6 percent. In absolute terms, over the entire period, mining and quarrying had the highest labor productivity, followed by Finance, Insurance, Real Estate and Business Services, and Transport, Storage and Communication. In contrast, Agriculture had the lowest labor productivity, not surprisingly followed by wholesale retail (informal) trade (Beguy, 2018).

Figure 1. 7: Chad: GVA by sector, 2005–2015

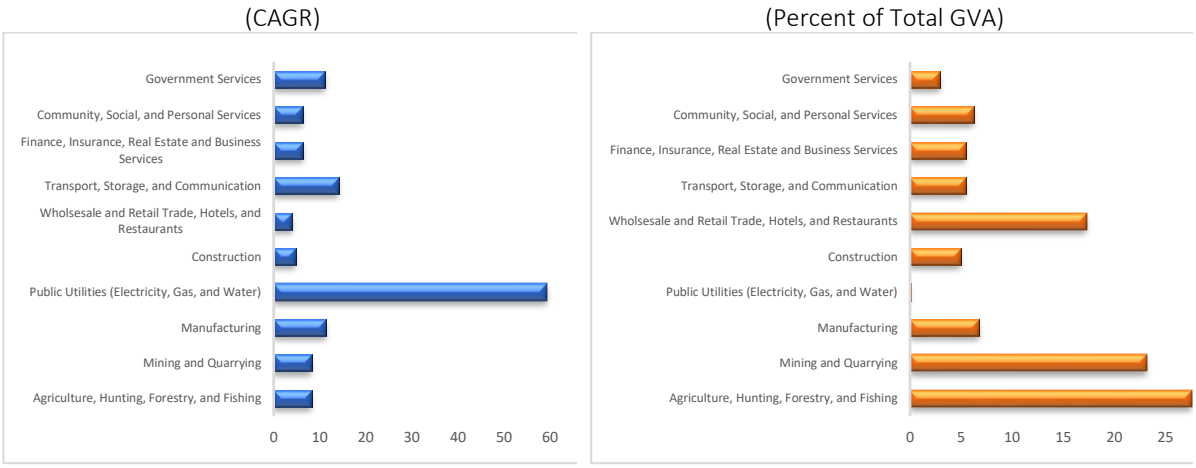
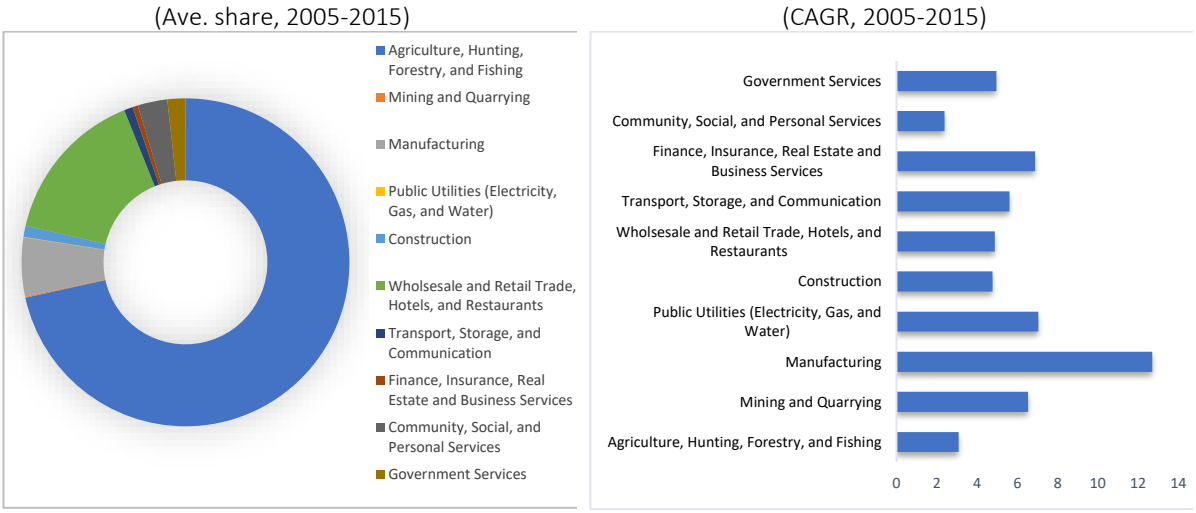


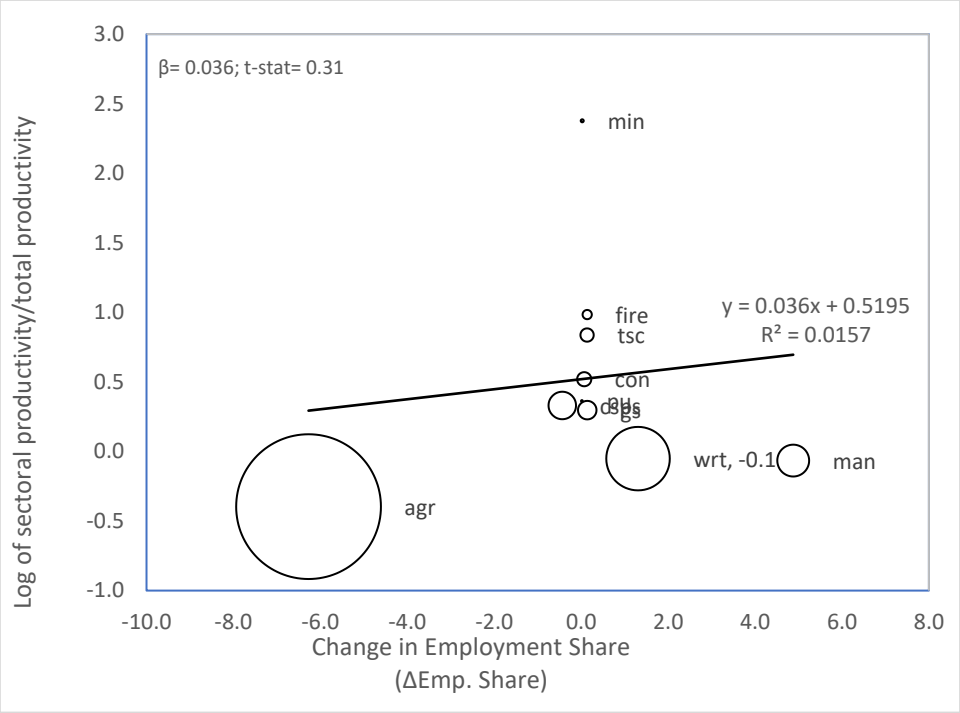
Figure 1. 8: Chad: Share of employment by sector



Source: Bank staff's estimates based on Daki and Lopez-Calix (2017).

33. **Modest, but positive structural change in Chad featured labor movements from low to high productivity sectors.** To illustrate this, Figure 1.9 plots the changes in employment shares between 2005 and 2015, against each sector productivity, as measured by the log of the share of sectoral productivity in total productivity in 2005. The path of structural change of Chad locates Agriculture (characterized by low productivity and declining labor share) in the bottom left quadrant; and the relatively more dynamic sector, Mining and Quarrying (characterized by high productivity and a rising labor share) in the top-right quadrant. Hence, when Chad's labor force has left agriculture, it has predominantly moved into Manufacturing and Wholesale and Retail Trade, Hotels, and Restaurants services that observed slightly higher productivity. Needless to say, that the impact on overall productivity (and ultimately growth) could have been much stronger had labor been relocated to other productive sectors than Financial Services and Mining and Quarrying, which for different reasons (oil price collapse and shallow financial sector) have featured very low job creation.

Figure 1. 9: Chad: Correlation sector productivity and change in employment (2005–2015)



Source: Bank staff's calculations.
Note: Size of circle represents employment share in 2005; agr= agriculture; min=mining and quarrying; man=manufacturing; pu=public utilities; con= construction; wrt=wholesale and retail trade, hotels and restaurants; tsc=transport and telecommunications; fire=finance, insurance and real estate; csps=community, social and personal services; ps= government services. β = coeff. of independent variable in regression. ln(p/P) = α + βΔEmp. Share.

Disentangling structural change dynamics in Chad

34. **This section assesses the pace and type of structural change in Chad over the period 2005-2015**. There are two reasons to focus on this period: First, this is the most recent one, where data are available and important changes occurred. Second, this is the same period covered by a larger sample of developing countries available in Groningen Growth and Development Centers—Africa Sector database. Such comparison explores whether there is a common pattern of structural change for Chad across different periods; and whether it differs from regional patterns, including those corresponding to SSA.

35. **Results show that aggregate labor productivity grew on average 3.6 percent per year between 2005 and 2015**. Labor productivity slightly declined from 3.8 percent annually between 2005-2010 to 3.3 percent annually between 2010-15. While structural change accounted for about 10 percent of labor productivity growth in 2005-2010, it started to become more important, where it accounted for about half in 2010-15. Overall, structural change accounted for about 35 percent of labor productivity on the entire period (Figure 1.10). Technological change, capital accumulation and reduced misallocations—the sectoral "within" component of productivity--accounted for the rest.

36. **Chad's pattern of structural change clearly differs from the ones for average regions worldwide (including SSA)**. When results based on regional averages for four groups of countries—Latin America (LAC), High Income (HI), SSA and Asia—are presented, it is possible to corroborate that Chad's labor productivity decomposition differs from the one corresponding to other regions or its neighbors (Figure

1.11).[12] From those findings, it is clear that Asia is the region where the contribution of structural change has been biggest.[13]

37. **In calibrating these results, a first final caveat applies: the above computations do not fully take into account unemployment and under-employment rates, but mirror their trends**. Chad's pattern of structural change is consistent with informality trends in most economic sectors, excepting those with mildly declining rates (and parallel rising labor productivity) in government services and public utilities and, to a lesser extent, mining and community, social and personal services (the latter being dominated by teachers and health workers).

Figure 1. 10: Chad: Decomposition of labor productivity growth, 2005-2015

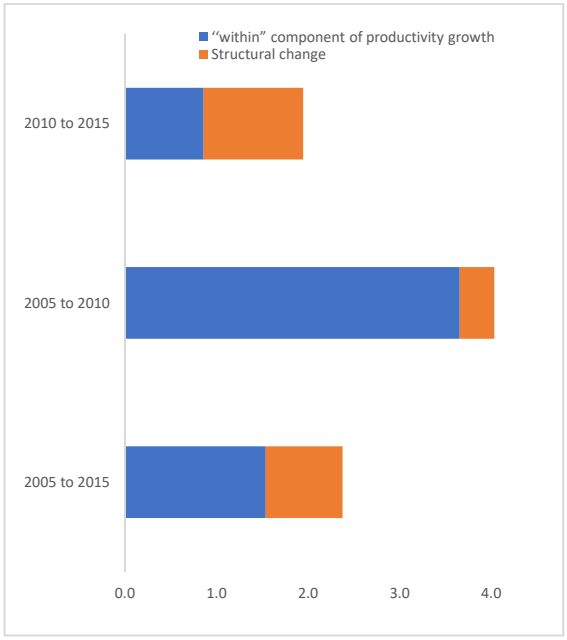
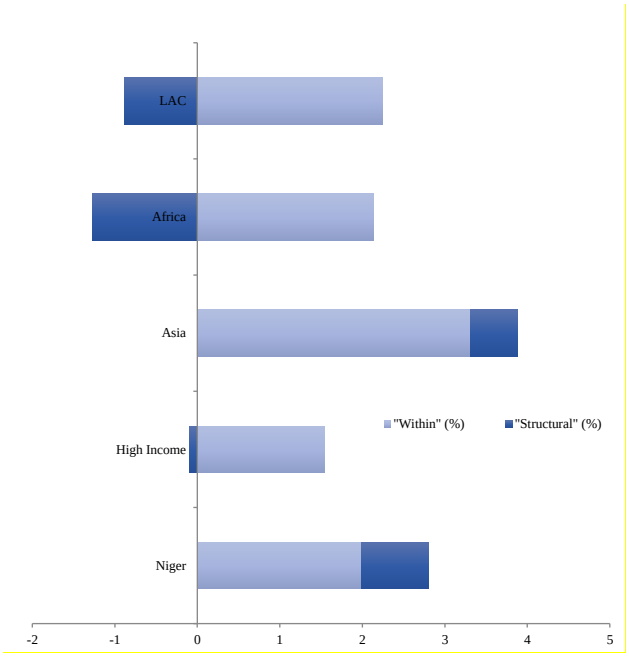


Figure 1. 11: Decomposition of labor productivity growth across world regions, 1990-2005



Source: Bank staff's estimates for Chad, and Daki and Lopez-Calix (2017)'s for Figure 1.10 estimates.

38. **A final but important caveat is that having a large surplus of workers in agriculture should not be considered as a handicap for structural change per se**. In fact, countries that do start their process of structural change with abundant available labor force like Chad, do have a common initial condition: A large number of unskilled workers prepare for moving into relatively more productive activities than subsistence, like agri-business industrialization or services. Hence, what really matters on the demand side is the capacity of the economy to generate abundant employment in more productive and less-traditional (exporting) activities. The speed of structural change (and diversification) is thus determined by the dynamics of job-creation in other than oil activities.

1.5 Simulating Policy scenarios for Diversification

1.5.1 Explaining determinants of economic growth in Chad (1990-2015)[14]

[12] The sample of African countries studied in McMillan et al. (2014) includes nine--mostly English speaking--countries: Ethiopia, Ghana, Kenya, Malawi, Mauritious, Nigeria, Senegal, South Africa and Zambia. Our findings, however, corroborate those for other African countries that also differ from the seemingly representative African regional pattern, including Nigeria and Zambia (for certain sub-periods), Tanzania (Haile, 2016) and Niger (Daki and Lopez-Calix,2017).

[13] The results for Chad are not exactly comparable to those of the regions because we applied a slightly different base period and per-capita figures when computing the decomposition used in McMillan et al. (2014).

[14] The following two sections are contribution by Fiseha Halle to this study.

39. **This section first examines the determinants of economic growth in Chad during 1990-2015.** The analysis basically applies a regression model developed to explain long-term growth elsewhere.[15] In particular, we study to what extent per capita growth can be traced to structural factors (infrastructure, financial intermediation, trade, education, government size, institutions), stabilization policies (inflation, exchange rate), and external conditions (terms of trade, export commodity prices). Infrastructure development is proxied by a composite index constructed as a weighted average of three individual indices capturing progress in phone lines, roads[16], and power generation capacity.[17] Human capital development is controlled for using secondary school enrolment.[18] Trade-to-GDP ratio accounts for openness to international trade while government consumption (in percent of GDP) serves as a measure of government size.[19] Institutional quality is measured by the well-known Polity index. Finally, the analysis includes the share of domestic credit to the private sector in GDP.

40. **Growth predictions are made using Chad's values of the aforementioned determinants for three sub-periods: 1990-2000, 2000-2010, and 2010-2015.** To facilitate a better understanding of the considerable volatility in the country's growth trajectory, we define four sub-periods: 1980-1990, 1990-2000, 2000-2010, and 2010-2015. Hereafter, we refer to the gap between the average values (of the growth determinants) for 1990-2000 and 1980-1990 as 1990s; the average values for 2000-2010 and 1990-2000 as 2000s; and the average values for 2010-2015 and 2000-2010 2010s. Despite some unexplained growth in the 2000s, the model generally performs satisfactorily in terms of tracking the actual growth performance, indicating its relevance in understanding long-run growth dynamics in Chad (see Figure 1.12).

[15]We use the growth regression model in Brueckner (2014) which has been previously used to explain long-term economic growth elsewhere (see Araujo *et al*. (2014), Moller and Wacker (2017), and Haile (2016) for applications in the context of Latin American countries, Ethiopia, and Tanzania, respectively). In order to shed light on recent developments in Chad, we extended Brueckner's (2014) dataset by one additional five-year period, namely 2010-2015, based on consistent data sources.

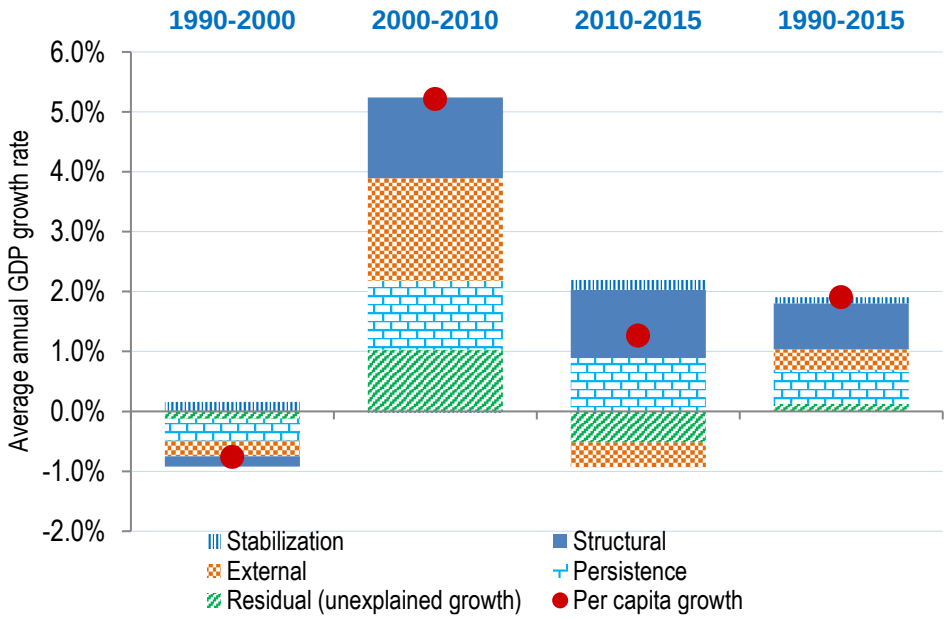
[16]Note that data on road density and electricity production in Chad were missing for some years. For this reason, information for the latest period for which data were available has been used to measure progress along these dimensions over 1990-2000, 2000-2010, and 2010-2015. However, the main conclusions from this analysis remain reasonably robust to using only a measure of telecom infrastructure for which data are more complete, notwithstanding changes in magnitudes of predicted growth effects.

[17]Although Brueckner (2014) uses fixed telephone lines per capita as an indicator for infrastructure, this is a less plausible measure for Chad given that mobile phones were much more widely used in the last decade and that it captures only one aspect of physical infrastructure. In countries with limited (fixed) telephone network like Chad, a variable capturing only telecom infrastructure might be a misleading indicator of overall infrastructure development. As infrastructure is inherently multi-dimensional, transcending several sectors like telecom, transport and energy, we pursue the approach suggested by Calderon *et al*. (2014) and construct a composite infrastructure index based on three individual indices capturing progress in power generation capacity (as measured by electric production kWh per capita), roads (by road density (km of road per 100 sq. km of land area)), and phone lines (by fixed telephone and mobile cellular subscriptions per 100 people). It should be noted that the key results of the study prove robust to changes in the weights attached to these indicators.

[18]Secondary school enrolment is commonly used in the growth literature to capture progress in human capital development (e.g. Mankiw et al. (1992); Loyaza et al. (2005)). Measures of educational achievements would certainly be preferable; however, data on such variables are very scanty, circumscribing their use in such analysis.

[19]Large government consumption spending might reduce growth via crowding-out private investment by causing higher interest rates (where public deficit is debt-financed), distortionary taxation, and bureaucratic inefficiencies, among others. Note, however, that our model takes into account some of the transmission channels through which the beneficial impacts of government consumption may operate, such as human capital and infrastructure. Given that our focus is on long-run growth, the negative impact of an expansion in government recurrent spending as a share of GDP) is not necessarily inconsistent with the positive simulative effects that it may have during times of economic downturns.

Figure 1. 12: Determinants of growth per capita in Chad



Source: Haile's estimates based on Haile (2016).

41. **Chad's dismal economic growth in the 1990s was mainly on account of structural weaknesses and less favorable external environment**. Per capita growth during 1990-2000 averaged -0.7 percent. Structural improvements contributed -0.17 percentage points (ppts), about one-fourth of the predicted growth in this period. This was driven by a marked decline in private sector credit (in percent of GDP), from an average of about 12 percent in the 1980s to a little over 4 percent in the 1990s. Infrastructure investment accounted for a very small proportion of observed growth per capita. Lower government recurrent spending made a positive contribution to growth. However, the remaining structural factors contributed only meagerly. Stabilization policies contributed 0.15 ppts. However, this finding masks the negative impact of the sharp increase in inflation that accompanied the CFA franc devaluation, which was more-than-offset by the positive impact of the correction of currency misalignment. In addition, persistently low global commodity prices throughout much of the 1980s and 1990s contributed to the disappointing growth performance during this period.

42. **Turning to the 2000s, external tailwinds and structural improvements represent the key contributors to growth.** Structural improvements accounted for 1.3 ppts of the observed average annual per capita growth of 5.5 percent. Increased trade and lower recurrent spending were the main structural drivers of growth. The contribution of infrastructure development stood at roughly 0.3 ppts, making up less than 10 percent of the predicted growth per capita. Notwithstanding Chad's rapid growth in the 2000s, the contribution of (public) infrastructure investment was very modest. Similarly, education contributed by 0.10 ppts, a negligible proportion of overall economic growth. These seem to suggest that higher oil revenues during the 2000s were not productively used to upgrade the country's infrastructure and invest in human and physical capital. Stabilization policies made an insignificant contribution to growth. However, the growth spurt was propped up by external tailwinds and particularly by the demand-driven upsurge in global commodity prices, notably oil prices, that started in the early 2000s and lasted about a decade, often dubbed commodity price "*super-cycle*".

43. **Growth declined substantially during 2010-2015, averaging 2.3 percent, due mainly to external headwinds while structural factors continued to be an important contributor.** Overall, structural features contributed about 1.1 ppts. A large increase in domestic credit to the private sector (from 3.5 percent of GDP in the 2000s to 7 percent during 2010-2015) has underpinned the relatively significant contribution of structural factors. Infrastructure investment contributed about 0.25 ppts to growth per

capita. However, some of the gains due to infrastructure development and private sector credit were offset by negative effects from lower trade and expanded government current spending. In addition, stabilization policies (notably lower inflation) made a positive contribution. However, external headwinds held back economic growth. Chad was particularly affected by the sharp slide in oil prices that began in the early 2010s.

44. **On the whole, growth per capita during 1990-2015 held steady at about 1.9 percent, most of which was accounted for by structural improvements and, to a lesser extent, external factors**. Structural factors accounted for about 0.7 ppts. Most of the structural improvement during this period can be attributed to lower government consumption spending (nearly 0.30 ppts). Other major contributors include: infrastructure development (approximately 0.20 ppts), trade (0.14 ppts), and education (0.10 ppts). Unlike most of west African economies, domestic credit to the private sector (in percent of GDP) has made an insignificant contribution to growth per capita, at -0.01 ppts. External factors represent the next largest growth contributor, at an annual average of 0.35 ppts. This was mainly driven by the surge in global commodity prices, notably oil, during the 2000s, although this was to a certain extent dampened by the plunge in prices in recent years. In addition, improved stabilization policies made a positive, albeit very modest, contribution to growth. This was largely due to movement of the REER back to equilibrium.

Simulating the impact of trade reforms

45. **Based on past model determinants, it is possible to make a quantitative assessment of the potential impact of trade reforms on economic growth in Chad**. A familiar cross-country regression model developed helps to explain long-term economic growth.[20] Specifically, Chad is benchmarked against some countries identified as their SSA peers and 'aspirational' peers. Scenarios are then simulated in which the gap in trade openness (as proxied by trade-to-GDP ratio) vis-à-vis a benchmark country is closed.[21] Chad's SSA peers are countries featuring similar structural characteristics, notably comparable geography, income level, and development experience (Table 1.1). We include four of such countries: Cameroon, Cote d'Ivoire, Burkina Faso, and Uganda. On the other hand, Chad's aspirational peers comprise countries with development trajectories that Chad aspire to emulate. The analysis considers two Asian economies: Vietnam and Malaysia. However, to avoid setting unrealistic/unattainable targets, we compare Chad's values for the period 2012-2016 with the average values for the aspirational peer when they were at Chad's stage of development. Although policy gaps for the most recent period, namely 2016, would be more relevant, in some cases we might end up capturing anomalies.

46. **Results indicate that if Chad became as open to international trade as Cote d'Ivoire, its growth rate of GDP per capita would increase by about 0.43 percentage points (ppts)(Table 1.2).** The trade-to-GDP ratios of Chad already surpass those of East African countries such as Uganda, Tanzania, and Ethiopia. This perhaps reflects a stronger trade integration within Central Africa, supported by the monetary union, compared to East Africa. More important, if Chad's trade ratio were on a par with Vietnam and Malaysia, its GDP growth per capita would potentially increase by roughly 0.7 ppts and 1.2 ppts, respectively.

[20]The analysis mainly uses the cross-country growth regression model in Brueckner (2014). See Araujo *et al*. (2014), Moller and Wacker (2015), and Haile (2016) for applications in the context of Latin America, Tanzania, and Ethiopia, respectively.

[21] An important caveat in this exercise is to acknowledge that the "trade openness ratio" is used as a proxy for export diversification, but the latter cannot be the only reason for its increase. In fact, the trade openness ratio may also increase from higher export concentration.

Table 1. 1: Average values of trade-to-GDP ratio (%)

Chad	Guinea	Burkina Faso	Cameroon	Cote d'Ivoire	Uganda	Vietnam	Malaysia
			2010-2016			1990s	1960s
75.2	78.1	64.3	52.15	76.3	51.6	82.9	71.2

Table 1.2. Potential impact on Chad's GDP growth per capita (%)

	Burkina Faso	Cote d'Ivoire	Cameroon	Uganda	Vietnam	Malaysia
Chad	-1.29	0.43	-2.29	-2.78	0.71	1.17

Source: Haile's estimates based on Haile (2016).

47. **Finally, a note of caution is in order**. The outcomes of this exercise should be interpreted keeping certain caveats in mind. The benchmarking approach throws light on the potential that increased trade openness could deliver. Put in other terms, the exercise is somewhat mechanistic and only shows how growth performance would far if CG closed the gaps in trade-to-GDP ratio with a benchmark country.

Chapter 2: Chad's Trade Diagnostics and Facilitation Policies for Diversification[22]

Abstract

- At the macro level, reducing Chad's anti-export bias in trade policy is critical for diversification.
- Chad's trade openness had been steady and average over a protracted period but more recently has been declining due to a rapid fall in oil and non-oil exports, which contributes to a persistent trade deficit.
- Chad can revert its trade openness ratio by strongly promoting exports in new products and markets: some of its main non-oil exports are in dynamic global product categories and markets.
- In theory, Chad applies CEMAC 5 band-based Common External Tariff (CET) to formal trade; in practice, it does not strictly adhere to it: Tariffs applied add a high number of exceptions.
- The CET provides high protection to agriculture compared to manufacturing, which introduces a strong anti-export bias to agri-exports. This is excerbated by other duties and levies (para-tariffs).
- Chad lags SSA in most trading across border indicators, with very high costs to export and import (border and documentary compliance) resulting from overlapping Customs procedures.
- Other major trade logistic issues are poor quality of trade and transport infrastructure, as well as of logistic services (trucking, forwarding, Customs brokerage).
- Chad's key priority for improving access to trade relies on improving its strategic corridor to the Cameroon-Douala port: A new bilateral framework with Cameroon should focus on :
  - Revamping multimodal transport and container facilities, and trade and cross-border infrastructure.
  - Establish a transit authority in Douala Port to facilitate reform.
- Trade policy actions aiming to promote export diversification should focus on 4 objectives:
  - Reducing tariff exceptions and moving to a 4-bands lower CET and eliminating para-tariffs.
  - Modernizing Customs, while improving border security with all its neighbors.
  - Improving road, transit and transport infrastructure as well as trade logistic services.
  - Establishing a new bilateral trade and transit framework between Chad and Nigeria.

2.1 Background

48. **Chad's trade policy is formally linked with the Economic and Monetary Community of Central Africa (Communauté Economique et Monétaire de l' Afrique Centrale, CEMAC)**. It goes along with Cameroon, Central African Republic (CAR), Congo, Equatorial Guinea, and Gabon, but not Nigeria, arguably its largest trading partner. However, as seen below, the weak application of the common external tariff (CET) and difficult access to neighboring trade and transit regimes (ECOWAS and COMESA), makes trade to be conducted bilaterally rather than through the CEMAC regulatory process. As most CEMAC members are natural resource exporters with poor governance (and conflict/fragile states), this complicates the negotiation of nominal tariffs in a context of ad-hoc exemptions and weak customs systems.

49. **Taking into account these characteristics, this chapter makes a diagnostic of the major shortcomings regarding trade policy and logistics that affect exports diversification-led growth in Chad**. The analysis is preceded by a t brief overview of the country's recent export performance and capabilities in merchandise trade.[23] The analysis uses static analytic tools drawn from the World Bank's Trade Competitiveness Diagnostics Toolkit (Ries and Farole, 2012). The analysis leads to the following general conclusion: the diversification of production and exports is fundamental to fostering growth

[22] This Chapter is based on Nihal Pitigala and Nancy Benjamin (2017) as background paper for this study.

[23] The detailed overview of Chad's trade structure is developed in Chapter 4.

and reducing poverty in Chad. This is consistent with the most recent Diagnostic Trade Integration Study (DTIS), completed in 2013; which made concrete proposals in this regard, many of which are still valid and are highlighted herein. Box 2.1 below also makes an important caveat regarding the importance of informal trade for statistics in Chad.

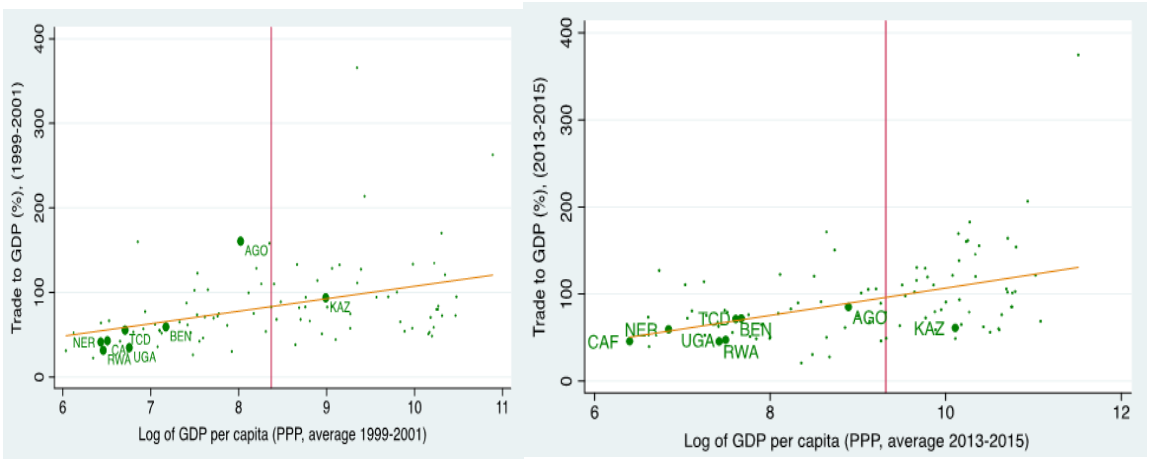
Box 2.1: A caveat on trade data.

In Central Africa, a significant share of trade between neighboring countries is beyond the control of customs authorities. This is especially true of agricultural products, livestock and fisheries. Commodities traded by Chad with its neighbors—including Cameroon, Nigeria, and Central Africa Republic—are said to be largely informal. Some studies have estimated that only 16% of agricultural trade of Chad (by volume) is official (Lawan et al. 2016). There are two forms of informal trade: either the goods are not presented at the customs or a fraction of the value is indicated at customs to pay lower less taxes and duties (under-invoicing). In these cases, often bribes are used to circumvent full compliance; which also makes Chad's foreign trade statistics unreliable. In major exports, as is the case of cattle exported to Nigeria, one can monitor the data in the balance of payments calculated by the Central Bank of Chad (BEAC). But in other cases, the only remedy would be to make frequent market surveys of traders or intermediaries. Hence, the assertions made below, based on formal statistics, should be interpreted with caution; although they are, to a great extent, a sound reflection of the existing economic capabilities.

2.2 Trade Outcomes

50. **Chad's trade openness has been average over a protracted period but, worrisomely, is now in decline. Openness (measured by the ratio of trade-to-GDP) gives an indication of the degree to which domestic producers rely on international markets to import goods and services and to which, in turn, producers seek foreign markets**. This mutual interdependence is a bedrock of international integration. Figure 2.1 plots average trade-to-GDP ratios of Chad and other comparator developing countries from 1999 to 2001 and from 2013 to 2015 against the log of GDP per capita in purchasing power parity (PPP; constant international dollars). The vertical line indicates the median income, and the curve is an ordinary least squares (OLS) regression line of the trade-to-GDP ratio on the log of GDP per capita as well as its squared value. It shows that Chad's (TCD) openness and income are comparable to other landlocked countries in Sub-Saharan Africa (SSA), who are also low-income. It is plausible, though, that the additional incidence of informal trade could put it above the (average) trend line (with no change in per-capita incomes). In sum, chad, as similar landlocked countries, are more disadvantaged to trade than countries with access to the sea.

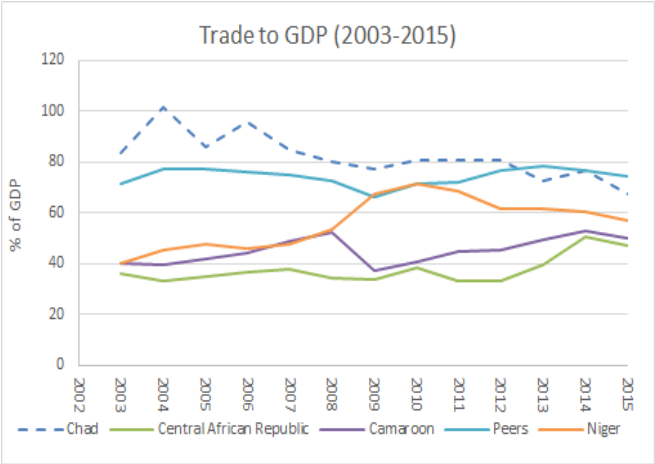
Figure 2. 1: A comparative view of Chad's trade openness



Source: Pitigala et al. (2018)' estimates.

51. **Set against a group of peer countries and neighbors, Chad's openness was more pronounced in 2003 and 2005, the period that coincides with the start of the regular exploitation of oil and its exports**. It remained above those of peer countries until recently, but began to ebb below them recently. In fact, other comparator countries such as Niger (NER) and Central African Republic (CAF) have also suffered some degree of decline in openness in recent years, especially since 2013, associated with weaknesses in commodity markets, but Chad's decline appears to be more pronounced since 2014 (see Figure 2.2).

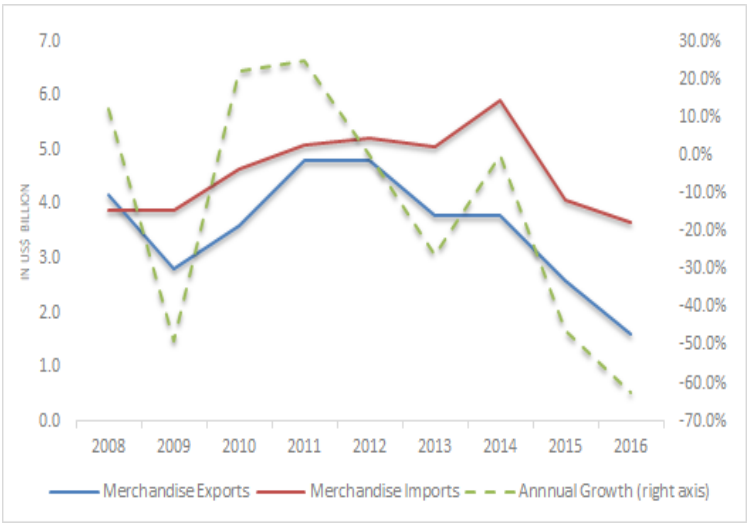
Figure 2. 2: Chad's trade-to-GDP ratio, 2003-2015



Source: Pitigala et al. (2018' estimates.

52. **Behind the decline in trade openness, there is a rapid fall in exports, contributing to a persistent and growing trade deficit.** As seen from Figure 2.3, Chad's officially recorded exports have precipitously declined from around US$ 4 billion in 2008 to around US$ 1.7 billion in 2016 (solid blue line). The officially recorded trade is symptomatic of its performance in oil exports, the single most dominant export commodity, which has experienced erratic swings every few years (red dashed line). However, it does not reveal how informal exports may have behaved. In contrast, since imports have held steady or declined less sharply, it has created persistent trade deficits accumulating over this period. This nevertheless masks the magnitude of unrecorded exports which may have increased over the period in question.

Figure 2. 3: Chad's merchandise export growth



Source: Pitigala et al. (2018)' estimates.

53. **As Chad can hardly count on the existing portfolio of exports for future growth, it is useful to assess the level of export discovery**. Such potential can be guided by the level of sophistication of a country's export portfolio, measured by the EXPY index,[24] which compared with current GDP provides a proxy between current income and potential income from export development. Chad EXPY against GDP, when including oil, is one of the highest amongst the comparators, including vis-à-vis Nigeria, Niger and Sudan (Table 2.1). But when excluding oil from EXPY, a different picture emerges: Chad's non-oil EXPY remains above GDP, signaling some margin for export-led growth, but the margin is far lower than other oil and gas exporting countries, such as Egypt and Mauritania. **This finding calls for a sustained effort to diversify and deepen Chad's non-oil exports,** through a phase of discovery along those products at the current nascent level, as the present strategy anchored exclusively on oil exports is not sustainable.

Table 2. 1: Export sophistication and growth (2013)

Country	EXPY	EXPY excl Oil	GDP per capita
India	16152	16170	1523
Philippines	14802	15501	2386
Egypt	14560	13215	2930
Mauritania	12,425	12911	1209
Nigeria	19206	7374	15216
Sudan	14444	4828	2046
Chad	**15091**	**4039**	**1006**
Equatorial Guinea	12511	3872	484

Source: UNDP (2013)

54. **Despite US and India being major trading partners, Chad is under-exporting with them as well as with Japan, and France.** This reflects the results of a gravity model analysis (Figure 2.6). Chad also under-export to countries in East Asia, such as Thailand and Singapore. In contrast, Chad's exports to China , Germany and Great Briatin, are closer to what is expected from geographical and other economic factors, likely explained by trade complementarities as well as by its role as re-export base for third countries. As expected, Chad's major border partners are missing (or under reported in the case of Nigeria) as they also trade informally. Furthermore, the presence of Rwanda and Ethiopia, which do not share borders with Chad, suggests unexplored market potential within the SSA region, especially in agriculture.

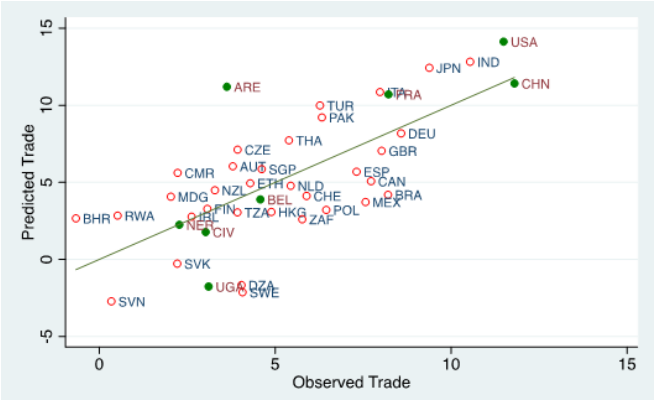
[24] Estimating the level of technological sophistication embodied in a country's export portfolio gives an indication of that country's economic development. PRODY is an outcome based measure of sophistication: if a product is mostly produced by rich countries, then it is revealed to be a "rich," or sophisticated, product. PRODY is calculated as a weighted average of per capita GDP of countries producing that product, with weights derived from revealed comparative advantage. The country's expected GDP per capita, EXPY, is given by summing all the PRODY values for the products exported by the country, each weighted by the product's share in total exports. The mathematical definition is given by:

$$PRODY_k = \sum_i \frac{\frac{x_{ik}}{X_i}}{\frac{x_{wk}}{X_w}} * y_i \qquad EXPY_i = \sum_k \frac{x_{ik}}{X_i} * PRODY_k$$

where X is the total value of all exports from reporter i, x is the value of exports of product k, and w is

the world. Y is GDP per capita. Range of Values: 0 to +∞. A higher PRODY indicates a more sophisticated product. A high EXPY indicates a more sophisticated export portfolio.

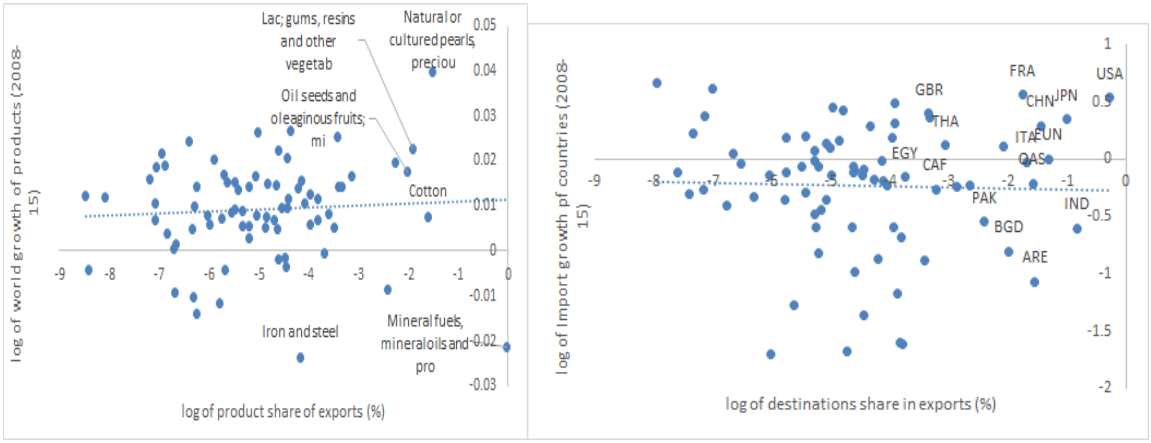
Figure 2. 4: Gravity model simulation by destination



Source: Pitigala et al. (2018)'s calculations using World Bank WDI.

55. **Hence, while diversification is low, key Chad's non-oil exports are in dynamic product categories and markets.** Figure 2.7 shows how Chad's export shares behave in strategic markets and their import growth levels. The graph on the left panel shows world import growth (y-axis) and the importance of high-performing products in Chad's export portfolio (x-axis). There is a slight positive correlation between Chad's exports and their growth in the world market. Except for oil, other products are in growing categories of word demand, including semi-precious stones, gums and resins, and oil seeds. Similarly, Chad's top export partners are among the world's top importers. But a concerted effort is needed to build trade with other fast-growing markets in Great Britain and East Asia (Thailand, China).

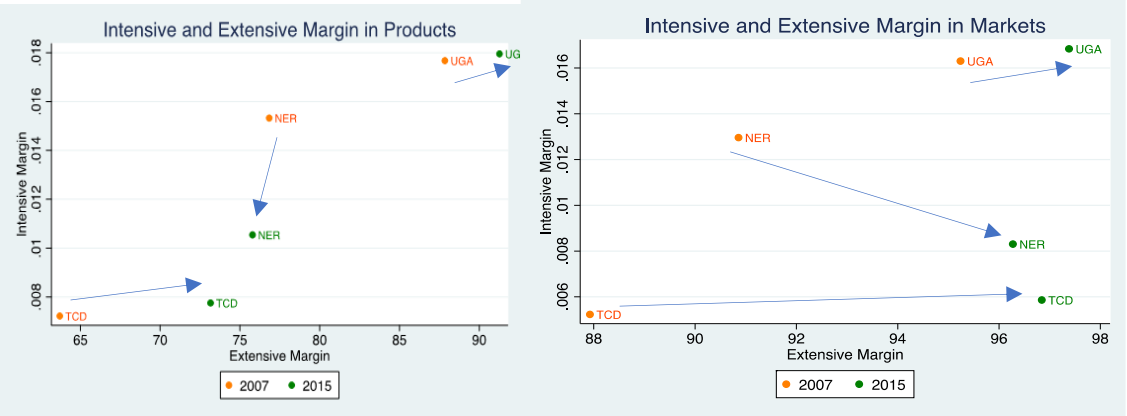
Figure 2. 5: Export shares in strategic products and markets



Source: Authors' calculations using World Bank WITS.

56. **Chad can raise its trade openness again if it continues promoting exports in products and markets, both at the intensive and extensive margins.** Hummels and Klenow (2005) apply the 'intensive margin' (IM) and 'extensive margin' (EM) measures in terms of products and markets. In Figure 2.8, left Panel, the y-axis measures the IM, the relative importance of Chad's export basket compared to world exports of these products. The x-axis, measuring the EM, displays the global importance of Chad's export basket relative to the world's total exports. This reveals that Chad's share of exports in products that the rest of the world also exports (IM) has marginally increased over the last 8 years; ditto for the global importance (EM) i.e. breadth of their export portfolio relative to all exportable products. This probably reflects the importance of oil and cotton in world markets. Extending the analysis to add destinations. Figure 2.8, right Panel, shows that Chad's IM, its export share in countries to which it currently export, has also marginally increased. Hence, Chad has increased its foothold in markets that are cumulatively larger relative to the world in 2015 than in 2009 (EM), with increased volume where it currently exports and added markets into its export portfolio.

Figure 2. 6: Export shares in strategic markets



Source: Pitigala et al. (2018) using World Bank WITS. TCD=Chad; NER=Niger; UGA=Uganda.

2.3 Chad's Trade Policy Regime

57. **Chad's trade is intrinsically linked with the *Communauté Economique et Monétaire de l' Afrique Centrale* (CEMAC) Agreement.** Chad is a member of *CEMAC*, along with Cameroon, CAR, Congo, Equatorial Guinea, and Gabon. CEMAC countries are all members of the Economic Community of Central African States (ECCAS), an organization established in 1983 that also includes Burundi and Democratic Republic of Congo (members of the economic Community of the Great Lakes countries), Angola, and São Tomé and Príncipe. Chad and CAR are members of the Community of Sahel-Saharan States (CEN-SAD), a community established in 1998 that brings together 28 countries. Progress of ECCAS and CEN-SAD integration is weak.

58. **Chad applies CEMAC's common external tariff (CET) to formal trade but in practice it does not strictly adhere to.** The CEMAC's CET has five bands: certain cultural products and products related to aviation (zero rate), essential items (5 percent), raw materials and capital goods (10 percent), intermediate goods and miscellaneous (20 percent) and consumer goods (30 percent) (Table 2.4). However, the tariffs applied by Chad in 2012 contained exceptions on 45 tariff lines. And on 26 lines (58 percent of exceptions), these changes were increases relative to the CET. Exceptions do not introduce new rates: products are reclassified to another tariff category, and do not target a particular group of products.

Table 2. 2: Structure of CEMAC CET

Tariff Line	Average Tariff Rate
1. Simple average applied MFN rate	18.1
Agricultural products (WTO definition)	22.4
Non-agricultural products (WTO definition)	17.4
Agriculture, hunting, forestry and fishing (ISIC 1)	23.6
Extractive (ISIC 2)	11.2
Manufacturing (ISIC 3)	17.8
2. Effective Applied Tariffs*	18.6
3. Tariff lines duty free (% of all tariff lines)	0.6
4. Simple average rate (lines dutiable)	18.2
5. Non-ad valorem tariffs (% of all tariff lines)	0.0
6. Tariff quotas (% of all tariff lines)	0.0
7. National tariff peaks (% of all tariff lines)	0.0
8. International tariff peaks (% of all tariff lines)	48.1
9. Overall standard deviation of applied rates	9.6
10. Applied rates "nuisance" (% of all tariff lines)	0.0

Source: UNDP (2013), *(2016). Note: Tariff lines comprises 5,493 tariff lines (eight digits, according to the HS07 nomenclature). Tariff rates are missing for 26 tariff lines.

Table 2. 3: Tariffs and imports

Frequency distribution		Duty-free	0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV
		Tariff lines and import values (in %)								in %
Agricultural products										
Final bound		0	0	0	0	0	0	99.9	0	0
MFN applied	2016	0	11.2	22.3	0	8.2	58	0	0	0.5
Non-Agricultural products										
Final bound		0	0	0	0	0	0	0.4	0	0
MFN applied	2016	0.7	3.8	51	0.1	13.2	30.9	0	0	0.7

	Final bound duties				MFN applied duties				
Product groups	**AVG**	**Duty-free**	**Max**	**Binding**	**AVG**	**Duty-free**	**Max**		
		in %		**in %**		**in %**			
Animal products	80	0	80	100	20	0	30		
Dairy products	80	0	80	100	20	0	30		
Fruit, vegetables, plants	80	0	80	100	26.8	0	30		
Coffee, tea	80	0	80	100	29.9	0	30		
Cereals & preparations	80	0	80	100	19.6	0	30		
Oilseeds, fats & oils	80	0	80	98.8	20.2	0	30		
Sugars and confectionery	80	0	80	100	20	0	30		
Beverages & tobacco	80	0	80	100	27.2	0	30		
Cotton	80	0	80	100	10	0	10		
Other agricultural products	80	0	80	100	16	0	30		
Fish & fish products	80	0	80	0.9	24.4	0	30		
Minerals & metals	-	-	-	0	17.1	0	30		
Petroleum	-	-	-	0	10	0	10		
Chemicals	80	0	80	0.4	11.5	0	30		
Wood, paper, etc.	-	-	-	0	19.4	4.5	30		
Textiles	-	-	-	0	19.7	0.2	30		
Clothing	-	-	-	0	30	0	30		
Leather, footwear, etc.	-	-	-	0	20.5	0.6	30		
Non-electrical machinery	-	-	-	0	12.3	0.4	30		
Electrical machinery	-	-	-	0	16.8	0	30		
Transport equipment	75	0	75	9.2	15.5	9.2	30		
Manufactures, n.e.s.	-	-	-	0	22	0.8	30		

Source: WTO. Notes: MFN is the 'normal', non-discriminatory, tariff charged on imports of a good. Bound tariffs are specific commitments made by each WTO member governments not to exceed. NAV refers to non-ad valorem tariffs.

59. **The CET provides high protection to agriculture compared to manufacturing.** The most recent statistics reported at WTO (MFN duties) suggest a relatively high level of protection to Agriculture: around 60 percent of tariff lines are subject to tariffs between 25 percent and 50 percent *ad valorem*; while almost half of manufacturing is in the same range Table 2.5). While coffee, tea, fruits, vegetables

and plants reported highest tariff levels within Agriculture, clothing and footwear were highest among manufacturing. The mining sector is the least protected with 90.2 percent of relevant tariff lines subject to a 10 percent rate.

60. **Moreover, the presence of para-tariffs exacerbates the effect of protectionist tariffs.** Chad applies other duties and levies such as: a Community Integration Tax CIT) of 1 percent of the imported value; a Community Integration Contribution (CIC) of 0.4 percent of the imported value and Organization for the Harmonization of Business Law in Africa (OHADA); a levy of 0.05 percent of total imports from third countries; a Statistical Fee of 2 percent of the CIF value of imports, levied on all imports, regardless of origin; a Rural Intervention Fund, levied at rates varying between 0.3 and 0.5 percent on 9 percent of tariff lines (meat, fish, fruits and vegetables, dairy products, certain spices, hides and skins). The absence of domestic equivalent for these added duties and levies increases the protective effect of tariffs and exacerbates the escalated tariff structure, resulting in high rates of effective protection. Overall, the complexity of both tariffs and para-tariffs has triggered complaints from a number of WTO members, which have asked CEMAC countries to address the shortcomings of the CET, to simplify its tariff system and to reduce the maximum rates in order to promote trade and investment at the regional and global level (DTIS 2013).

Table 2. 4: Comparative simple and weighted tariffs in regional groupings

Region	Product Name	Simple Average	Weighted Average
EAC	Raw materials	9.64	3.58
EAC	Intermediate goods	8.75	5.35
EAC	Consumer goods	17.07	7.72
EAC	Capital goods	4.97	4.48
ECOWAS	Raw materials	13.42	19.11
ECOWAS	Intermediate goods	9.96	9.37
ECOWAS	Consumer goods	18.36	13.78
ECOWAS	Capital goods	7.69	7.79
CEMAC	Raw materials	18.09	10.04
CEMAC	Intermediate goods	14.87	12.2
CEMAC	Consumer goods	24.84	19.99
CEMAC	Capital goods	12.68	12.82
SAC	Raw materials	4.37	0.65
SAC	Intermediate goods	4.49	2.26
SAC	Consumer goods	11.96	8.71
SAC	Capital goods	2.82	2.16
UEMOA	Raw materials	17.76	25.38
UEMOA	Intermediate goods	10.7	11.5
UEMOA	Consumer goods	17.51	14.47
UEMOA	Capital goods	7.94	7.76

Source: Authors' estimates.

61. **To make matters worse, CEMAC CET is misaligned with main trading regions,** especially with those successful in intra-regional trade and diversification. CEMAC duties on intermediates and capital goods necessary for any industry are well above other regions, including East (EAC) and South Asia (SAC) countries (Table 2.6).

62. **The current tariff structure worsens poverty and disincentivizes agriculture exports**. First, high tariffs--amplified by complex para-tariffs--imposed on basic agricultural goods, add a substantial cost to consumers, especially the poor households that spend disproportionately on food. This may protect

CEMAC farmers against imports from outside their regional customs,but gives them little protection where those imports are largely non-competing with those of CEMAC members. As most exporters are also important importers, a necessary condition to promote value-added processing is for inputs to production, including tools and equipment, be allowed to enter at very low rates. This should not be limited to exceptions granted for intermediary imports required by some products like cotton, but to all the farming products that have export potential.[25] Second, high tariffs on manufactures and on intermediate goods provide little by way of protection for Chad's producers, because the domestic manufacturing of tradable goods is quite limited, as is Chad's capacity for efficient import substitution. This includes those perceived as infant industries, e.g. fruit juice, textiles, or cement. Indeed, the supply capacity of the CEMAC region is not even sufficient to meet the domestic demand from Chad, resulting in substantial welfare losses to consumers in Chad from the high CET rates. In general. Third, the appropriate instrument for supporting the expansion of the domestic industry is not a tariff, which is output-based; but a subsidy related to the process, job, or product that creates knowledge or learning.

63. **Export taxes diminish comparative advantage in livestock.** Livestock, the second most prominent export sector is subject to an 8 percent export duty and a levy of up to CFAF 5,00 per head of cattle and camels (latter to finance the Livestock Fund). In addition, health controls require the payment of CFAF 2,500 per herd for the health passport in order to qualify for exports (UNDP, 2013). There is a need to evaluate these levies and eliminate the portion that is not directly related to the service offered as they undermine the competitiveness of a sector which has a certain comparative advantage. Maintaining the export duty and the levy may induce traders opting for informal channels and impose an economic and social cost. International experience has demonstrated that elimination of export taxes also has a positive impact on the supply producers who tend to be among the poorest. And the fall on revenues from initially lowering the export taxes is quickly offset by the reduction of informal trade (and ensuing additional revenue from a broader tax base).

2.4 Trade Facilitation and Logistics

64. **Since Chad is handicapped on basic trade policy parameters, it is useful to examine the role that trade facilitation also plays in Chad's competitiveness.** For exporters in many landlocked countries, comparative advantage is eroded due to distance between production and markets. Three types of needs are very specific and focused: (i) the development of efficient transit corridors in order to connect to other countries; (ii) the trade and transport costs; and (iii) the quality of trade and transport logistics. While oil is mostly transported via land to neighboring ports, and the rise of crude prices in past years have offset higher transportation costs, other perishable goods have been unable to overcome these. This is further compounded for products coming from dispersed and disconnected rural areas from larger urban markets.

65. **Cross-border trade is also particularly significant for Chad, especially given its high trade costs to markets outside the region.** Cross-border trade is prevalent for agricultural commodities, traded mostly with Nigeria, Cameroon and CAR. And while this trade is to a certain extent informal, the common border points often capture livestock exports from Chad and often impose export taxes that are high enough to discourage the trade. Also hindering cross-border trade are poor infrastructure and security problems, particularly on the border with Nigeria and on the lake Chad region.

Logistics Performance

[25] Other cases in point are grains and tubers, whose efficient production and commercialization would contribute to prevent food crises, as well as meat and hides and skins, which would benefit from zero or very low tariffs on imports of inputs son they can generate sufficient competitiveness to Chad's exports.

66. **Chad's access to trade beyond the Nigeria and Central Africa region meant that that it not only has to confront inefficiencies of its own transport network but also inefficiency in the transit chain in Cameroon and other alternative transit countries**. Chad, like Niger, is completely dependent on their transit neighbors' infrastructure and administrative procedures to transport its goods to seaports and onwards to countries outside the region. Chad's flow of foreign trade (around 86%) flow through Cameroon Douala port, the nearest sea port access (which is a about 1800 km from N'Djamena). The rest of the transit routes, in order of decreasing importance, are through Nigeria, Libya and Niger (Table 2.7).

Table 2. 5: Chad's foreign trade, by corridor

Corri	Imports		exportations		Total foreign trade	
	tons	%	tons	%	Tons	%
Chad - Cameroon	641745	86.84	24239	78.08	665984	86.49
Chad - Libya	61418	8.31	2.750	8.86	64168	8.33
Chad - Nigeria	34381	4.65	3792	12.22	38.173	4.96
Chad - Central	1415	0.19	262	0.84	1677	0.22
Chad - Niger	40	0.01	0	0.00	40	0.01
Total Corridors	738999	100.00	31043	100.00	770042	100.00

Source: (DTIS 2015) National Bureau Freight, Chad.

67. **Chad poorly performs trading across borders compared with peers and faces exorbitant transactions costs in its transit partners (Cameroon, Nigeria), which adds to high trade costs (Table 2.8).** The cost of being landlocked is reflected by marked price differences in coastal and landlocked countries. Products in Ndjamena may be 30 percent more expensive than in neighboring Cameroonian cities.

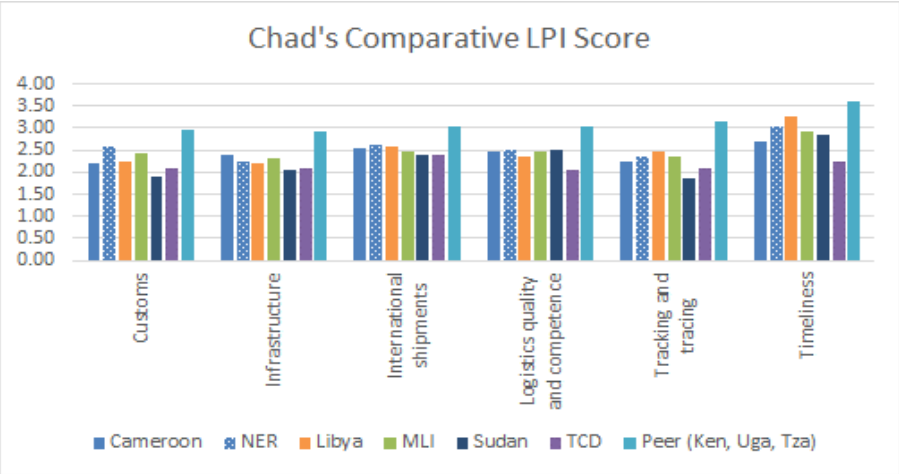
Table 2. 6: Trading across border indicators

	Time to export: border compliance (hours)	Cost to export: border compliance (USD)	Time to export: documentary compliance (hours)	Cost to export: documentary compliance (USD)	Time to import: border compliance (hours)	Cost to import: border compliance (USD)	Time to import: documentary compliance (hours)	Cost to import: documentary compliance (USD)
Cameroon	202	983	66	306	271	1407	163	849
Chad	106	319	87	188	242	669	172	500
Central African Republic	141	280	48	60	98	209	120	500
Libya	72	575	72	50	79	637	96	60
Niger	48	543	41	39	78	462	156	457
Nigeria	135	786	131	250	284	1077	173	564
Sudan	162	950	190	428	144	1093	132	420
Peers (Botswana, Kenya, Uganda)	33	249	36	157	113	473	75	159

Source: World Bank's Trading Across Border—time and cost--Index in Doing Business Indicators

68. **The logistics competitiveness of Chad and its transit partners further re-affirms its weak trade facilitation environment**. On key elements of World Bank's Logistics Performance such as the efficiency of customs and border management clearance, the quality of trade and transport infrastructure, the competitiveness and quality of logistics services (trucking, forwarding, and customs brokerage), and the ability to track and trace consignments, Chad performs relatively poorly compared to its peers. While Cameroon does no better in its LPI score, Nigeria's offer a marginally better option in terms of logistics performance, yet its time and cost to import far exceeds those of peer countries (see Figure 2.9).

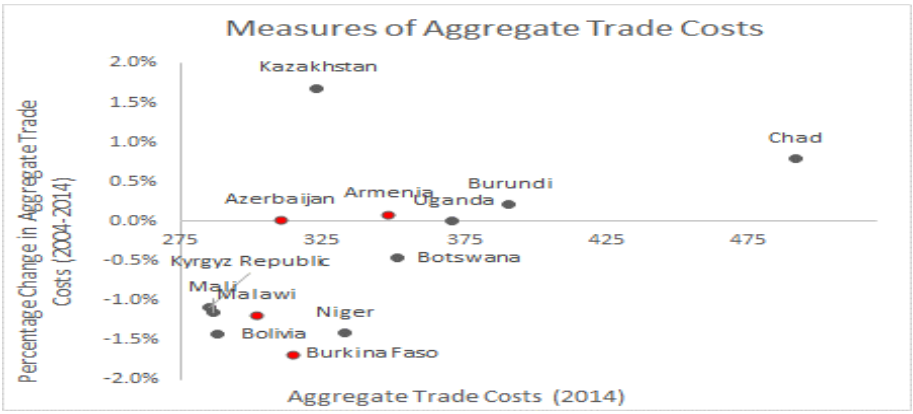
Figure 2. 7: Chad's logistics performance



Source: World Bank's Logistics Performance Index. Note: Highest score means best performers

69. **Aggregate trade costs, another measure of transaction costs, are also comparatively high in Chad.** An effective way to quantitatively describe the trade connectivity patterns of countries is to look at aggregate trade costs with major trading countries. These costs are measured as the price equivalent of the reduction of international trade as compared with the potential implied by domestic production and consumption in origin and destination markets (Arvis et al. 2010). The World Bank Trade Costs measure encompasses a number of elements facing exporters and importers which are then converted to *ad valorem* equivalents for ease of cross-country comparisons.[26] Aggregate trade costs of Chad are the highest among selected landlocked countries. The country experienced a notable increase in aggregate trade costs between 2004 and 2014, when compared to resource-scarce least developed Countries (Figure 2.10).

Figure 2. 8: Aggregate trade costs



Source: Authors' using UNESCA/World Bank Trade Costs Database

70. **Customs administration remains problematic.** While some reforms in Customs and border management have taken place since surveyed in 2013 by DTIS, there are indications that the system still functions poorly. Customs are also handicapped by weak physical and human resource capacity. Consistent electricity supply of custom offices is almost absent. Furthermore, telecommunication networks are not connected to the Customs office to allow Customs officers to track the movement of

26 Trade Costs measure captures two main categories: The first entails bilateral factors of separation between the exporter and the importer, more dependent on exogenous factors than particular policy choices such as geographical distance, a rough proxy for international transportation costs. The second includes endogenous trade costs, which measure the 'thickness' of two countries' borders and includes logistics performance–cost, delay and reliability–and trade facilitation bottlenecks, such as border control and transit systems with 3rd countries, and international connectivity, as the existence of regular maritime, air shipments.

goods. Customs offices continue to use outdated equipment. The ability and the competence of staff are not always up par and when little training takes place, it is focused almost always on the main offices, especially in N'Djamena. The fact that a large number of companies offer Customs facilitation services indicates that the formal system is quite lengthy, and procedures are subject to multiple delays.

71. **Chad features a complex system of overlapping Customs procedures**. Physical inspections are made for 100 percent of import and exports, and the same goods may be inspected by border control officers, regional customs branches and the special Customs police. All procedures are manual, since not all branches and border crossing posts are equipped with ASYCUDA. This produces added costs and delays for merchandise and opportunities for irregular payments.

72. **Governance of duty exemptions is poor and fiscal losses are large**. Since 2004, the value of exemptions has quadrupled to CFAF 244 billion in 2011, representing three times the revenues collected from taxes on trade (WTO/TPR, 2013). A large number of customs exonerations are applied and enforced in an irregular and non-transparent manner. In a context of weak controls and poor governance of exemptions, and a proliferation of ad-hoc taxes and weaknesses of customs and tax administration, corruption is widely reported throughout the system. Currently, Chad grants customs duty exemptions under CEMAC Customs Code, the Investment Charter, the Mining Code and the Hydrocarbons Law. Holders of mining rights and oil contracts, and the beneficiaries of authorizations and their agents, may use the temporary admission regime to import material, equipment and motor vehicles for use in their research and production activities. In the case of the mining sector, consumables and products destined for these activities are also exempt from Customs duties and import taxes. To benefit from this exemption, an administrative certificate is required from the Minister responsible for mining or petroleum, but its granting is not fully transparent, and repayment of customs duties and VAT is complicated to manage. This makes easier for a company to locate in an industrial estate where it does not pay duties and taxes, except where it sells the products within the country instead of exporting them (DTIS 2013).

2.5 Trade Facilitation Challenges: Corridor Infrastructure and Transit Options

73. **Given its poor transport infrastructure, reaching regional markets and ports, as well as linking to domestic markets, and integrating into existing corridors are a big challenge for Chad.** The Chadian road network is 42,000 km, out of which 6,200 km are primary roads and only 996 km are asphalted roads, which seems to be in poor condition, especially in the north and east of the country. Unpaved roads are often inaccessible during the wet season, especially in the southern half of the country. In the north, roads are merely tracks across the desert. Despite some improvements, their condition is low and service levels are irregular. For decades, Chad has favored the development of its infrastructure network (paved roads) at the expense of secondary (dirty) roads. Road sector management does not include preventive road maintenance, either on asphalted or unpaved roads.

74. **From an economic and food security point of view, the non-availability of reliable year-round transport has created agricultural enclaves**. The high cost of transport hinders the inflow of inputs and consumer goods to rural areas, while hampering the outflow of production to food-deficit regions and urban centers as well as to neighboring countries. This is the case of the road network outside the cotton zone. The temporarily abandoned road network suffers many important degradations which constitute a serious bottleneck for the transport of products from rural activities (agriculture, livestock, etc.) to their marketing centers (cities and other neighboring countries in the region).

75. **As far as transit routes, in theory, it is better for a landlocked country to choose among several transit corridors (Figure 2.11).** Competition can contribute to better quality and lower costs of transportation services. Evidence shows that dependence on one supply route increases vulnerability to technical or political issues in transit countries.

- The N'Djamena to Douala port route is currently the main way to open-up Chad. Nearly 90 percent of the total volume of international freight uses N'Djamena- Douala corridor.

- Several other routes exist between N'Djamena and N'Gaoundéré such as: the N'Djamena - Kousseri - Maroua - Figuil - Garoua - Ngaoundere (736 km), the N'Djamena - Guelengdeng - Bongor - Kelo - Moundou - Touboro – N'Gaoundere (859 km) and three from N'Gaoundéré to Douala that are seldom used to their poor condition. However, some carriers use these because of the absence of weighing stations on much of the route.

76. Other transit alternative corridors for Chad's international cargo offer little advantage over Doula-N'djamena.

- The *Nigeria's Lagos* route, which is longer than the Cameroon route, has two options. First is the road from Lagos through Kaduna, Kano and Maiduguri (1900 km). This road is in relatively good condition, except for the Maiduguri-Gambarou Fotokol-section (140 km) which has deteriorated, prompting carriers to move further south by Waza (Cameroon). Crossing into North Cameroon is required over a length of approximately 100 km, which means additional paperwork and border delays. (DTIS 2015).

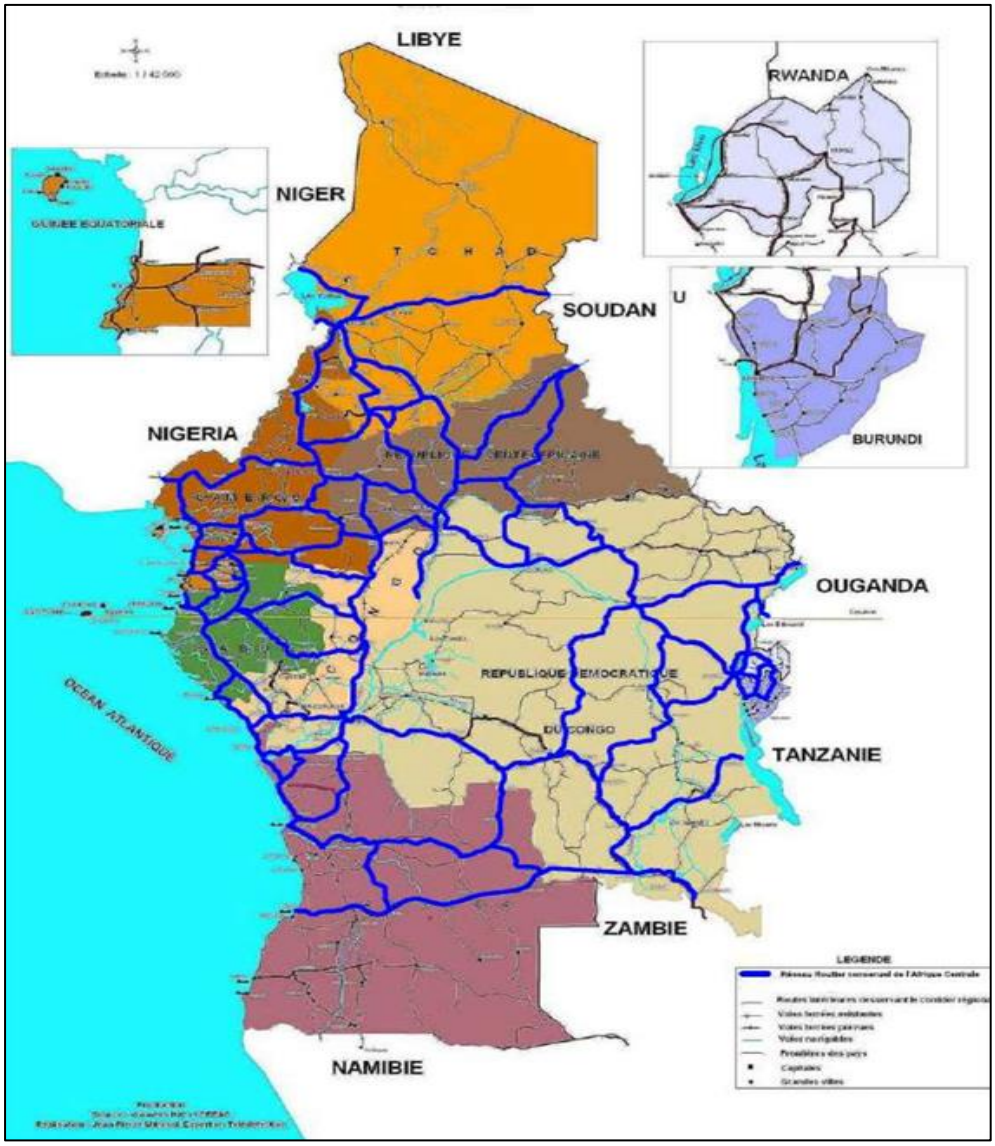
- The second option are routes served by *the ports of Cotonou, Lome and Tema*. Port Cotonou is located 2,000 km from N'Djamena, Lome about 2,100 km and Tema about 2,300 km. The access road to these ports via Niger is much longer: 2,950 km from N'Djamena to the port of Cotonou (Benin), 3,427 km to the port of Lomé (Togo) and 3,652 km to the port of Tema (Ghana).

- A third option is through the *Sudan to the east of the N'Djamena - Abéché - Nyala Corridor*. By road to the terminus of the railway it covers 564 km from Nyala to Abéché and 1,450 km from N'Djamena. And after transshipment, railway does a long journey of 2,105 km to Port Sudan on the Red Sea. Given the potential for development of Chad's trade relations with the markets of China, the Sudanese corridor, although totaling more than 3,400 km from N'Djamena, is of interest, given the good relations between the two countries and the new facilities granted since September 2010 concerning the use of the railway and the Sudanese seaport. However, corridors through Sudan and Libya are not efficient due to the long overland distances, traffic conditions, and the fact that are at the opposite ends of the country's populated centers.

- A fourth option is *the Libyan corridor* that can serve the ports of Tripoli, Benghazi and Misrata on the Mediterranean Sea. This route has considerable security issues and under-developed infrastructure, with more than 3,500 km across the great Sahara Desert starting from N'Djamena to Abéché. The Libyan corridor has been used in recent years by the World Food Program (WFP) to supply its logistics base Kufra from the port of Benghazi and from Kufra by convoys delivering food aid to refugee camps of Oure Cassoni and Indimi in eastern Chad. In 2009, the tonnage of international freight Chad officially registered via the Libyan corridor was greater than that of the Nigerian corridor, representing more than 8 percent of the total tonnage of foreign trade (Table 2.7). And in terms of performance, the alternatives to Ndjamena-Douala corridors show more efficient ports in Libya and Sudan in terms of cost to import and export, and border compliance, with Sudan being well served by regular shipping lines. Their disadvantages include high costs and delays in inland transport due to the sheer distance, transit and border crossing through a third country.

77. The most feasible option is to improve the exiting transport infrastructure along N'djamena-Douala, including the rail transport option. The Nigerian corridor, like the other alternative corridors, is not very conducive to transportation and trade facilitation: infrastructure is poor, procedures are inadequate, and available services are even more unreliable than on the main corridor. Nowadays, these corridors are mainly used by informal trade especially agriculture, which does not favor Chad's integration into the global economy.

Figure 2. 9: Existing transit routes



Source: DTIS (2013)

2.6 Bilateral and Regional Frameworks to Address Chad's Trade Facilitation Challenges

78. **There are several agreements to facilitate transit trade through transportation and transit regimes, but their lack of implementation is a major setback**. There is a CEMAC framework to facilitate transit trade through the Integrator and Priority Road Network and that of consensual Road Network for Central Africa (CEMAC 2008) which takes into account minimum inspection as well provisions for using complementarity of multimodal transport (rail - road - waterway), with particular emphasis on providing easy access to seaports for landlocked countries and remote areas of coastal countries. A Memorandum of Understanding in community transit goods are normally placed under the procedure "Transit Interstate Central African countries (TIPAC).[27] However, the intended free movement of goods

[27] TIPAC is like a framework agreement between the national customs authorities and carriers involved in transit operations. The States undertake to renounce submit the transit operation to specific authorizations to expedite the passage of goods at ports and border posts to moderate the road checks, and to clearly define the rules of warranty. In return, carriers agree to respect the conditions of transit as defined in the CEMAC Customs Code

and services remains seriously handicapped due to its lack of implementation. Goods traded within the CEMAC are taxed at each border crossing, regardless of the administrative system. Transit regimes are expensive, difficult to operate, and not accessible to all operators; which shifts significant bilateral trade into the informal sector or is subject to rent-seeking. To reduce these obstacles and facilitate transit, an interconnection project between Customs services was launched in 2009 as a priority component of the Transport Facilitation Program in Central Africa (FASTRAC). Transit routes along corridors between Cameroon and Central African Republic and Cameroon and Chad were chosen.

79. **In November 2016, Chad notified its preliminary Categorization of the Trade Facilitation Agreement (TFA) obligations to the WTO**. The TFA provides its members, like Chad and its neighbors, a robust, time-sensitive opportunity to address issues on regional and international trade with flexibility and a framework for obtaining technical support through categorization of various reform provisions. It is crucial that Chad uses the WTO TFA instruments to garner donor assistance to expedite the reforms, which requires a coordinated, government-wide commitment. Chad ratified the WTO TFA agreement along with Nigeria, but Cameroon is yet to ratify the Agreement. Implementation of the TFA by Nigeria, also an original signatory, will likely boost prospects of both bilateral and transit trade for Niger. It would do so by speeding up the movement, release, and clearance of goods including transit issues across the region. And once Cameroon becomes a member, it should simplify the transactions environment along the existing trade corridors and open mutually beneficial market opportunities for all countries in the region, including Niger.

2.7 Policy Recommendations

80. **Given Chad's small and dispersed domestic market, its best avenue for pursuing economic diversification is through non-oil export development, also including regional trade**. Chad's scattered, low density rural population neither attracts investment nor provides a fruitful market for domestic goods. In terms of markets, Chad has a strong interest in improving trade relations with Nigeria the largest and the most diversified economy with a capacity to absorb surplus of agricultural production. Along with Cameroon and Niger a joint security arrangement will also protect cross-border trade and maintain access to the productive territory around Lake Chad, while easing transaction with third countries through the Ndjamena-Douala corridor. And as far as products are concerned, Chad has immediate prospects in boosting agricultural and livestock exports. Key recommendations for promoting exports include:**Reduce distortions caused by tariffs and para-tariffs.** The current CET regime preserves high protective rates with escalating structure, neither suited as an incentive structure to propagate export and greater diversification, nor conducive for regional trade impeded by the excessive taxation of imports at every border crossing and customs posts and a myriad of administrative procedures. Transit procedures are expensive, do not function well and are not accessible to all operators. This is driving a large proportion of inter-State trade into the hands of informal traders or smugglers. Controlling the cost of trade logistics is therefore a key concern for trade operators, public decision makers, and regional organizations. The Government of Chad should give priority to the reform of the import regime as a core element of his new trade policy. Tariffs on imports, like other taxes and duties, must be seen as a central element of export diversification policy, and the pursuit of enhanced food security. In particular, it must:

- Re-visit criteria for tariff exceptions. The first step is to revisit the exceptions to CET establishing a clear economic criterion for exceptions to CET.
- Revisit the CET. Chad should consider renegotiation of the CET towards lowering high rates and narrowing the bands. Chad should urgently consider negotiations towards reducing the structure to strictly four bands (e.g., 0, 5, 10, and a luxury rate of 20). **This would simplify the tariff regime and lower the average level of tariff protection to about 14.5 percent (Fiess 2018); reduce import prices for consumers; and reduce the degree of tariff dispersion that would lessen distortions and welfare losses for producers.** These tariff reductions would

however need to be framed in a broader discussion of tax reform as they would involve losses in fiscal revenue that might require compensatory tax measures.

- Eliminate para-tariffs. Para-tariffs add further distortions to trade and there is low evidence they are a sizable source of revenue. They should be eliminated.

81. Modernize Customs. In addition to enhancing infrastructure for border management, Customs needs to be use modern tools, avoid ad-hoc exemptions and their non-transparent enforcement. Computerization of existing systems should continue and be extended. The system of export taxes should be re-examined. In addition, the following should be considered:

- Design and implement a Trade Information Portal (TIP). It should not only make register transport and trade procedures, but provide web-access to a full inventory of non-tariff measures. Such TIP would lead to the creatoion of a Single Window ("Guichet Unique") for Customs. [28]
- Train Customs officials on tariffs and customs codes. This involves both increasing the quality and number of staff, as well as their technical capacity through training modules. This should include regular training of Customs officers on ASYCUDA World.
- Provide IT infrastructure at key Customs point in Nguéli and other main transit points. A telecommunications network should interconnect all Customs offices, which will enable Customs officers to track the movement of goods.
- Implement reforms under the WTO-TFA. The first step is to establish and build the capacity and tools of an effective National Trade Facilitation Committee (NTFC) with adequate financial, human and material resources —integrated by key ministries and border management agencies, private sector stakeholder and supported by donors--to plan and monitor reform effort.
- Promote regional security. Chad should cooperate with ECOWAS neighbors Niger and Nigeria, as well as with Cameroon and CAR to improve border security.

82. Improve transit and transport infrastructure and backbone services. The lack of functional transportation corridors within Chad and across the CEMAC countries is a critical obstacle to promote domestic, regional and international trade. Backbone services are outdated. To address these weaknesses, Chad should:

- *Negotiate with Cameroon a bilateral framework for transit facilities* focused on:
  - Rapid transfer of ship containers in transit to train in Douala;
  - Rapid transit of containers from Douala to the Ngaoundere terminal (and to trucks);
  - Rehabilitation of the Yaoundé– Belabo railway line;
  - Upgrading of road infrastructure along the Ndjame-Douala corridor (weighing stations, rest areas and truck stations in Cameroon territory);
  - Standardization of trucking (axel weights etc.);
  - Reduction/elimination of check-points within Cameroon territory;
  - Physical presence of Chadian customs services in Cameroon and establishment and operation of a Chadian customs office in the Douala port to address Cameroon's genuine concerns about transit goods leaking into its customs territory.
- *Rehabilitate dirt/rural road infrastructure.* While Chad may implement existing action plans on national road infrastructure, it should explore financing road development all seasons of cotton growing regions as those that can integrate agri-value chain producing zones to local and regional major centers (cities and other neighboring countries in the region).

[28] A good example of an operational TIP is found in Haiti. See: http://haiticommerce.gouv.ht/PL/home/index-aspx.

- *Expand backbone ICT services supporting trade: e-Government, e-commerce and e-agriculture*. E-government components often include streamlined online services in e-tax administration (e.g. tax payments, VAT refunds), e-Customs (e.g. payments, trade information portal and single window) and e-procurement (e.g. bid announcements, and public tracking platform). E-commerce starts by facilitating registration procedures (single window) of new firms. E-agriculture nowadays provides e-vouchers for agricultural inputs and ontime extension services to farmers.

83. Improve cross-border trade infrastructure, especially along the N'djamena-Douala corridor. Public investment in transport infrastructure is vital to lowering trade costs and raising competitiveness, especially so for landlocked countries.

84. Establish a new bilateral trade and transit framework between Chad and Nigeria. If so:

- Undertake a feasibility analysis exploring the potential for "border haats (or markets)" along the key border areas to ease cross-border trade including the establishment of warehouses so as to reduce smuggling.
- Organize a forum of bilateral business between Nigeria and Chad, creating a meeting platform for businessmen from both countries, raising awareness of the respective export deals, and encouraging the signing of formal business contracts.
- Encourage investment opportunities, in both directions, including Agriculture (where Chad has a comparative advantage) and free and other development zones exports to Nigeria.

Table 2. 7: Matrix of key policy interventions

Objectives	**Recommendations/Actions**	**Institutions responsible**	**Timing**
Simplify the trade regime and accelerate its liberalization	Update the evaluation of the impact of the current CET on Chads trade liberalization and bring it to CEMAC high authorities. A new 3-year roadmap for tariff simplification should eliminate the top tariff band of 30 percent and make it converge to a tariff schedule with only 4 instead of 5 bands.	Ministry of Trade and Industry (MTI)	Short-term
Rationalize tax and duty exemptions	Redefine tax and duties exemptions in compliance with CEMAC directives. Audit firms' compliance with tax exemptions and re-examine investment-promotion programs to make them more effective.	MTI, Ministry of Finance and Customs	Short term
Make transparent and and eliminate illegal –parafiscal duties and levies and illegal fees on trade corridors	Create a Trade Information Portal, starting with an inventory of non-tariff (parafiscal) measures, transit and transport procedures. Adopt a plan to eliminate all parafiscal fees. Launch a national awareness campaign among CEMAC traders regarding transit traffic. Establish a reporting mechanism for traders encountering road harassment.	Office Prime Minister, MTI, Min. Justice, Agriculture, CEMAC.	Short to Medium term

Objectives	Recommendations/Actions	Institutions responsible	Timing
Open new regional and global markets for agricultural and livestock products	Produce a Guide for Exporters. Define entry requirements of strategic clusters around selected product varieties, in different regional and international markets especially in Europe and East Asia. Develop Capabilities of commercial counsellors in overseas missions and Chad's Chamber of Commerce to gather commercial information and	MTI, Min. Agriculture Mr. Foreign Affairs CCIAN/ANIE	Short-term/Medium term
Establish border "HAATS"	Undertake a feasibility study exploring the potential for "border haats (or markets)" along a pilot crossing point for SMEs and women traders: Gamboru Ngala in Borno State border.	MTI (CHAD and Nigeria), Small Business Associations.	Short-term
Strengthen and formalize trade with Nigeria	Undertake a cost benefit assessment of reducing bilateral tariffs, and other transactions costs with Nigeria.	Ministry of Trade and Industry (MTI).	Short-term
Facilitate bilateral business exchanges between Chad and Nigeria	Organize a forum of bilateral business between entrepreneurs from both countries, raising awareness of their export opportunities, and promoting the signing of formal contracts.	MTI, Chambers of Commerce and business associations	Short-term-Medium - term
Operationalize the National Trade Single Window	Accelerate the harmonization of export and import documents among all relevant agencies and trade-related business process re-engineering.	Office of the Prime Minister, Ministries Justice,	Short term
Implement the WTO TFA	Establish the NTFC with a clear mandate and action plans to implement commitments under the TFA.	Ministry of Trade, Customs & related agencies	Short term
Deepen Customs modernization	Implemenmt risk management and post-audit audit controls. Migrate to ASYCUDA++ Digitalize all payments at Customs. Complete the provision of IT infrastructure and	Customs, Tax Authority.	Short - Medium term
Set joint-border controls with Nigeria and Cameroon	Enforce joint border inspection procedures and regularize exchange of trade and transit transaction records.	MTI, Customs, Ministry of Transport	Medium-term
Negotiate with Cameroon a reform of their bilateral transit facilities	Based on a feasibility study, revamp multimodal transport and container facilities, and transport infrastructure. Establish a transit authority in Douala to facilitate the implementation of the reform.	Ministry of Transport, MTI	Medium term
Promote a competitive and efficient transport sector	Harmonize rules of regional transport operation based on new professional competences, training and solvency of transport companies. Ensure proper budget allocation for road maintenance to N'djamane-Douala corridor.	Dept. of Transport.	Short - Medium term

Objectives	Recommendations/Actions	Institutions responsible	Timing
Update backbone services to trade	*Set up e-Government, e-commerce and e-agriculture*. E-government would include streamlined online services in e-tax administration (e.g. tax payments, VAT refunds), e-Customs (e.g. payments, trade information portal and single window) and e-procurement (e.g. bid announcements, and public tracking platform). E-commerce would facilitate registration procedures (single window) of new firms. E-agriculture might provide e-vouchers for agricultural inputs and ontime extension services to farmers.		

Chapter 3: Firms' Growth, Investment Climate and Competitiveness in Chad[29]

Abstract

- Improving the investment climate is also critical for Chad's export diversification.
- Unfortunately, Chad is at the bottom rankings of the Global Competitiveness Index; scoring very low in technological readiness, market efficiency, institutions, infrastructure and High education.
- Chad's binding constraints to the investment climate, as perceived by entrepreneurs are: political instability, tax policy and administration, access to finance, corruption and access to electricity. Marked improvements from last survey regard workforce education, informality and electricity.
- Exporting firms and small and service sector firms are particularly sensitive to political stability and tax issues; while large firms complain more about corruption and informality.
- About one-third of firms expect to pay bribes to secure a government contract, obtain an electricity conection or "get things done"; and two-third for getting a construction permit.
- Chad's exporting firms identify unfair trade regulations and tax charges, and lack of financing as key obstacles to export activity. DB ranks it at the bottom 95th percentile in trade regulations.
- An agenda for an improved business climate should focus on 4 objectives:
  - Streamlining procedures, mainly for exporters and for border crossing.
  - Modernizing tax administration and facilitating compliance with tax rules.
  - Overhauling construction procedures and reducing costs to grant construction permits.
  - Introducing export financing tools.

3.1 Introduction

85. **This chapter provides a description of the Investment Climate (IC) in Chad, and identifies the most pressing challenges facing the country's competitiveness**. Using different, but complementary diagnostics tools allows for a more comprehensive view of the investment climate in Chad. Therefore, the analysis draws data from three main sources: (i) global competitiveness indicators from the World Economic Forum Report; (ii) the recently completed Enterprise Survey (ES) carried out in Chad over 2018 describing investment climate conditions, including a dedicated module focusing on exporters; and (iii) an assessment of the regulatory framework based on the latest Doing Business Report. The chapter relies on the assumption that addressing the key binding constraints on the investment climate is critical for the country's effort to diversify its production base and exports potential.

3.2 Investment Climate at a glance

The World Economic Forum Global Competitiveness Benchmarking for Chad

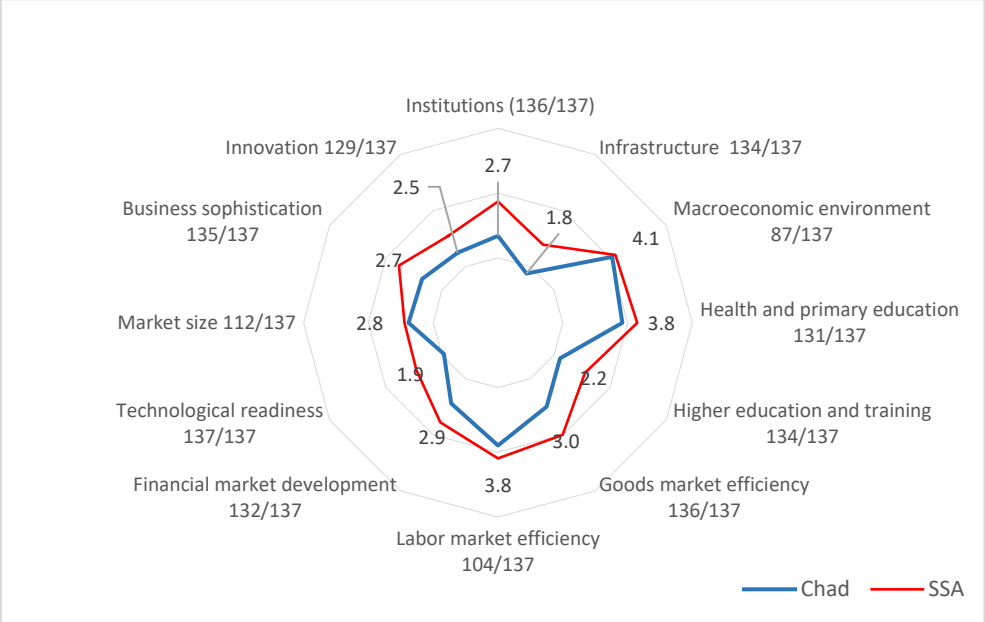
86. **In term of overall competitiveness, the World Economic Forum (WEF) ranks Chad near the bottom at the 135th place out of 137 nations for the 2017-2018 edition of the report**. The WEF Global Competitiveness Index provides a broad look into a country's competitiveness using a mix of business opinion surveys and rankings based on individual and aggregate indices (Figure 3.1).[30] Chad stands out as having particularly low rankings on several key drivers of competitiveness such as: Higher Education and training (134th /137), Infrastructure (134th/137), Institutions (136th/137), Market Efficiency Goods

[29] This chapter is based on Benyagoub and Clark (2018), background paper for this study, itself an outgrown of the World Bank Enterprise Survey (ES) led By Muzi et al. (2018). Unless otherwise indicated all results presented are based on it.

[30] "The goal of the Global competitivenes Index is to identify and measure the drivers of productivity which defines competitiveness as the set of institutions, policies, and factors that determine a country's level of productivity" The WEF uses 12 pillars of competitiveness (WEF 2018)

(136th /137), Technological readiness (137th/137). The country's highest score is on Macroeconomic Environment (87th) owing to sound fiscal management and recent improvement in overall stability (including inflation – government debt and budget balance).

Figure 3. 1: Global Competitiveness Index (1-7 best)-WEF



87. **Chad performs poorly on the WEF's 12 main pillars of competitiveness (Figure 3.1)**. Chad systematically underperforms compared to the SSA regional averages or global benchmarking on all pillars of competitiveness measured by the WEF. For instance, Chad scores 2.8 out of 7 on market size, and 1.9 on technological readiness suggesting that the potential for market growth, technological absorption and diffusion is extremely weak. Moreover, infrastructure, as measured by transport, electricity and Telecommunication (IT), scores 1.8 out of 7 highlighting the large gaps that Chad suffers on these three dimensions. The only exception is on the indicator measuring macroeconomic environment, where the country has managed to maintain overall macroeconomic stability, despite multiple severe recent shocks.

88. **Furthermore, and according to the WEF[31], compared to 5 years ago Chad has not made any significant improvement in its overall GCI (Global competitiveness Index score**. Its gap has slightly widened compared to the SSA region, and more significantly widened compared to performing countries of the ASEAN 5 and the OECD. ASEAN 5 countries have actually narrowed down the gap with more developed economies. This lack of progress in improving the environment for private sector growth reflects the lack of improvement in competitive performance registered over the past 5 years.

Investment Climate at a glance: The experience of Chadian firms as perceived by entrepreneurs

89. **The next section examines the results from the Enterprise Survey (ES) carried out in Chad over the course of 2018, the first survey of its carried on since 2009.** In sum, the ES finds that Chad remains constrained by institutional weaknesses, and factor and product market deficiencies. These findings corroborate multiple findings from indicators measuring the quality of the regulatory framework under

[31] WEF report compares the average of the 23 African economies included in the GCI since 2007 against the average of the 35 Organization of Economic Co-operation and Development (OECD) economies, representing the world's most advanced economies, and Southeast Asia, the region that has developed most over the past 10 years while still sharing some characteristics with African economies.

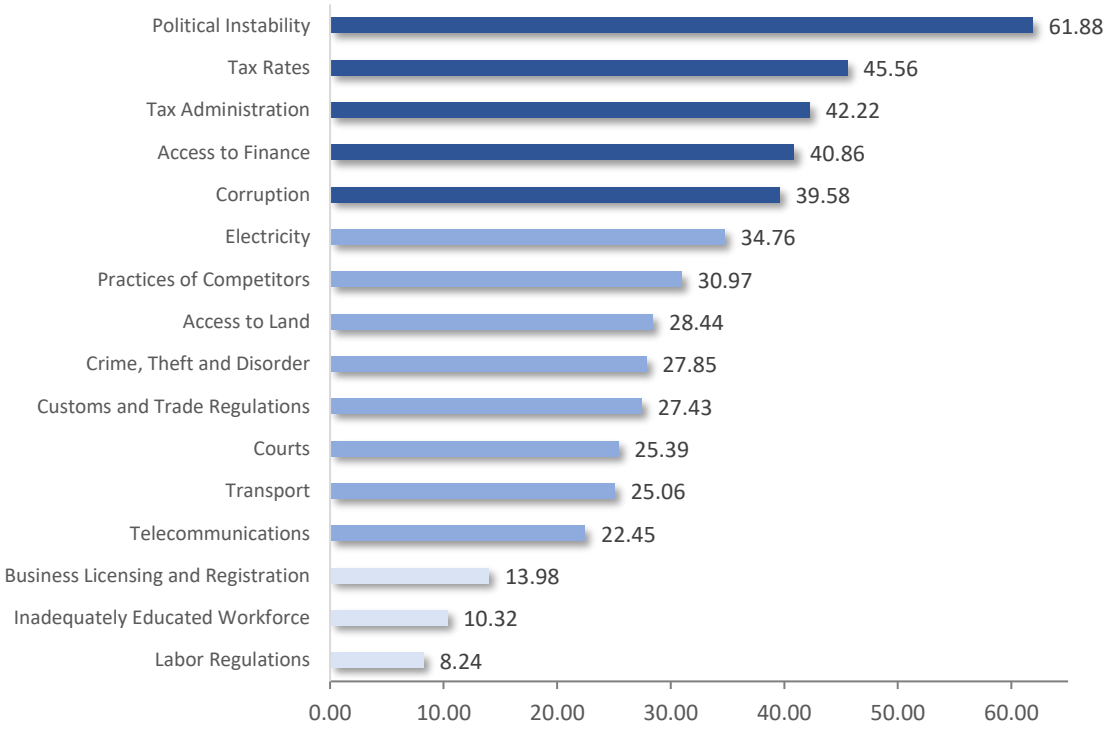
the Doing Business Report, examined in section 2.3. The survey was carried out over the capital city of Ndjamena (Annex A3.1 presents the sample description and survey methodology).

90. **The leading constraints to the investment climate (IC) as identified by Chadian entrepreneurs are next (Figure 3.2 and Table 3.1):**

- *Political instability,* mentioned by 61.9 percent of the firms as a major or severe constraint.
  Tax rates mentioned by 45.6 percent of the firms as a major or severe constraint.
- *Tax administration,* mentioned by 42.2 percent of firms as a major or severe constraint.
- *Access to Finance,* mentioned by 40.9 percent of firms as a major or very severe constraint.
- *Corruption,* mentioned 39.6 by percent of firms as a major or severe constraint.
- *Electricity,* mentioned by 34.8 percent of firms as a major or severe constraint.

91. **These leading constraints underscore major structural issues related to the effectiveness of institutions.** While the role of the state is paramount in ensuring an even playing field trough sound and transparent regulations for effective delivery of services to firms and citizens, the top first tier highly rated as particularly constraining are issues of political stability, tax rates, tax administration, and the prevalence of corruption. These findings point to fundamental grievances with regards to the stability and legitimacy of the institutional and governance framework. Also concerning among a second top tier set of constraints are issues related to product market and infrastructure such as accessing finance and the cost and reliability of electricity. The ability to secure credit to grow and develop a firm and the supply of affordable and reliable energy are paramount to improving firm competitiveness and productivity.

Figure 3. 2: IC Constraints (Pct firms rating as major or severe)



92. **A third tier of IC issues, rated with less intensity (between 35 and 25 percent by entrepreneurs) as major or severe constraints, are in the areas of informal practices, access to land, crime and disorder, Customs and trade regulations, and the functioning of courts**. These obstacles reflect a combination of instructional factor and product market. And although the magnitude of the ratings is not as high as the previous top tier constraints; they still represent a significant part of the respondents citing them

as problematic, which should therefor alert policy makers. In fact, combined with the findings of the DB report issues like the overall cost of compliance with construction permits, access lo land, the cost of starting a firm and compliance with overall taxes and fees become highly relevant and highlight the importance of implementing regulatory reforms.

93. **The fourth and last tier of constraints** includes obstacles rated below 25 percent of entrepreneurs as major or severe provides a more favorable perception of some areas of the investment climate. For instance, Chadian businesses do not seem to be as concerned by the low skills of their workforce or the regulations governing the labor market or with questions affecting licensing and permits or telecommunications.

94. **Table 1.1 shows that the typology of the firm plays a significant role in the way firms perceive the investment climate.** For instance, exporting firms, and small and service sector firms are particularly sensitive about political instability; while large firm and manufacturing complain less about tax rates and the tax administration. Large firms complain significantly more about corruption and informality than their peers. This is an interesting result given the correlation observed between political instability and corruption which affect larger firms, as they become the target of rent extraction, and are also exposed to larger scale illegal or anti-competitive practices. Not surprisingly large firms are less affected by low access to credit compared to smaller firms. In contrast, medium firms do not complain about lack of access to credit. Overall, medium-sized firms appear to complain less about the IC as a whole, which would reveal some degree of relative resilience toward an unfavorable environment.

Table 3. 1: IC constraints by firm type (Pct. rated as major or severe)

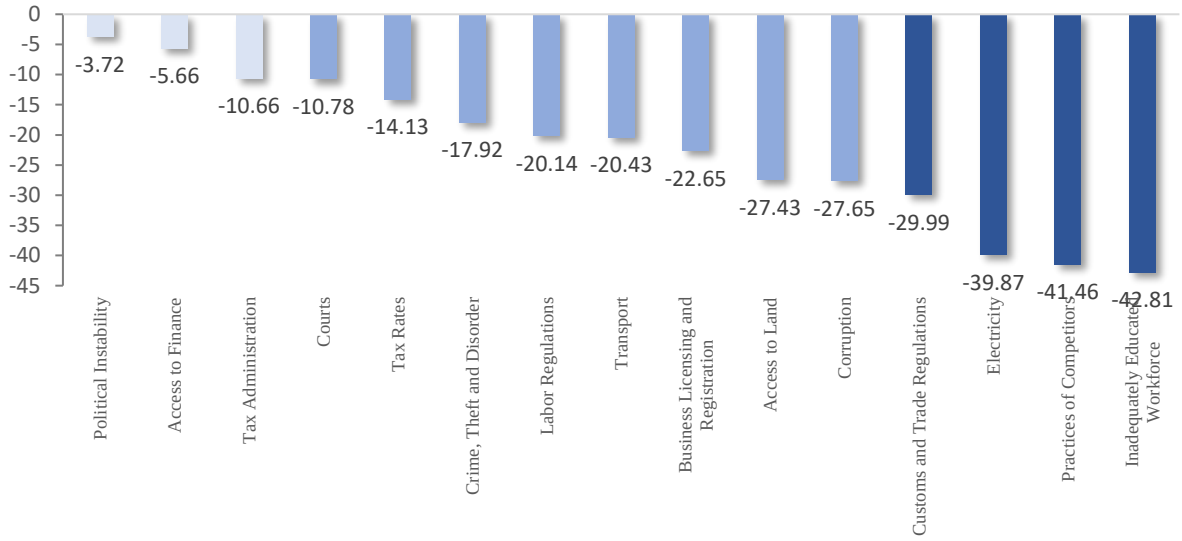
	All	Small	Medium	Large	Manufacturing	Services	Exporters
Political Instability	61.9	65.9	28.4	53.8	44.2	69.2	84.7
Tax Rates	45.6	47.5	31.2	37.6	30.0	51.9	65.9
Tax Administration	42.2	44.2	21.0	48.0	28.7	47.5	71.1
Access to Finance	40.9	44.8	6.7	33.5	38.9	41.7	72.9
Corruption	39.6	38.8	31.7	72.7	27.1	45.1	64.0
Electricity	34.8	36.0	23.9	31.4	37.3	33.7	36.2
Practices of Competitors	31.0	30.5	22.1	60.6	26.3	32.9	54.1
Access to Land	28.4	31.2	5.1	21.4	22.9	30.8	47.6
Crime, Theft and Disorder	27.8	27.8	21.6	43.4	14.6	33.4	29.3
Customs and Trade Regulations	27.4	28.5	21.7	18.9	15.9	32.1	61.7
Courts	25.4	26.8	8.4	38.7	13.0	30.4	32.2
Transport	25.1	26.4	19.0	10.0	21.4	26.6	57.9
Telecommunications	22.5	23.6	14.7	15.1	18.0	24.3	11.3
Business Lice and Registration	14.0	14.3	5.7	26.6	11.0	15.1	26.2
Inadequately Educated Workforce	10.3	9.1	4.8	43.9	8.5	11.0	3.0
Labor Regulations	8.2	7.6	0.0	38.7	9.3	7.9	24.3

95. **Aside for political instability, which is somewhat of an outlier in terms of the intensity of its rating, the overall intensity of ratings is somewhat moderate when compared to sub regional comparators such**

as Mali and Niger. This result can be attributed context specific dispositions on the part of the respondents. In any case comparing perception ratings across countries has to be undertaken with some caution.

96. **Chad's overall IC has however improved based on firm perceptions over time.** Despite some caveats,[32] a comparison of perception data over two time-periods can be useful to evaluate changing IC condition affecting firms. The totality of constraints evaluated in 2009 have considerably improved as indicated by the positive changes in percentage points illustrated in Figure 3.3. There are acute differences between the two ESs undertaken in 2009 and 2018. The leading constraints have shifted between 2009 and 2018, and marked improvements have been noticed regarding informality, the skills of the workforce, and electricity between the two periods. These positive changes suggest some improved conditions on the ground. In exchange, political instability, the leading constraint in 2018, has not significantly changed but rather deteriorated in rank: it was the fifth leading constraint in 2009. Finally, access to finance, and tax administration have not improved significantly.

Figure 3. 3: Perception of Major or Very Severe IC Constraints in Chad between 2009 and 2018 ES (Changes in percentage points-darker points to bigger changes)



Understanding the implications of the Leading constraints at the firm level

97. **Political instability:** Firms cited political instability as the single most important factor constraining the operation of their businesses, with 61.9 percent of firms rating it as a major or severe constraint. International experience in fragile nations with a history of conflict and instability indicate that the main challenge facing the private sector is to instill confidence back into the institutions in charge of regulating the ecosystem of businesses. Chad is considered as a fragile nation and continues to face persistent security challenges that potentially undermine its stability – chief among them are:

- *High number of refugees*: long term intermittent regional conflicts have made Chad home to the third largest population refugees on a per capita basis (estimated at 470,000).
- *Legacy of conflicts:* Internal rivalries and regional tensions have undermined Chad since its independence [33]in addition firms are apprehensive over recent political tensions regarding constitutional reforms and presidential mandates.

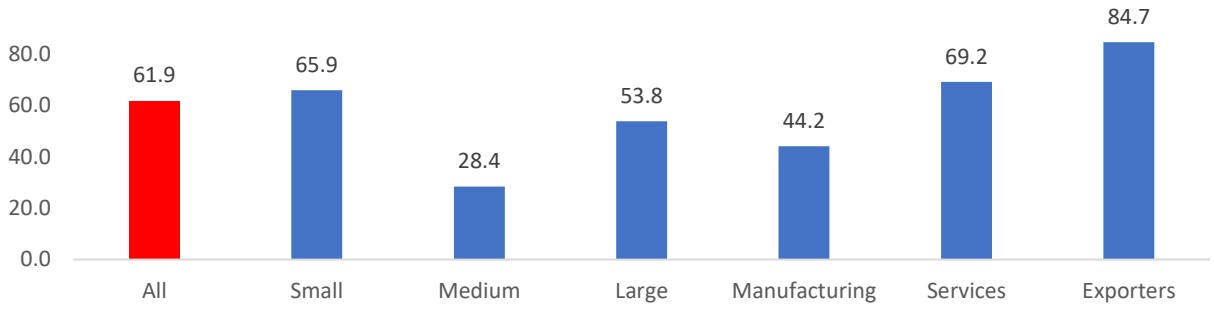
[32] A negative number implies an improvement, i.e. fewer firms consider the item as a major/very severe constraint This is an estimate based on two survey that took place over a period of nine years.

[33] Chad has been the theater of internal and regional conflict for 35 years since its independence 57 years ago.

- *Vulnerability*: Chad is particularly vulnerable to external shocks associated with volatility in oil prices. The recent decline in the price of oil has imposed cuts in public spending has affected firms' ability to predict and adjust to long term policy.
- *Climate change*: Chad is one of the most vulnerable countries to climate change, and has become hotter and drier increasing the pace of desertification, population shift and the drying up of the lake Chad, further impacting the scarcity of resources and medium-term investment in agriculture.

98. **Hence, political stability has been maintained at the expense of investing in institutional capacity and long term developmental objectives**. Meanwhile rent-derived resources from oil since the early 2000's have had an adverse impact on governance, productivity and competitiveness, especially in light of the recent volatility in oil prices which directly affect public spending, and by extension the private sector[34].

Figure 3. 4: Political instability (Pct. rated as major or very severe)



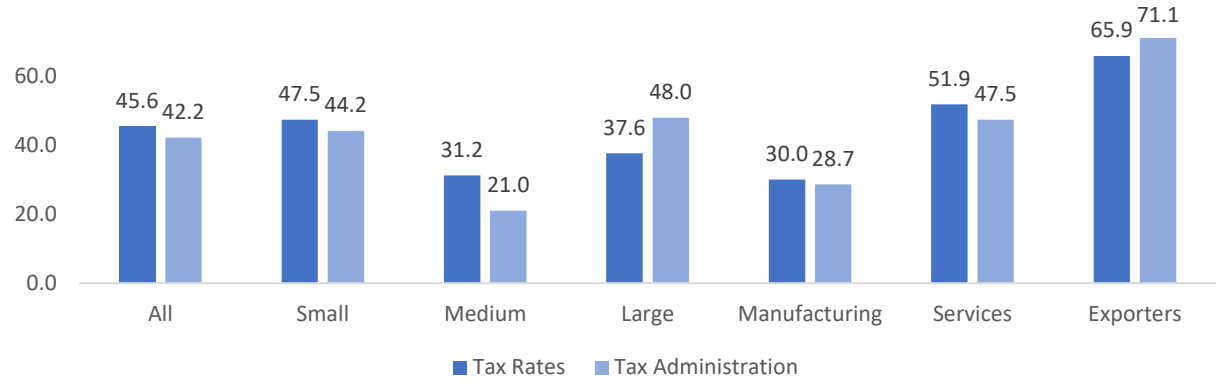
99. **Political instability is a more pronounced constraint for service sector firms and exporters – with 69.2 and 84.7 percent of firms rating it as a major or severe obstacle to their operations respectively (Figure 3.4).** Exporters are also more inclined to be affected by political instability as they have to contend with both domestic and foreign market policies. Likewise, political instability constitutes a source of major concerns for small firms probably due to the fact that they do not have the capital buffer necessary to withstand volatility. In contrast, large or manufacturing firms are less impacted: they seem prefer to make investment plans on a medium-term horizon and may have better buffers for preserving their long-term projects.

100. **High taxes and fees and their cumbersome administration impose a significant burden on firms.** Taxation issues are often cited as one of the top constraint by firms in ES surveys undertaken worldwide. It is therefore not surprising to see that Chadian businesses reported tax rates and tax administration as the second and third leading constraints respectively – with 45.6 percent and 42.2 percent rating it as a major or severe constraint, with interesting variations among firms (Figure 3.5). On the one hand. large firms complain much more about tax administration than tax rates, while medium firms complain less. Large firms probably complain more because they are better known and more visible for collection purposes. Manufacturing firms complain less than retail or service firms about their interaction with the tax administrations. Exporters appear double affected: It is the category of firms which complains

[34] "Oil revenues since 2003 have fueled public consumption and investment, but with little impact on productivity and private sector growth. This is the outcome of observed poor efficiency and effectiveness of public spending, low return on education, and the overall stagnation of agricultural yields. Despite being massive, public investment projects could not counteract the significant environmental degradation of air, water and land. They could neither attract private investment in similar magnitude, except in the non-tradable sectors of transport and construction. Private investment has also been hampered by the difficulty in doing business, the result of complex regulatory and tax procedures, keeping large sections of the economy informal. Slow productivity growth, combined with a pegged exchange rate and an expansionary fiscal policy, led to a deterioration of Chad's external competitiveness and non-oil trade balance. This has exposed Chad to oil shocks, forcing the country to make sharp fiscal adjustments, as in 2014/2015" (*Chad CPF 2016)*

the most about both the tax rates (65.9 percent) and their interaction with the tax administration (71 percent). It is likely that tax regimes, such as VAT reimbursements, eligible for exporters, presents major issues with its filing and materialization, as also observed elsewhere.

Figure 3. 5: Tax rates and tax administration (Pct. rated as major or very severe)



101. **Quantitative data explain what make taxes such a leading constraint.** Corporate taxes are just slightly higher than for regional comparators: 35 percent of taxable profit according to the DB report (see table 3.2), but Chad's overall level of taxation is substantial. As seen in previous chapter, Chadian firms have to comply with additional taxes and fees which are more burdensome than the marginal corporate tax rates would indicate. For instance, the aggregate tax rate including all contributions (social security, VAT, stamp duties and others) is estimated at 63.5 percent of profit, well above other regional comparators. Furthermore, high administrative costs required to operate and start a business, as recorded by the DB report (see next section), add to an already heavy tax burden and contribute to amplify the perception of taxes as a top tier obstacle.

Table 3. 2: Tax system for Chad and comparators

	Chad	Mali	Niger	Guinea	SSA
Payments (no per year)	54	35	41	33	37
Time (hrs. per year)	766	270	270	400	280
Corporate income tax (%)	35	30	30	35	46.8
Total tax rate and contributions (% of profit)	63.5	48.3	47.3	61.4	40.1
Post filing index (0-100)	13	25.7	38	12.7	54.3

Source: Doing Business report, 2018.

102. **Tax administration is the third most severe constraint.** The survey reported serious issues in the interaction between tax administration and firms, with variations. Once again, medium sized firms appear significantly less affected compared to large firms or those operating in retail. Concerns associated with the tax administration are typically a reflection of poor transparency and fairness with regards to the tax collection process. For instance, 83.3 percent of the firms reported having met with a tax official last year; and inspected for tax purposes on average three times during the year. Among those, in 24.6 percent of these cases there was an expectation of informal payments. These results are worse than the regional comparators (below 18 percent) indicate (except Mali) (Table 3.3). They show the frequent practice of rent extraction during the tax collection process; which makes the process of tax payments opaque and unpredictable for businesses. The existence of such rents for tax officials, paid by the private sector, also reinforces the incentives for tax evasion, the concealment of income and bribery of tax officials, and the perception of inequities among taxpayers, further eroding trust between operators and the administration.

Table 3. 3: Comparing interaction with the tax administration

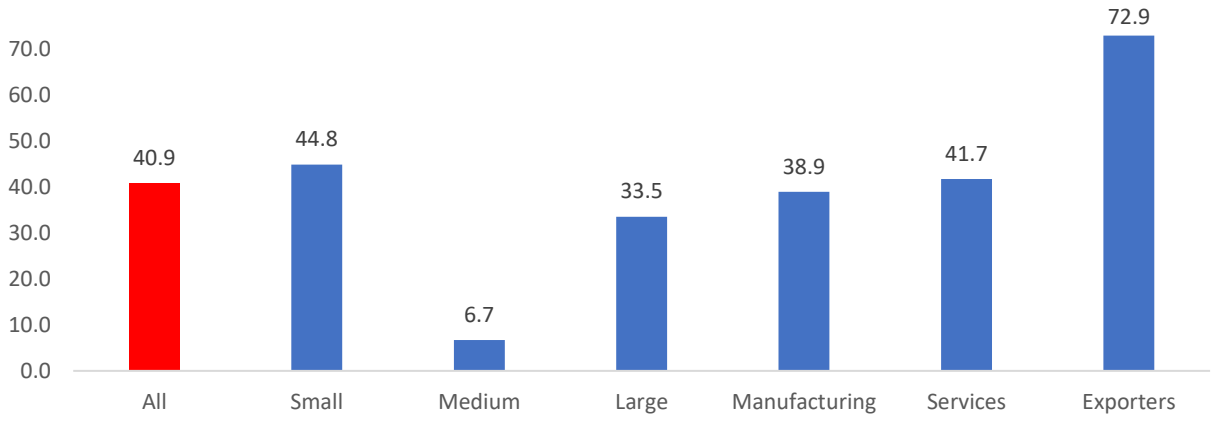
	Chad	SSA	Mali	Niger	Guinea
Meeting with tax officials (no)	3.2	3.2	2.9	3.3	2.9
Inspection by tax official (%)	82.3	70.9	77.6	63.3	76.2
Informal payment request (% of firm)	24.6	17.2	32.0	4.7	12.9
Post filing index (0-100)	13	25.7	38	12.7	54.3

Source: Enterprise survey 2018

103. **This uneven playing field is made worse by Chad's systems of tax holydays, tax incentives and regressive taxations favoring bigger and foreign firms disproportionally.** Chad's investment law adds to the perception that the tax system is implemented unfairly. International experience is unequivocal with the tax incentives' modest impact on medium term investment. Instead, a revised and regionally harmonized bill would be a more efficient mechanism to help investors with a simpler tax code and steady rules.

104. **Access to finance.** Access to finance, the fourth ranking constraint, mentioned by 40.9 percent of firms as a major or severe obstacle to Chadian firms, points to considerable variations (Figure 3.6) Exporting firms seem much more affected, with 72.9 percent of respondents rating access to finance as a major or severe obstacle. Next are small firm with 44.8 percent. These results seem counterintuitive. Medium firms do not seem affected at all compared to the rest.[35] Small and large firms complained more with 44 percent and 33.5 percent ratings. Typically, smaller firms face considerable challenges in accessing credit but the fact that larger firms complain more than medium firm is indeed counterintuitive. It is equally surprising to observe that exporters complain significantly more. Global experience with ES surveys points out that exporting firms are better positioned to access finance as they are on average more dynamic, more sophisticated and therefore in a better position to obtain credit. For their part, manufacturing and service firms complain almost equally. Typically, service and retail firms are less affected with issues of credit compared to large firms. They do not require as much capital to invest in heavy machinery nor do they make long term investment which are typical in the manufacturing sector. Difficulties in accessing longer term finance should therefore indicate more constraints for manufacturing firms.

Figure 3. 6: Access to finance (Pct. rated as major or severe)



105. **Table 3.4 helps understand some of the perception-based findings**. The share of medium firm that have a loan or a line of credit from a bank is significantly higher that of small firm - with 38.5 percent vs 9.2 percent respectively[36]. Medium firms also compare more favorably on credit utilization. A much

[35] One caveat is the low observation number for large firms, related to indicators measuring access to credit.

[36] data is not available for large firms due to low count for this indicator

higher proportion of medium firms (36.6 percent) use the banking system for their long-term investments needs compared to only 5.3 percent for small firms. The difference is less pronounced when comparing short term finance (working capital) since small firms tend to rely more on it. Clearly medium firm are above the norm with regard to credit use.

106. **In general Chad ranks poorly compared to the SSA region on most finance indicators selected**. The survey findings benchmark Chad considerably outside the regional norms when measuring access and credit utilization. The share of Chadian firms with access to a bank loan or a line of credit -12 percent- is significantly lower than the SSA average of 22.6 percent.[37] Likewise, with regard to credit utilization, firms derive only 2.4 percent of their total financing needs for working capital from banks and 1.6 percent for longer term investments – much lower than the region SSA average of 9 percent and 10.3 percent respectively. In the same vein, an overwhelming majority of businesses did not apply for a loan last year and 60 percent of firms in Chad stated that they did not need a loan which is much higher than the SSA average of 38 percent. Instead most Chadian firms had to rely on overdraft or their own resources. In addition, with regard to credit utilization, typically research indicate a strong correlation between taxes and access to finance. Firms conceal income to evade or cheat on taxes which prevents them from successfully obtaining a loan: As a matter of fact, most Chadian firms (60 percent are not interested in acquiring credit, citing no need as a primary reason along with the high cost of guarantees, collateral and interest rates. Others are simply not able to maintain proper books, further barring them from eligibility.

Table 3. 4: Selected finance indicators by firm size and regional benchmarking

	Small	Medium	Large[38]	Chad	SSA
Firms with a loan or credit line	9.2	38.5	na	12	22.6
Value of collateral need for a loan (% of loan)	191.6	113.8	na	165	205.7
Firms not needing a loan	59.4	67.3		60.1	37.8
firms with recent loan application rejected	na	na	na	na	15.8
Firms using banks to finance investments	5.3	36.6	4.8	7.3	21
Firms using banks to finance working capital	9.1	15.8	10.4	9.8	23.7
Working capital financed by banks (%)	2.0	6.1	2.8	2.4	9.0
Investment financed by Bank (%)	0.5	18.1	0.5	1.6	10.3

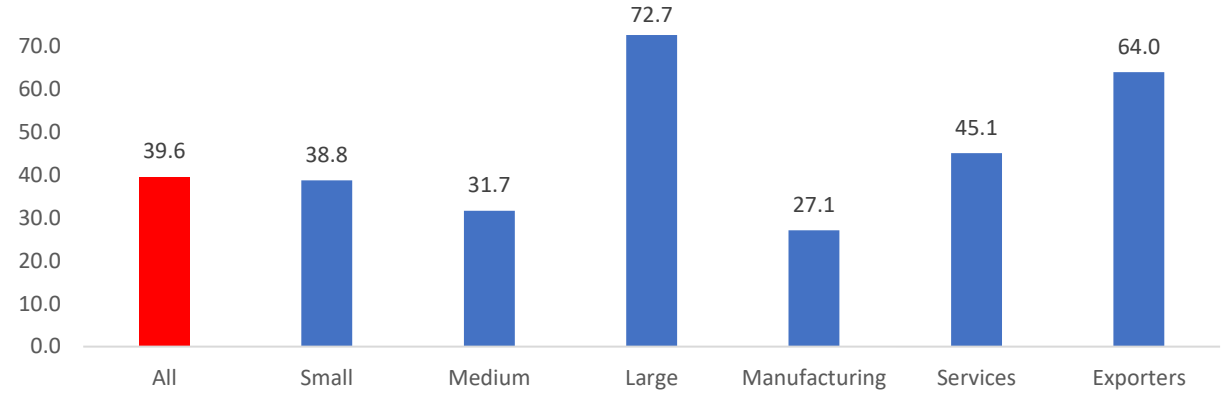
Source: ES survey 2018

107. **Corruption.** This is the fifth leading constraint, mentioned by 39.6 percent of firms as a major or severe obstacle. Firm characteristic affects the way corruption is perceived (Figure 3.7)**.** Large firms (72.7 percent) and exporters (64 percent) complain with significantly more intensity than small (38.8 percent) or medium firms (31.7 percent) or manufacturing (21.7 percent) rating corruption as a major or severe constraint. These results are similar to those of surveys undertaken in Niger and Mali. Large firms offer more potential for rent extraction than smaller ones. On average, service and retails firms complain more about corrupt practices (45 percent). However, unlike manufacturing, retail or service sector firms have on average higher margins and can be an easier target for predation. it is easier for retail firms to avoid regulations and compliance, and they are known to engage in informal activities that offer the potential for briberies and collusion with officials. International experience demonstrates that those who are reluctant to offer bribes are more prone to complain about corruption as a severe

[37] SSA indicators are estimated from most recent World Bank Enterprise Surveys.
[38] Observations for large firms are low.

obstacle. With regards to exporters, these firms are typically younger and more sophisticated, and less prone to engage in illegal or informal payments to facilitate or speed up administrative procedures

Figure 3. 7: Corruption (Pct. rated as major or very severe)



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108. **On top of the direct cost imposed on firms through illicit payments or gifts, corruption also contributes to mistrust and lack of confidence in the ability of the state to provide a fair and sound policy framework for all operators**. Chad's high administrative cost of doing business combined with burdensome and slow regulations makes it easier for pubic agents and firms to circumvent the system through the use of briberies to "grease the wheels". Looking at the overall corruption indices summarized in Table 3.5 underscores Chad 's poor performance relative to the Africa region as a whole. However, Chad appears close to the Sahel sub-region standards such as Niger, Mali; which further points out to the severity of corruption issues in the Sahel area. In Chad, well over a third of all businesses are expected to provide payment to advance procedures or evade costly fees or speed up burdensome procedures[39] (i.e. "to get things done") – 38 percent vs 27 percent for the region and 22 percent for all ES countries. This is more pervasive when looking at individual public services. For instance, 69 percent of firms were expected to provide illegal payments in order to obtain a construction permit and 35.8 percent for an electrical connection compared to 25.9 percent and 22.5 percent for SSA and 22.3 percent and 16.1 percent for global averages.

109. **The incidence of corruption can be costly**. For instance, the cost of corruption represented by the proportion of the payment relative to the value of a contract requested to secure the contract is higher than the norm. According to ES respondents, in Chad this cost amount to 3.5 percent of the value of the contract compared to 1.5 percent for the global standard and 2.7 percent for the SSA region. High incidence of corruption with regard to government contracts may also discourage and prevent firms from seeking new opportunities, especially among younger firms and entrepreneurs. This tends to reinforce an insider's system whereby connected firms that agree to bribe public agents are systematically solicited.

[39] The significant administrative burden imposed on firms is evidenced by the important amount of time firms spend on administrative and regulatory compliance: 18 percent of manager's time spent dealing with bureaucratic requirements

Table 3. 5: Corruption indicators: Chad and comparators

	Percent of firms expected to give gifts to secure government contract	Value of gift expected to secure a government contract (% of contract value)	Percent of firms expected to give gifts to public officials "to get things done"	Percent of firms expected to give gifts to get an operating license	Percent of firms expected to give gifts to get a construction permit	Percent of firms expected to give gifts to get an electrical connection
All ES Countries	28.9	1.8	22	14.4	23.3	16.1
Chad	33	3.5	38	18.5	69	35.8
SSA	35.5	2.7	27.8	16.1	25.9	22.5

Source: Enterprise Surveys 2018

110. **The incidence of corruption measured by the ES is likely related to the substantial overall cost of business compliance**[40]**.** The next section covering the regulatory environment--as measured by the DB report--points to numerous regulatory requirements that impose a high cost on almost all aspects of the firm's interaction with the administration. Table 3.6 below summarizes some of the more constraining cost firms must face to either start or operate their business, including the cost required to start a business (171 percent of income per capita) or obtaining a construction permits (12.9 percent of property value estimated). These fees combined with bribes create an unsustainable burden for operators who then resort to bribery collusion and evasion in order to alleviate these costs and speed up burdensome procedures associated with obtaining public services.

Table 3. 6: Administrative costs: Chad and SSA

	Chad	SSA
Starting a business (% of income per capita)	171	49.9
Connecting to electricity (% of income per capita)	9821	3737
Obtaining a construction permit (% of property value)	12	9.0
Obtaining a construction permit (% of property value)	12.9	7.8
Overall tax and fees (% of profit)	63.5	46.8

Source: Doing Business 2018

111. ***Electricity*** is the sixth leading constraints. The reliability and affordable provision of energy is considered a key product market into the competitiveness of firms. Though not rated among the top tier of constraints, the results summarized in Table 3.7 point to serious shortcoming in the provision and cost of electricity. In fact, electricity was rated as the single most constraining obstacle in the previous ES undertaken in 2009. Regional findings also indicate that problems with energy provisions

[40] Given these results highlighting the extend of corrupt practices in Chad – one would expect the perception ratings to be substantially higher. it is likely the this was captured trough the complaint s associated with the tax administration or that these costs have been internalized.

are particularly acute[41] in the Sahel region, and Chad is no exception. In Chad, an important proportion of firms experienced at least one power outages last year (69.28 percent). Although quite not as high as regional comparators - such as Mali with 86.5 percent, Niger with 85.4 percent and Guinea with 82 percent - in absolute terms these findings are still problematic for firms.

Table 3. 7: Electricity indicators for Chad and comparators

	No. of electrical outages (typical month)	Pct. of firms with a generator	Losses due to electrical outages (% sales)	Electricity from a generator (% if generator is used)	Percent of firms experiencing electrical outages
Niger	25.4	74.1	9.2	53.3	78
Mali	4.2	66.8	6.5	25.8	86.5
Chad	**4.5.**	**67.7**	**9.8**	**18.5**	**70.2**
Guinea	4.5	56.8	4.7	26.6	84.2
SSA	8.5	51.3	8.5	28.2	78.7
All ES	6.4	33.4	4.7	20.4	59.0

Source: World Bank staff estimates.

112. **Chad also suffers from frequent outages and long delays making unreliable the provision of electricity and resulting in added unpredictable costs for firms.** For instance, an astounding 9.8 percent of annual sales are lost due to electrical outages prompting a well over a majority of firms (67.7. percent) to compensate by acquiring generators. The high rate of generator ownership may partly reflect a cost imposed on firms, but it does not explain the large production losses attributed to power supply failures reported by firms. Yet, these costs are not prompting firms to complain significantly more than their regional peers. It is also possible that conditions associated with energy provision may have improved.

Exporter Module

Figure 3.8 Sources of Direct Export Revenue (in percent)

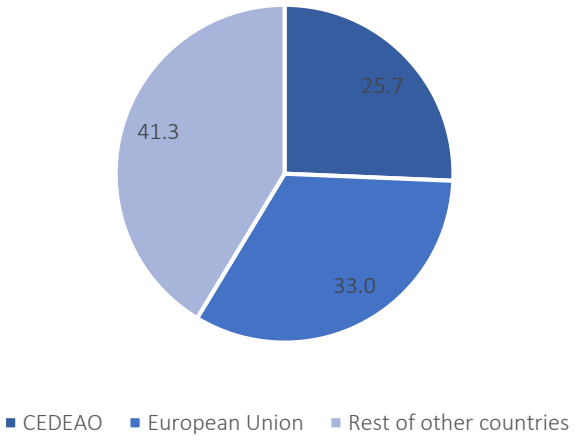
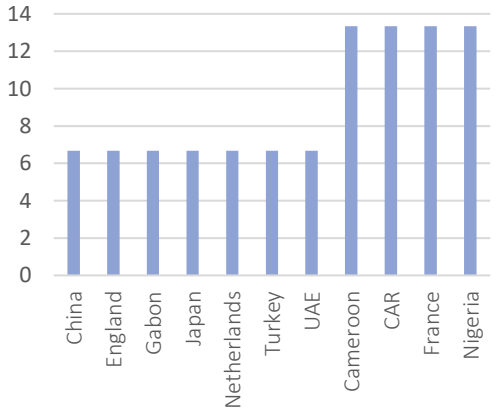


Figure 3.9 Largest Country for Direct Exports (in terms of export revenues)



[41] See ES survey for Mali and Niger carried out in 2017.

113. In order to capture more granular details on the perceptions of exporters in Chad, a quota sampling survey was applied to gain further insight on the challenges and patterns of exporting firms[42]. The majority of Chad's direct export revenue is generated by trade with other CEDEAO countries, the EU, the UAE and Turkey. Its top four destinations for direct exports by interviewed firms were Nigeria, France, Central African Republic and Cameroon. Remaining export destinations are a handful of European countries, the UAE, Turkey, Japan and China (Figures 3.8-3.9).

Table 3.8 Year firm 1st exported directly to main market

Year	%
1958	6.67
1994	6.67
1998	6.67
2001	6.67
2003	6.67
2007	20
2008	13.33
2009	6.67
2010	6.67
2012	13.33
2015	6.67

114. On the one hand, the majority of firms (80 percent) have been exporting to their main destination market after year 2000, whereas only three firms (20 percent) have been exporting prior to year 2000 (Table 3.8). Of these exports, 47 percent were in the form of semi-finished goods to be used as inputs by other firms, 40 percent were finished goods for sale to final consumers, and 13 percent of exports were a mix of finished and semi-finished goods. Private firms made up 80 percent of the clients for direct exports, with the remaining clients comprising of affiliated subsidiaries/parent companies, governments or government agencies. On the other hand, the primary reason for firms to directly export to main markets is high foreign demand for their products (53 percent of firms) . This was followed by the creation of new competitive products for the destination market (20 percent), specific and favorable incentives when exporting to this area (13 percent), and excess domestic supply for the establishment's products (13 percent). Despite this demand, about 60 percent of firms stated that, at some point, direct export operations to their main market needed to stop, which on average, spanned a period of 29 weeks.

Table 3.9 Chad: Main obstacles to export activity as perceived by exporting firms

Product/Market	Percent
Testing and certification	6.67
Export/Import procedures	
Pre-shipment physical controls	13.33
Import licensing, quota or prohibitions in destination country	6.67
Lengthy local Customs procedures	20
Cumbersome local cargo handling or other port procedures or requirements	6.67
Taxes and regulations in country of origin	
Restrictive foreign exchange allocations	13.33
High or discriminatory export taxes or charges	26.67
Access to inputs (or public support)	
Lack of export financing	26.67
Little information on marketing conditions in export markets	6.67
Lack of support to prospect new markets	33.33
Issues with transport services (high cost, monopoly, etc.)	33.33
Trade regulations	
Complex or changing application of trade agreements	46.67

42 The results of this section are based on a small sample of the population, and likewise were not weighted, therefore they may not be statistically representative of the universe of firms in Chad.

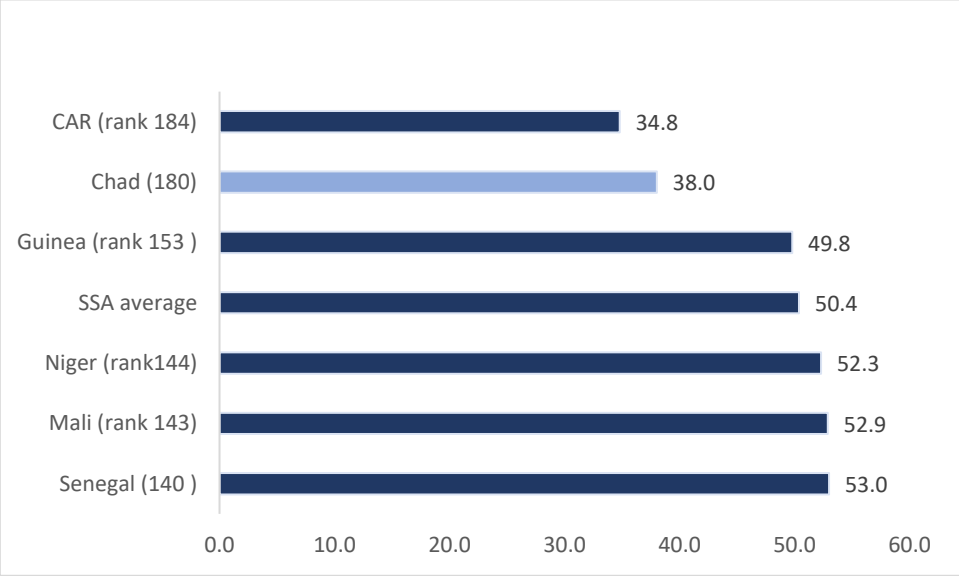
115. **Exporting firms cited trade regulations, specifically the complex or changing applications of trade agreements, to be a significant obstacle to a firm's exports to main partner markets – cited by nearly 47% of firms (Table 3.9).** The next most significant obstacles to a firm's exports were related to access to imports and public support. One third of firms cited lack of support to prospect new markets and one third of firms also cited issues with transport services (high cost, monopolies, etc.). When asked what was the single biggest obstacle to exports, 42% of firms cited the application of existing trade agreements and 33% of firms cited customs procedures.

3.3 Snapshot of the regulatory environment as measured by Doing Business indicators

116. **This section focuses on the regulatory framework measured by the Doing Business indicators.** The DB narrower approach complements the ES analysis by overlapping on some areas of measurements with regards to cost and length of compliance associated with licensing transactions creating a business, construction permits, trade and electricity.

117. **Chad has yet to implement and sustain a more impactful DB reform program**. The results from the Doing Business report (DB) for 2018 show that Chad's regulatory environment is one of the most challenging in the world; in particular because of the high fees, contributions and taxes that it imposes on firms. Chad is ranked 180th worldwide, which places it at the bottom 95th percentile. Aside from some ad-hoc measures, Chad has yet to engage in a continuous and substantive reform program.[43] Consequently, its regulatory framework remains characterized by extremely high cost and burdensome procedures translating into significant obstacles to the entry and operations of firms. As also observed in the findings of the ES, complex and costly administrate procedures can leave substantial margin for discretionary behavior, weakens the competitive position of firms, encourages informality and further aggravates market inefficiencies.

Figure 3. 10: Comparative 2017 DB rankings and DTF



Source: Doing Business 2017.

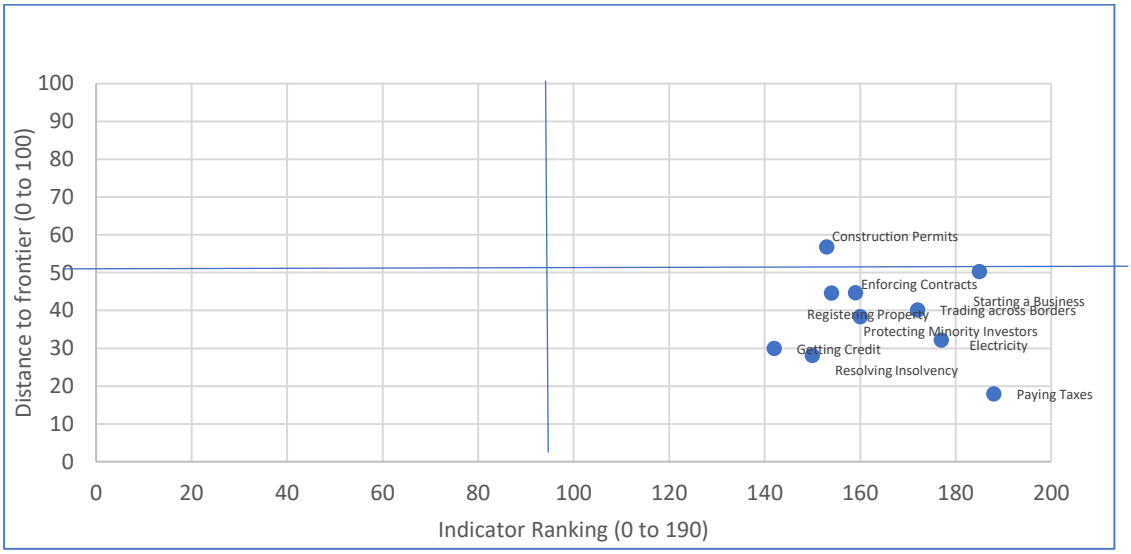
118. **The regulatory environment in Chad.** Figure 3.10 provides an illustration of the country's regional benchmarking. The Distance-to-Frontier (DTF) is 38.0 compared to last year's DTF of 38.5 (a slight decrease of .28%) which remains well below the SSA average of 50.4% and most regional comparators. This is indicative of a country that has not been able to improve its business environment.

[43] According to the indicator that measures "distance to the frontier" in DB, Chad has made some progress in recent years only in the areas of starting a business and registering property.

The rankings of most dimensions of the DB place Chad at the bottom of both regional and global standards. On a regional level, the DB report ranks Mauritius as the top performer in the SSA region, with a global ranking of 25th over 190. Other top performers in the SSA region include Rwanda (41th), Botswana (81th), and South Africa (82th). Nonetheless, by any standard of comparison, Chad is not well positioned (180st), and lags well behind other regional comparators such as Senegal (140th), Niger (144th), Mali (143rd) and Guinea (153rd).

119. **Figure 3.11 illustrates the ranking and DTF of all 10 DB indicators for Chad**. The performance of Chad is consistently poor across all indicators. Most indicators are in the lower- right quadrant of the graph where both the rankings and DTF (measuring progress relative to best practices) are the worse-indicating both a poor ranking and lack of positive reforms. In fact, in 2018, most indicators stagnated or deteriorated slightly; while the country's reform efforts remain uneven and lacks focus and organization. Chad ranks worse in paying taxes (188th) and starting a business (185th) despite the creation of a one stop shop and cost reduction measures: Chad reduced the minimum capital requirement substantially to XAF 100,000 (around 180 USD); but the overall cost of starting a business remains prohibitive with 171% of income per capita. The "least worse "ranking is in getting credit (142nd), where there has not been any substantive reform measure adopted since 2012, when Chad widened the nature of assets that can be used as collateral.

Figure 3.11: Doing Business indicators for Chad (Rank and DTF)



120. **An analysis of several areas measured by DB illustrates the arguments described above**:

- **Paying taxes:** With a ranking of 188th over 190, Paying taxes is the most problematic indicator for Chad, and no progress has been registered in recent years.[44] This indicator performs poorly primarily because of the high cost of overall fees and contribution (63 percent of profit). The DTF, indicating potential progress toward best practices for this indicator is 17.9 percent, one of the worst in the world, and below the SSA average (55.8 percent). For 2018 the "post filling index" which indicates simplicity and speed in tax compliance (including VAT reimbursement) also ranks at the bottom of the regional and global average (13.7 vs 54.3 for the SSA region and 83.4 for OECD). In additions, the number of payments required to fulfill various taxes and duties is extremely high (54 payments registered) compared to the regional average (38 payments) and international standards (10.2 payments). The high number of payments/steps derives from the

[44] Chad is in the process of reforming some of its tax code, applying to personal income derived taxation; which although will have a positive effect on several types of activities, probably with regards to very small businesses of less than 5

main tax requirements such as the corporate income tax, social security taxes and VAT, which have to be filed on a monthly basis, therefore also resulting in prolonged procedures and tedious preparations. As a result, compliance delays are excessive (766 hours per year compared to 280 for the region and 160 for OECD countries).

- Starting a business: This is the second worst ranked indicator. Chad initiated some measures to ease this process in 2013 by setting up a one stop shop, and in 2017 by reducing in the minimum capital required to start a business to 100,000 XAF. The DTF score reflects these recent progress (50.2); but Chad still lags behind the region (the SSA average is 76.8) and comparators such as Niger (rank: 24, DTF: 93.65), or Mali (rank:104, DTF:82.3). While the number of procedures is not excessive (9 procedures vs 4 for the region), the overall costs associated with starting a business is very high to Chad at 171 percent of income per capita – compared to 49 percent and 3.1 percent for the SSA region and OECD countries respectively. Delays are also problematic with 60 days as opposed to 24 days for the region and 8 days for the OECD areas. The labor inspection process takes up to 30 days alone; and even though Chad created a One Stop Shop, its procedural requirements still take on average 18 days.
- Getting electricity: Accessing reliable and affordable power supply is a key prerequisite to improving Chad's competitive position. Unfortunately, there has not been any significant progress related to improving the supply and reliability of electricity to private operators. Chad is ranked 177th with a DTF score of 32.17 unchanged compared to last year and remain below comparators; Niger (rank:162, DTF:44.8), Mali (score:154, DTF:51.2), SSA (DTF: 45.9). Once more, at three times the regional average, it is the cost that of the overall process which differentiates Chad. The number of procedures (6) and the delays (67 days) compares a bit favorably against the region (5 procedures and 115 days). For its part, the reliability of supply and transparency index[45] is scored a 0, as Chad does not posses a mechanism to track interruption or power outages, not is the SNE (*Société nationale d'electricité*) the energy company) equipped with automated tools to track or repair outages. There aren't any automated mechanisms for monitoring or restoring service in case of power outages.
- Getting credit: This is Chad best performing area measured by DB, but still problematic for firms. Chad is ranked 142nd for 2017 and an unchanged DTF score of 30, indicating a lack of progress. Chad has actually not improved access to credit since 2012 when it improved trough OHADA amendments on secured transactions which increased the scope of assets that qualify as collateral (including future assets) and introduced out of court enforcement. Borrower information registry and coverage ratios score particularly low compared to global performers with a fully operational credit bureau. Chad has a score of 6.0 over 12 on the strength of legal rights index, 0.0/8.0 on the depth of credit information index, and 0.0% credit coverage ratio (% of adult population). Chad and other members of CEMAC established a regional public credit registry providing online access to information for banks, simplifying the task of retrieving information in the public registry and allowing expanded coverage of borrowers. Resulting weak scores on credit information explain the institutional challenges faced by SME lending. Furthermore, the introduction of regulations on the operation of credit bureaus among members of CEMAC should have an impact on reducing information asymmetries between lender and borrowers.
- Registering property: Chad is ranked 159th with a DTF score of 44.7 percent reflecting a slight improvement since 2016 (166th) as Chad lowered the property transfer tax twice in 2014 and 2016. Nevertheless, the high cost involved with transferring a property title sets Chad apart

[45] "The reliability of supply and transparency of tariffs index is calculated on the basis of the following six components: duration and frequency of power outages, tools to monitor power outages, tools to restore power supply, regulatory monitoring of utilities' performance, financial deterrents aimed at limiting outages, and transparency and accessibility of tariffs" Doing Business 2018.

relative to its comparators and global benchmarking, representing 12.9 percent of the property value, compared to 7.8 percent for SSA and 4.7 percent for the OCDE. For instance, acquiring property in the capital city of N'Djamena cost around 20 million XAF. The number of procedures and the compliance time are close to those of the SSA region – 6 vs 6.2 procedures, and 44 days vs 59 days respectively for Chad and the SSA. Although not too far off from sub regional comparators such as Mali (8/30) and Niger (4/30) and the SSA region (8.6/30), the quality of the administration is considered weak based on the index scores of 8/30 compared to global standard of the OECD (22/30). Effective operations and regulatory functions of the land administration is paramount to ensure that property rights and transactions are fluid, fair and transparent in agricultural production activities. Costly procedures and outdated practices and infrastructures contribute to informal and opaque practices. Improving the functioning of regulatory oversight in transparency information and the infrastructure and practices of the land agency would go a long way into helping users as well as improving Chad's standing.

- **Dealing with construction permits:** Chad made some modest progress on this indicator in recent years, but the overall process remains lengthy and costly. Chad is ranked at 159th out of 190 countries and has a DTF score of 56.7 close to the SSA regional average of 56.9. Chad performs favorably compared to Niger (53.7) and the Central African Republic (38.8). Again, the number of procedures required to obtain a construction permit do not appear per se excessive and are on par with regional and OECD benchmarks. Delays are lengthy (226 days) and excessive compared to the region (147 days); but again, the high cost of compliance is what mainly damages Chad's competitiveness. The cost involved in the process of securing construction permits falls well outside regional and international norms, amounting to 12 percent of the value of the warehouse compared to 7.6 percent for the SSA average, 16 percent for Niger, 6.2 percent for Mali and 1.6 percent for the OECD average; indicating that Chad, along with many sub Saharan nations has a long way to go to reduce unnecessary high administrative costs. Fortunately, what sets Chad apart is the good quality of the agency in charge of regulatory oversight which the DB grades as excellent. The Building Quality index[46] score of 11.5 compared to the SSA average of 8 and international standard of 11.3 points to outstanding quality control and inspection regulations.

3.4 Policy Recommendations

121. **Chad should vigorously pursue its efforts at restoring trust among business operators.** As long as operators and potential investors perceive the economic environment as marred by instability cumbersome procedures and corruption, private investments and firm competitiveness will remain handicapped. In this context, it is paramount the authorities follow up and sustain the efforts undertaken to pursue a road map on IC reforms. These efforts should be inclusive and participatory across the full spectrum of stakeholders (private sector, public agents, policy makers, foreign investors, donors and civil society) with the added features in monitoring and evaluation measures and efforts to increase communications and ownership.

122. **Chad's improved business climate framework should position the country to reap more benefits from its exports**. Key objectives to achieving this goal would include (i) streamlined procedures for the creation of SMEs, mainly exporters; (ii) modernization of tax administration to facilitate compliance with tax administration; (iii) more agile procedures for granting building permits; (iv) streamlined trade facilitation procedures to reduce border crossing time; (v) new regulations to facilitate access to power.

[46] "The building quality control index is based on six other indices—the quality of building regulations, quality control before construction, quality control during construction, quality control after construction, liability and insurance regimes, and professional certifications indices." DB 2017.

and (vi) new instruments designed to promote export finance operations. Within the previous policy context described above, next Table 3.10 provides more detailed areas of intervention and policies.

Table 3. 8: Key policy recommendations

OBJECTIVES	MEDIUM TERM ACTIONS	SHORT TERM ACTIONS
Streamline procedures for the creation of SMEs, mainly exporters	Streamline procedure and reduce cost: ▪ Transfer the "patente" tax to a nominal amount. ▪ Publish standard incorporation documents (OHADA) ▪ Conduct an institutional and economic audit of the one-stop shop. ▪ Improve the functioning of the RCCM. ▪ Streamline remaining steps associated with the notice of articles of incorporations ▪ Implement the decree making the participation of a notary optional in the writing and registration of bylaws by carrying out a vulgarization/outreach campaign ▪ Publish standardized incorporation documents.	Streamline the number of procedures and costs: ▪ Modify the article of the Commercial Code that provides for minimum capital requirement for LLC (SARL) to remove completely the remaining minimum capital required. ▪ remove the registration of the articles of incorporation at the "Service d'Enregistrement, des Domaines et du Timbre." ▪ Remove the requirement for a company seal *by publishing a decree or stating that it is not required for signing commercial contracts.* ▪ Allow the company creation notice in the Registry and/or online.
Facilitate compliance with tax administration	Further streamline compliance with tax rules and avoid briberies by: ▪ Computerize the revenue authority and introduce electronic filing. ▪ Implement a Single Window for Paying Taxes in order to facilitate the payment of different taxes and contributions (corporate tax, social security and VAT reimbursements procedures). ▪ Digitalize the tax payment system covering both tax administration and Customs	Reduce the number of payments and time to pay taxes: ▪ Publish tax and contributions laws, updates, and guidelines online and have copies available at the Ministry of Finance and other public offices. ▪ Allow the option of frequent filing of CIT, social security and VAT from monthly to quarterly: Already introduced for a segment of taxpayers (mid-size firms), but take-off has been gradual. ▪ Unify the tax identification number for all taxes and contributions related to a business. Currently, the CNPS issues a different number for social security. ▪ Introduce on-line application for the tax identification number (*numéro d'identification fiscale*). ▪ Provide tax education and training to entrepreneurs to increase compliance and collection. ▪ Conduct a broader analysis of taxpayer interactions with the tax system to identify other areas for reform.
Accelerate the delivery of	Adopt and implement building code based on best regional practices and further improve the procedures to obtain construction permits by:	Improve efficiency and transparency: ▪ Require compulsory technical inspection of buildings during their construction phase, before occupancy to check for conformity

construction permit	• Review the fees associated with obtaining a construction permit that could be reduced; such as those associated with the geotechnical study ▪ Reduce the cost of building registration at *the Service des Domaines et du Timbre* (5% of the property value.) ▪ Define the need for geotechnical studies currently carried out by the *Laboratoire* (LBTP or LABOGEC).	▪ Reduce time of connection to public utilities networks (water) by setting specific services for businesses' requests at the offices of the STEE (*Société Tchadienne d'Eau et d'Electricité*). ▪ Establish a reception desk at the Municipality to check applications for correct filing and complete documentation. ▪ Make all regulations and required documents for construction permits publicly accessible.
Facilitate trade	Reduce the time, documents and cost to trade by: • Carry out a mapping of all procedures and agencies involved in the trade transactions (import/export) to rationalize procedures and documents. • Identify all official fees and charges levied on imports and exports—especially at the dry port of Ngueli—for elimination, reduction or harmonization. • Improve the efficiency of the inspections system by guaranteeing the complete implementation of the risk-based inspections system, the installation of the necessary equipment (scanners) and the communication of the new system to the relevant commercial agents in the trade sector. • Introduce legal framework to facilitate the effective implementation of digital signature for payments.	▪ Introduce electronic submission and processing of trade documents. ▪ Implement a Single Window for Trade.
Improve reliability and access to electricity	• Reform procurement laws with regard to fuel and power generation to facilitate new firm's entries. • Improve the capacity of regulatory authority • Create a single window for SME payments and trackability	▪ Implement regulations facilitating payments for SME accessing the power grid.
Increased access to finance by exporters		▪ Introduce new instruments designed to promote export finance operations (for example, guarantees schemes for exporters).

Source: Doing Business Memo

Annex A3.1 The Chad 2018 Enterprise Surveys Data Set

Introduction. This annex provides additional information on the data collected in Chad between February 2018 and April 2018. The objective of the Enterprise Survey is to gain an understanding of what firms experience in the private sector. As part of its strategic goal of building a climate for investment, job creation, and sustainable growth, the World Bank has promoted improving the business environment as a key strategy for development, which has led to a systematic effort in collecting enterprise data across countries. The Enterprise Surveys (ES) are an ongoing World Bank project in collecting both objective data based on firms' experiences and enterprises' perception of the environment in which they operate. The ES currently cover over 160,000 firms in 148 countries, of which 139 have been surveyed following the standard methodology. This allows for better comparisons across countries and across time. Data are used to create statistically significant business environment indicators that are comparable across countries. The ES are also used to build a panel of enterprise data that will make it possible to track changes in the business environment over time and allow, for example, impact assessments of reforms. This report outlines and describes the sampling design of the data, the data set structure as well as additional information that may be useful when using the data, such as information on non-response cases and appropriate use of weights.

Sampling Structure. The sample for 2018 Chad ES was selected using stratified random sampling, following the methodology explained in the ES Sampling Note. Stratified random sampling was preferred over simple random sampling for several reasons: To obtain unbiased estimates for different subdivisions of the population with some known level of precision; ii) To obtain unbiased estimates for the whole population. The whole population, or universe of the study, is the non-agricultural economy. It comprises: all manufacturing sectors according to the group classification of ISIC Revision 3.1: (group D), construction sector (group F), services sector (groups G and H), and transport, storage, and communications sector (group I). Note that this definition excludes the following sectors: financial intermediation (group J), real estate and renting activities (group K, except subsector 72, IT, which was added to the population under study), and all public or utilities sectors; iii) To make sure that the final total sample includes establishments from all different sectors and that it is not concentrated in one or two of industries/sizes/regions. d. To exploit the benefits of stratified sampling where population estimates, in most cases, will be more precise than using a simple random sampling method (i.e., lower standard errors, other things being equal.) e. Stratification may produce a smaller bound on the error of estimation than would be produced by a simple random sample of the same size. This result is particularly true if measurements within strata are homogeneous. f. The cost per observation in the survey may be reduced by stratification of the population elements into convenient groupings.

Two levels of stratification were used for Chad: industry and establishment size. The original sample design with specific information of the industries and regions chosen is described in next Table A2.1. Industry stratification was designed in the way that follows: the universe was stratified into manufacturing (ISIC Rev. 3.1 codes 15 - 37), and Services (ISIC codes 45, 50-52, 55, 60-64, and 72) industries which were further broken down into exporting and non-exporting firms. For the Mali ES, size stratification was defined as follows: small (5 to 19 employees), medium (20 to 99 employees), and large (100 or more employees). Regional stratification did not take place for the Chad ES.

Sampling implementation. Given the stratified design, sample frames containing a complete and updated list of establishments as well as information on all stratification variables (number of employees and industry) are required to draw the sample. Great efforts were made to obtain the best source for these listings. Kantar Belgium SA (previously TNS OPINION) was the main contractor and Kantar TNS Cameroon was the subcontractor that implemented the Chad 2018 ES. The sample frame consisted of listings of firms from two sources: For panel firms the list of 150 firms from the Chad 2009 ES was used and for fresh firms

(i.e., firms not covered in 2009) firm data from 2014 Base Recensement Général des Entreprises, National Institute for Statistics, Economic and Demographic Studies (INSEED), Chad, was used. Necessary measures were taken to ensure the quality of the frame; however, the sample frame was not immune to the typical problems found in establishment surveys: positive rates of non-eligibility, repetition, non-existent units, etc. Given the impact that non-eligible units included in the sample universe may have on the results, adjustments may be needed when computing the appropriate weights for individual observations. The percentage of confirmed non-eligible units as a proportion of the total number of sampled establishments contacted for the survey was 17.6% (47 out of 267 establishments). Breaking down by industry and size, the following sample targets were achieved (based on the sampling information). (Table A3.1)

Weights. Since the sampling design was stratified and employed differential sampling, individual observations should be properly weighted when making inferences about the population. Under stratified random sampling, unweighted estimates are biased unless sample sizes are proportional to the size of each stratum. With stratification the probability of selection of each unit is, in general, not the same. Consequently, individual observations must be weighted by the inverse of their probability of selection (probability weights or pw in Stata.)

Appropriate use of the weights. Under stratified random sampling, weights should be used when making inferences about the population. Any estimate or indicator that aims at describing some feature of the population should take into account that individual observations may not represent equal shares of the population. Special care was given to correct computation of the weights. It was imperative to accurately adjust the totals within each region/industry/size stratum to account for the presence of ineligible units (the firm discontinued businesses or was unattainable, education or government establishments, no reply after having called in different days of the week and in different business hours, no tone in the phone line, answering machine, fax line6, wrong address or moved away and could not get the new references). The information required for adjustments was collected in the first stage of the implementation: the screening process. Using this information, each stratum cell of the universe was scaled down by the observed proportion of ineligible units within the cell. Once an accurate estimate of the universe cell (projections) was available, weights were computed using the number of completed interviews.

Table A3.1. Chad enterprise survey sample structure—155 firms surveyed

Table 1: Chad Enterprise Survey Sample Structure

153 firms surveyed

Firm Location - Governorate	%	# of Firms
N'Djamena	100.00	153
Firm Size	**%**	**# of Firms**
Small <=19	62.09	95
Medium >=20 and <=99	26.8	41
Large >=100	11.11	17
Total # of Firm responses:		153
Ownership structure	**%**	**# of Firms**
Foreign Owned >=50%	9.15	14
Foreign Owned >=10%	14.38	22
Market Orientation	**%**	**# of Firms**
Exporters >=10%	9.15	14
Non-Exporters	89.73	139
Corperate Form	**%**	**# of Firms**
Shareholding company with traded-shares in the stock market	14.38	22
Shareholding company with non-traded shares or shares traded privately	7.19	11
Sole proprietorship	71.24	109
Partnership	5.23	8
Limited partnership	1.31	2
Other	0.65	1
Total # of Firm responses:		153

Sector	%	# of Firms
Manufacturing	49.02	75
Services	50.98	78
Total # of Firm responses:		153
Type of Firm Establishment (100% ownership)	**%**	**# of Firms**
Private domestic individuals, companies or organizations	108	72.48
Private foreign individuals, companies or organizations	6	4.03
Government or State	n/a	n/a
Other	6	6.04
Total # of Firm responses:		n/a
Age of Firm	**%**	**# of Firms**
< 5 years	9.15	14
Greater than or equal to 5 and less than 15 years	45.1	69
Greater than or equal to 15 and less than 25 years	30.7	46
Greater than or equal to 25 and less than 35 years	10.46	16
Greater than or equal to 35 and less than 45 years	2.61	4
Greater than or equal to 45 years	1.96	3
Total # of Firm responses:		152
Top Manager's Gender	**%**	**# of Firms**
Female	7.84	12
Male	92.16	141
Total # of Firm responses:		153

Chapter 4: Exploring Chad's Opportunities for Exports Diversification[47]

Abstract

- At the micro-level, Chad's export diversification strategy initially requires identifying its non-oil good (or service) opportunities.
- However, Chad is the 8th less product diversified and 2nd most market concentrated economy in SSA; and both ratios have deteriorated over time thus leaving it with small room for manouver.
- One approach to carry on the identification process—the product space–determines the feasibility of any product upgrade option based on its competitive—technology and skills--endowment and its proximity to markets abroad requiring products with similar capabilities for production.
- Chad's competitive products position in the product space—mineral, vegetable and textiles--is very sparse and peripherical, which do little to favor diversification.
- Another approach using measures of product competitiveness—revealed comparative advantage (RCA), complexity and growth export rates--identifies 11 emerging goods.
- The success of making "strategic bets" relies on being extremely selective and on providing the missing public inputs for removing obstacles so as to allow private firmsd to move on their own.
- The short-term focus should be on 5 products where Chad already has strong competitive advantage and job creation potential: sesame seeds, gum Arabic, maize, raw cotton and dyed woven fabric.
- In the medium-term, Chad should also aim to step up its diversification effeorts toward two more sophisticated higher value-added products: textile and agribusiness manufactured products.

4.1 Introduction

48. **Chad is one of the countries with the highest export concentration in the world, which reduces its potential to grow faster**. Studies have shown the strong relationship between export diversification and economic growth (Hausmann et al, 2007; and Hausmann and Rodrick, 2009). However, as seen above (Chapter 2), in 2015 about 94 percent of Chad's export revenues came from just one product: crude petroleum, with the country's exports increasing at a modest average annual rate of 6 percent. This concentration makes the country's growth volatile, while susceptible to price fluctuations and changes in global external demand. Export concentration is no news for Chad: Since the 1970's and before oil was discovered, Chad's exports had been largely dominated by a few primary goods—mainly cotton and other agricultural products. Looking forward, prospects for high growth in Chad requires not only a higher rate of exports growth, arising not just from oil but from non-oil export diversification.

49. **In light of Chad's objective to diversify, it is imperative to assess its potential to move away from exporting mainly oil and low value-added goods.** The underlying export strategy should bring the country to gradually develop more complex (agro) industries that are reasonably within reach of its current capabilities. Hence, Section 2 presents a brief overview of the country's output and export structure, and the economic composition of Chad's exports. Section 3 evaluates their revealed comparative advantage (RCA)--complemented by the product space analysis--to identify on which export products Chad has potential advantages. Section 5 presents options for Chad's opportunities for diversification, with a discussion of the policies that would support developing new tradable (agro) industries.

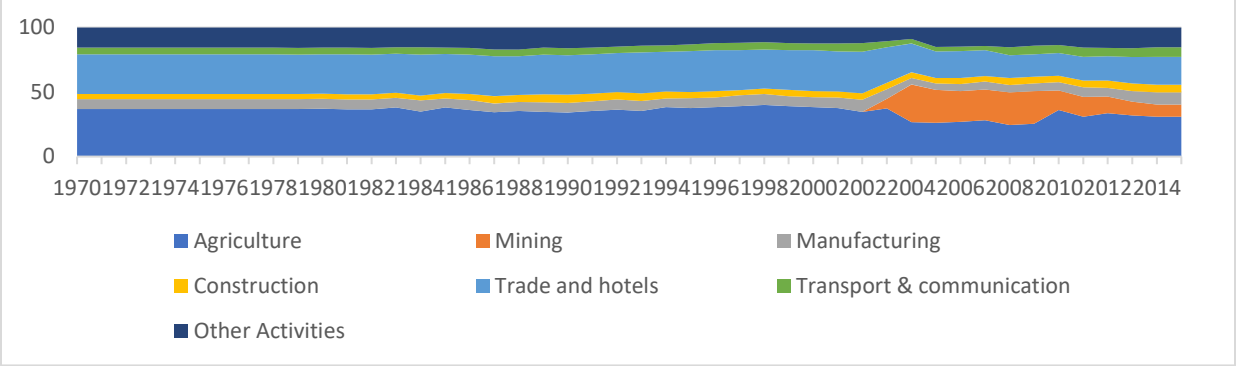
[47] This chapter is based on Khebede (2018), background paper for this study.

4.2 Overview of Chad's Output and Export Structures

50. **Chad's economic structure has not changed much over time.**[48] Since 1970, the main change in Chad's output structure has been the increasing contribution of the mining sector (including oil extraction) and the offsetting decline in the shares of agriculture and wholesale and retail services (Figure 4.1). The share of the mining sector saw its share of GDP increase from just 0.005 percent in 1970 to about 10 percent in 2015, with a pick of 29 percent in 2004. On the other hand, the shares of agriculture and wholesale and retail trade in GDP dropped in the same period, from 37 percent in 1970 to 21 percent in 2015. In the meantime, the share of manufacturing sectors in GDP remained almost the same; while construction and transport made small increases.

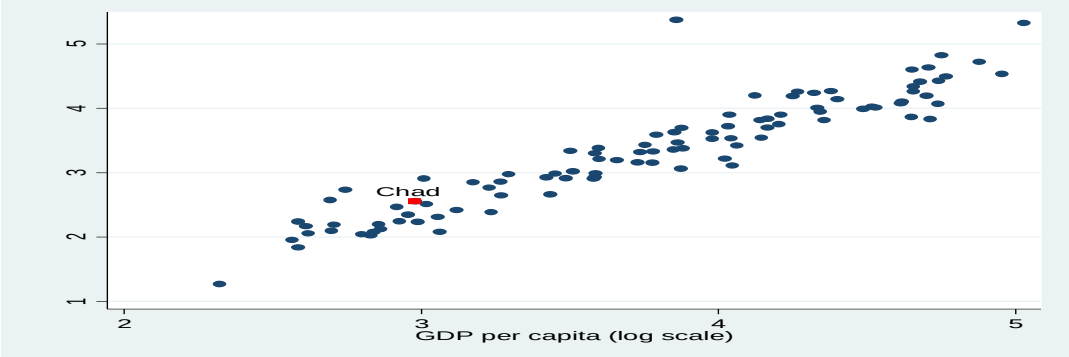
51. **A low export per capita is often associated with a low GDP per capita, and Chad's exports per capita are among the bottom five lowest in the world (Figure 4.2).** A clear lack of dynamism in manufacturing has resulted in Chad's export basket being dominated by primary products (about 98 percent), mainly crude petroleum. Reliance on a single product has made the export sector highly vulnerable to fluctuations in world market prices. Figures 4.3 illustrates the erratic trend in Chad's export growth, largely determined by the price fluctuation and external demand variability. Chad's narrow export base is also the main underlying cause of its large current account deficit.

Figure 4.1: Output structure and diversification



Source: UN National Accounts. Note: Agriculture includes agriculture, hunting, forestry, fishing; mining includes oil; trade and hotels includes wholesale, retail trade, restaurants and hotels.

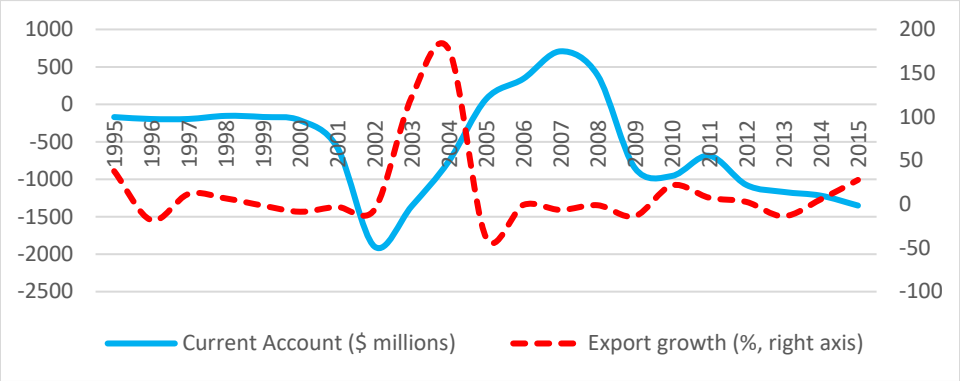
Figure 4. 2: GDP and export per capita, 2015



Source: WDI, UNCTAD and Bank staff calculations.

[48] Output diversification. This index measures the degree of economic diversification based on the trends of the gross domestic product decomposed among seven sectors, for which value-added data are available from national accounts.

Figure 4. 3: Chad's export growth and current account balance, 1995-2015



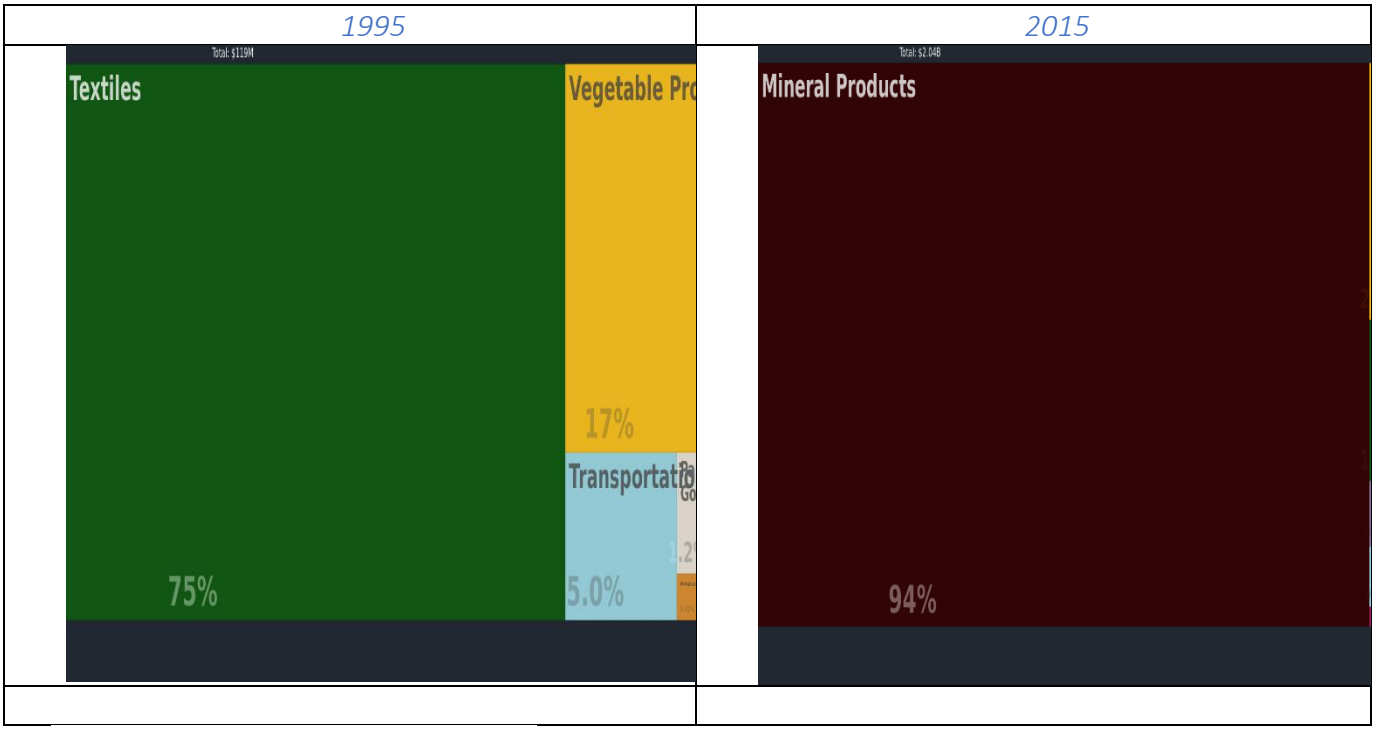
Source: WDI, UNCTAD and author's calculations.

52. **Not surprisingly, Chad's trade composition shows that its exports are dominated by mineral products** (Figure 4.4). Chad's merchandise export basket is dominated by natural resources and other primary products: in the order, Mineral—including petroleum--products (94 percent), Vegetable products (2.5 percent), and raw cotton (1.6 percent). The emergence of petroleum products, which accounted for just 19 percent in 2003 when Chad began oil production, is the main cause of the increase in the share of mineral products in Chad's exports in 2015. This increase was largely done at the expense of cotton and vegetable products, whose share fell dramatically, respectively, from about 75 percent to about 2.5 percent and from 17 percent to 1.6 percent between 1995 and 2015. Overall exports in services accounted for about 12 percent of Chad's total exports in 2015, a substantial decline from their 1995 share of 23.4 percent.

53. **As a result, there has been a substantial shift in Chad's export destinations.** On the one hand, USA has become Chad's main export destination, accounting for 59 percent of Chad's total exports in 2015, largely dominated by crude petroleum (96 percent) (Figure 4.5). Asia, on the other hand, has become the second most important trade partner, as its share of Chad's total exports increased from just 6.5 percent in 1995 to 36 percent in 2015. For its part, India alone accounted for 16 percent of Chad's total exports in 2015, also largely dominated by crude petroleum (97 percent). USA has also become the most important trade partner accounting for 61 percent of Chad's gold exports, followed by India (17 percent), Japan (12 percent), China (4.1 percent), and Italy (2.3 percent). Finally, Europe has lost its importance as Chad's major export partner as its share in Chad's total exports has declined from 86 percent to just 5 percent.

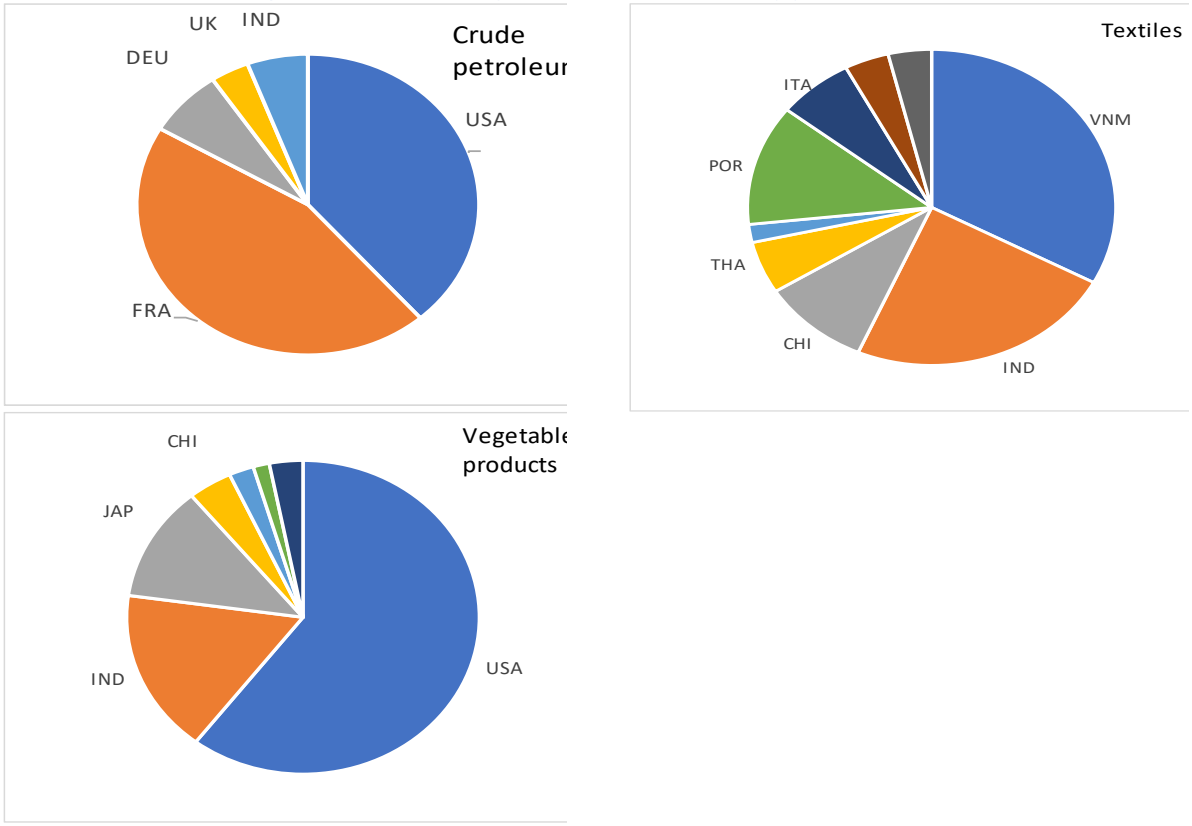
54. **In sum, and compared to peers, Chad is the 8th less product diversified and 2nd most market concentrated economy in SSA**. In fact, Chad's export product diversification index has deteriorated from 0.71 in 1995 to 0.84 in 2015; while still well above low-income and SSA countries average of 0.63; which corroborates that Chad is highly concentrated on very few export products. Similarly, Chad's exports have become more market concentrated, as the index worsened from 0.71 in 1995 to 0.88 in 2015. Chad's market concentration index is well above other low-income countries and SSAs averages, 0.30 and 0.13, respectively. (Figures 4.6).

Figure 4. 4: Chad's exports by product, 1995-2015



Source: Observatory Economic Complexity

Figure 4. 5: Chad's export main destination by product



Source: Observatory Economic Complexity and authors calculations.

Figure 4. 6: Chad's export concentration and diversification indexes

Figure a: Export product diversification index, selected SSA countries, 2015

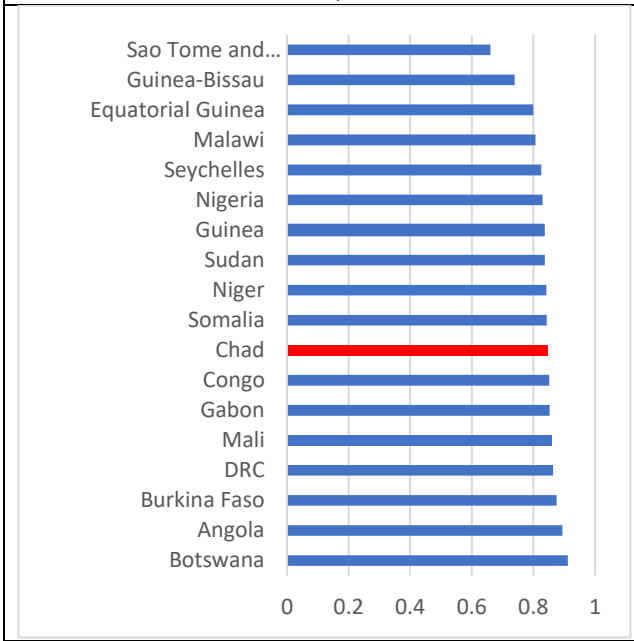


Figure 4. 7: Export product diversification pattern, 1995-2015

Figure b: Export markets concentration index, selected SSA countries, 2015

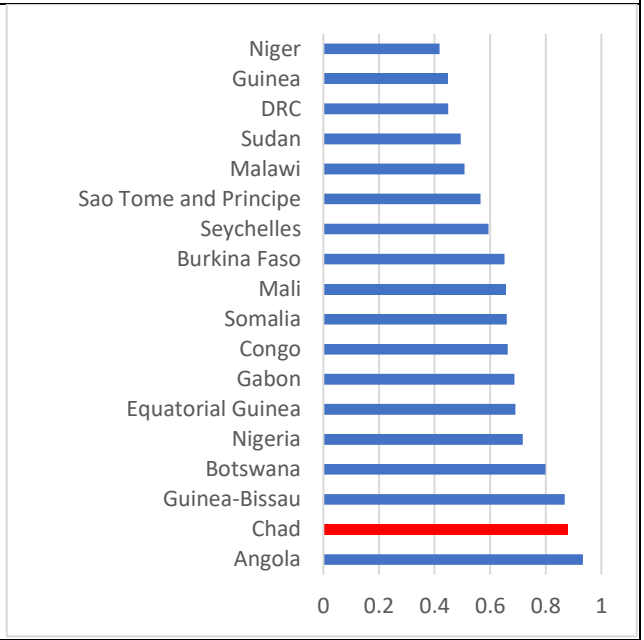
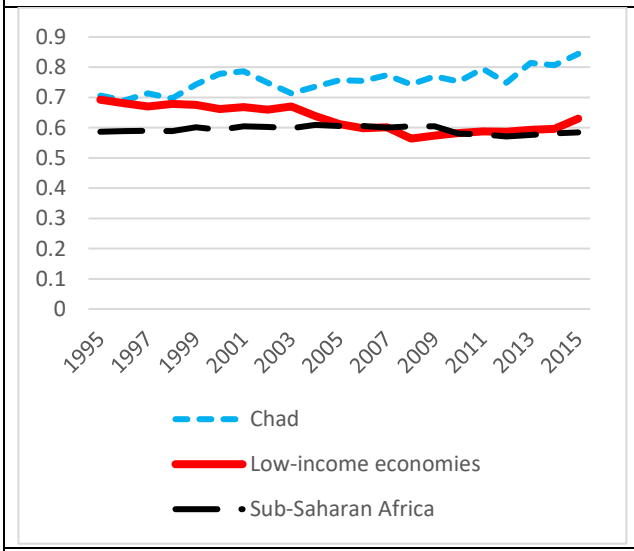
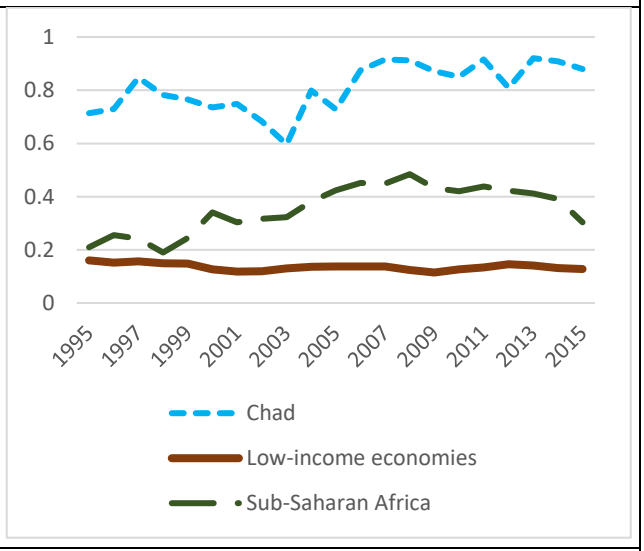


Figure 4. 8: Export market concentration pattern, 1995-2015





Source: UNCTAD database and Bank staff calculations

4.3 Measuring Chad's Export Potential

55. **The two incoming assessments--the country's Product Space and Export Potential--are based on the concept of hidden capabilities.** Countries' productive structures are dynamic interactions of countless economic, political, and social indicators. Some of these can be assessed empirically, such as human capital, availability of natural resources, or governance. Others are much more difficult to define even conceptually. Instead of trying to estimate each factor that influence competitiveness and productivity, the Product Space approach use economic output as a proxy for a country's endowments, i.e. its capability set. If a country

can compete globally with other suppliers, then the country has the skills necessary to produce a given product.

56. **Both approaches use an indicator to estimate the country's ability to *compete* globally known as Revealed Comparative Advantage (RCA).** The RCA is a concept which measures countries' relative competitiveness in exporting different goods. The commodity pattern of trade reflects inter-country differences in relative costs as well as in non-price factors (Balassa, 1986). The advantage of using the RCA index is that it is consistent with changes in the economy's relative factor endowment and productivity.[49] Using sector-level RCAs, it is possible to confirm that in the last two decades Chad has either lost competitiveness across few key sectors (or its competitiveness has significantly deteriorated), except for the Metal and Mineral sectors that have shown marginal gain in competitiveness. The biggest decline is observed in the Textiles and Raw Hides and Skins sectors (Table 4.1).

57. **Then, the Product Space approach add another measure to determine the *feasibility* of different diversification and product upgrade options.** It employs another single metric called *density,* a measure of *proximity* in the so-called worldwide product space. Density allows to determine the relatedness of a potential new industry to a country's existing capability stock, i.e. the goods that a country already exports competitively. In essence, this measure captures the feasibility for a country of expanding to make a new product or service. The underlying idea is that the process of accumulating productive knowledge is not random, but rather path dependent on the existing capabilities: those products that a country produces today define what it may be able to develop in the near future. Hence, a country can easily develop a new product if it already possesses all or most of the capabilities required for production. If the required technology and skills are not yet present in the country, it will be much more difficult to set up the industry locally. In simple terms, it is easier for a country to move from producing chairs to producing couches than from chairs to cars.

Table 4. 1: Average RCA by sector in 1995 and 2015

	1995	2015
Vegetable products	202.4	63.8
Metals	0.3	31.9
Mineral products	0.1	2.1
Animal & Animal Products	3.6	1.6
Textiles	43.3	1.4
Raw Hides. Skins, Leather, and Furs	34.9	0.6
Wood and wood products	3.5	0.1
Stones/Glass	0.9	0.1
Plastics/Rubbers	2.3	0.04
Chemicals and allied industries	0.7	0.02
Foodstuffs	0.4	0.01
Footwear/Headgear	0.1	0.001

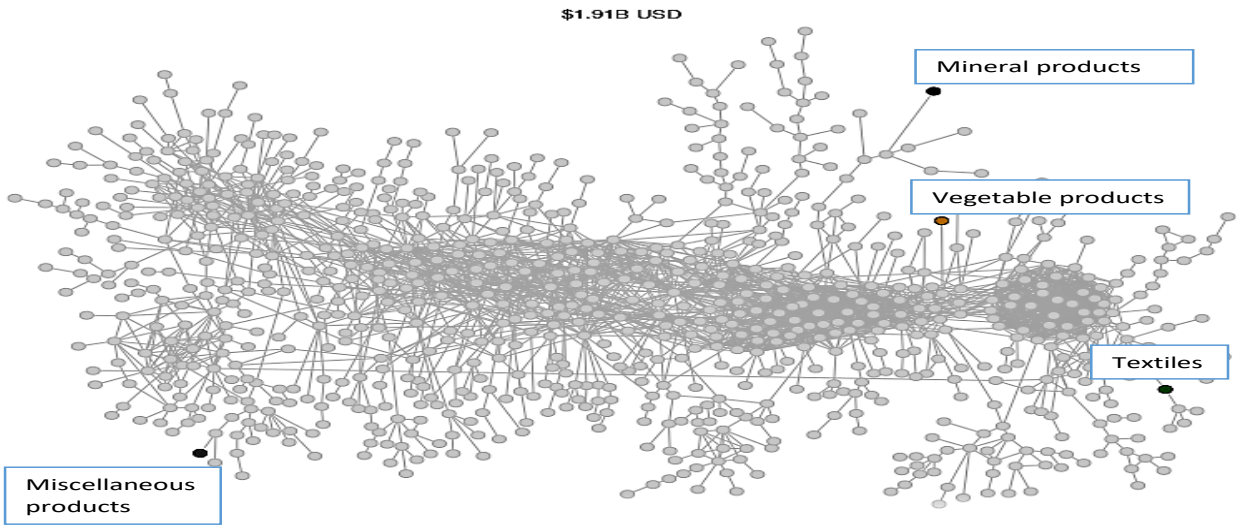
Source: Observatory Economic Complexity and authors' calculations.

[49] A comparative advantage is "revealed" if RCA>1. If RCA<1, the country is said to have a comparative disadvantage in that product or industry. Alternatively, the RCA is often conveniently "binarized", depending whether the country has RCA higher or lower than 1, to indicates whether a country is a competitive exporter (RCA of 1) or not (RCA of 0) in that product.

58. **The Product Space is a visual representation of this network phenomenon for a country.** The Product Space *proximity* determines which products tend to be exported together and are thus interrelated in the productive knowledge they utilize. The resulting relationships between these products are presented visually as nodes connected requiring similar capabilities for production (see Annex A4.1). A country that occupies a well-connected center of the space will be able to utilize its existing capabilities and upgrade more easily than a country whose potential products lie largely in the periphery. Such Product Space network is useful to inform on a diversification and upgrading strategy, as it helps determine how much effort it would take for Chad to develop a given industry. If the potential industry locates in a part of the Product Space that is close to goods where Chad is already competitive, then Chad already possesses many of the required capabilities and could easily develop such new industry. But if the potential industry is far away and not connected to any products that are already established in Chad, i.e. peripherical, then becoming competitive on it would be much harder as it would require the acquisition of many new skills and technology.

59. **Hence, the initial country's position in the product space is determined by the goods it already exports competitively**. In extremis, a country that is competitive in all industries occupies the entire Product Space. In practice, a country like Chad that is capable of exporting only a few industries is present in only a few areas of the network. Hence, a country's location in the product space matters, since the number of nearby products determines how many upgrading and diversification close opportunities are available. Examination of the Product Space for Chad, when compared to Japan and Niger, are in Figure 4.7 and Box 4.1 respectively.

Figure 4.7: Chad's product space, 2015



Source: Atlas of Economic Complexity

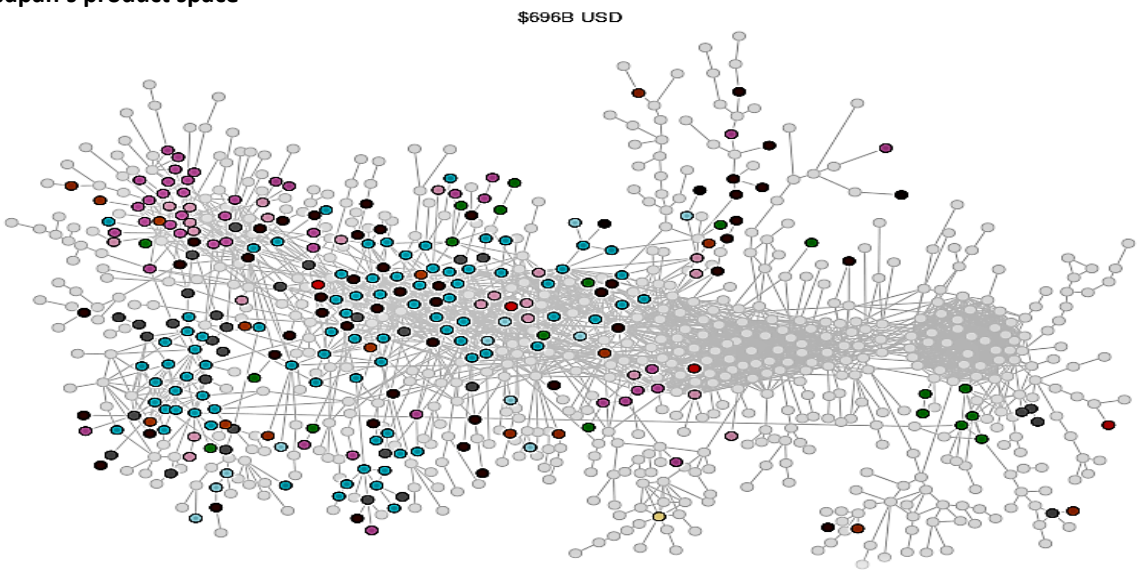
60. **Despite Chad exports very few products with revealed comparative advantage and its current position in the product space is very sparse and limited, the analysis provides some clues as to possible future diversification paths.** In 2015, Chad exported only 11 products with revealed comparative advantage. Furthermore, crude petroleum and textile products, the country's largest export sectors by value, have a peripheral location in the product space (top right and around bottom right), meaning that they do little to

facilitate diversification into other products. Closer to the center-right of the product space are, however, vegetable products exports of maize (corn) flour, sesame seeds and natural Gum arabic.

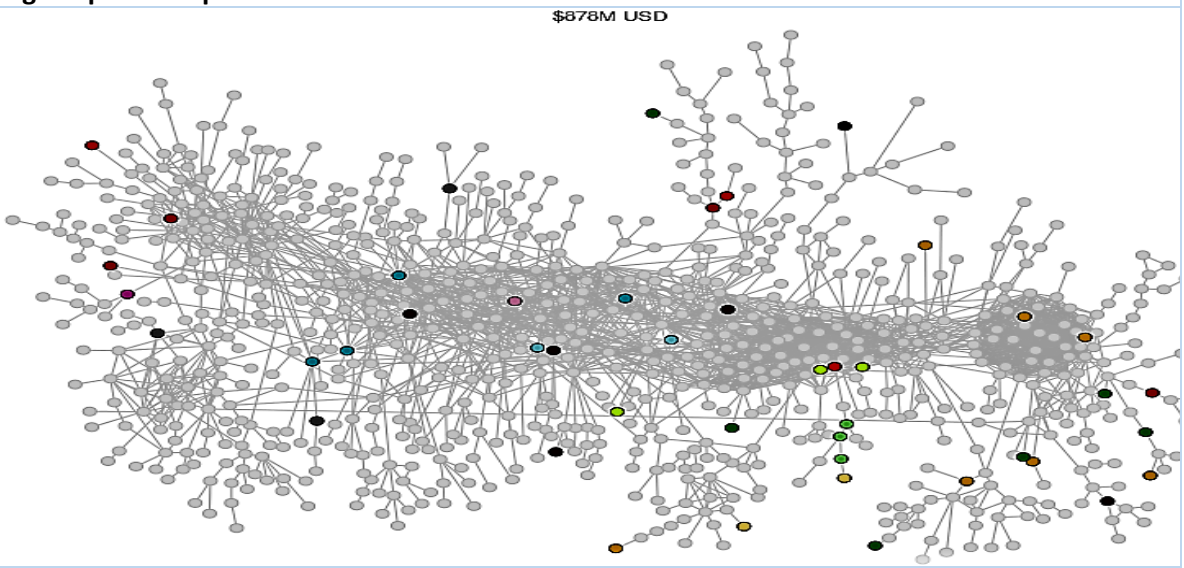
Box 4.1: Japan's and Niger'sproduct space, 2015

There is a clear difference between the product spaces of Japan and Chad. Japan is a highly diversified economy and present in almost every sector. Chad, on the other hand, has far fewer products exported competitively, which is heavily dominated by very few primary commodities. Chad's lack of diversification appears to be an extreme case even by SSA standard, when compared to Niger's (another SSA country that is suffering from lack of diversification). For Chad to become more complex it will need to build upon the capabilities it already has to diversify into new industries.

Japan's product space



Niger's product space



Source: Atlas Economic Complexity

4.4 identifying Emerging Export Diversification Products

61. **Past approaches, based on sector-level measures, still require further disaggregation, which is the purpose of the present section**. Benchmark measures of competitiveness (RCAs) are combined with product complexity,[50] product density (feasibility), and growth export rates (compounded annual growth rates—CAGR--for last 5 years), so as to qualify emerging products (Annexes A4.2-3-4 for technical details).

62. **Initially, Iproduct-specific RCAs are estimated to assess their competitiveness**. In 2015, Chad exported just over 120 commodities (with values ranging from $1,000 to $1.9 billion). Among them, Chad had relative comparative advantage in just 11 of these export commodities. This means that Chad's share of world exports in these 11 commodities is larger than what would be expected from the size of its export value and from the size of such product's world market. In 2015, Chad's highest comparative advantages were in the vegetable products, especially Natural Gum arabic, Sesame seeds and Maize (corn) flour. Besides those aimed at diversification, the list also identifies other highly competitive exports in animal leather, hides and skins, and manufactured--food and textiles--products. Grouped results for all competitive products are presented in Table 4.2.

63. **Animal products and leather.** Chad has very limited export supply of animal products. Only 3 animal products (ivory, leather of reptiles, and hides and skins of reptiles) feature positive RCA. While exports of Chad's leather of reptiles has increased in the past five years. Out of the eleven products in which Chad has comparative advantage, while nine of them grew significantly, exports of hides and skins of reptiles declined by about 33 percent. In contrast, leather of reptiles has increased by over 674 percent on average during the same period. Given the low potential for capability upgrade to new industries (peripheral location in the product space), efforts to enhance this sector would barely help to attain Chad's long-term diversification and capability upgrade. Other products, such as ivory (its powder and waste), in which Chad earned just about $14 thousand in 2015, have also grown by about 100 percent. This indicates that there is an immediate opportunity to expand such sector, even though Chad lacks complexity and connectivity potential to new industries (peripheral location in the product space of such product).

64. **Vegetable products.** Vegetables are the second most important group of exports, with a total export value of around $52.2 million in 2015. Some products like natural Gum arabic, maize (corn) flour and sesame seeds offer feasible expansion opportunities given Chad's existing capability stock and their fast growth rates in the past five years. These three products alone provided export earnings worth more than $51.9 million in 2015. Among vegetables, sesame seeds grew considerably (7,052 percent) in the past few years.

65. **Textiles.** After petroleum oil, cotton is the second most important Chad's export product in terms of income, as it generated about $32 million in 2015. Chad has an attractive opportunity to develop its dyed woven fabrics and wadding of man-made fibers industry, which has the potential to open up further textile products in the future. This can also help reduce Chad's reliance on extractives.

[50] The use of alternative parameters is desirable due to the fact that RCAs contain a bias toward identifying products already exported and well established. Product complexity measures the amount of "productive knowledge" it contains. A negative value means low value-added.

Table 4.2: Chad: Potential products for export diversification

HS-Code	Product description	Export value 2015	Attractiveness (Complexity)*	5Y CAGR	RCA 2015
50710	Ivory, its powder and waste, unworked	$14,070	-1.47	100.0	4.6
110220	Maize (corn) flour	$889,591	-1.16	100.0	17.4
120740	Sesame seeds	$22,000,000	-3.05	7051.5	57.1
130120	Natural Gum Arabic	$29,000,000	-2.28	83.5	625.7
270900	Petroleum oils and oils obtained from bituminous	$1,900,000,000	-2.44	-9.4	19.7
410320	Hides and skins of reptiles, fresh or preserved	$111,089	-1.68	-32.9	2.7
410729	Leather of reptiles, nes	$44,782	-1.55	674.1	1.1
520100	Cotton, not carded or combed	$32,000,000	-2.57	3.1	22.0
551429	Dyed woven fabrics, <85% synthetic fibres + cot	$71,736	-1.07	3800.6	3.8
560122	Wadding of man-made fibres and articles thereof	$254,327	-0.15	37.9	1.8
722910	Wire of high speed steel	$86,620	0.82	100.0	605.7

Source: Observatory Economic Complexity and Authors' calculations. Note: HS-6 code. All products have binary RCA>1. *product complexity as defined in ECI

4.5 Opportunities for Export Diversification

66. **While Chad has very limited opportunities at the moment, under any option, the government should not try to pick forcefully pick all sectors simultaneously on its own and try to overcome the market**. Instead, while a careful selection is advisable, a sound export diversification strategy would emphasize the importance of first learning about cross-sector specific barriers and providing the necessary sector specific public inputs to allow firms to move on their own to identified new activities, while operating on existing activities more productively. In practice, the provision of the missing public inputs requires a government that can identify as many obstacles and opportunities as possible and provide solutions based on informed choices. The success of such "strategic bets" approach would critically hinge upon the quality and depth of public–private dialogue. And once government ratifies the identification of the products that need to target in its short- and medium-term perspective plans, appropriate policies may be devised to facilitate private investment.

Short-term strategy: Fostering existing productive and export capabilities

67. **The short-term focus should be centered on Chad's already existing competitive products (see Box 4.2)**. With the exception of extractive (oil) products, Chad's competitiveness still arises from vegetable and textile products. The short-term strategy should prioritize those 6 products where Chad has strong competitive advantage and also have strong job-creation potential: agriculture products like (i) sesame seeds, (ii) maize (corn) flour, and (iii) natural gum arabic; and agro-light manufacturing textile products like (iv) raw cotton, (v) dyed woven fabrics, and (vi) wadding of man-kind fibers.

Box 4.2: A short-term export diversification strategy

Overall strategy: *The initial focus should be on the products that Chad already has the productive knowledge and relative comparative advantage*. While some of these exports are raw products (like cotton and sesame seeds), other manufactured products (like dyed woven fabrics and wadding of man-made fibers) are feasible given Chad's capability stock. These are within Chad's current reach and fostering and expanding these products will increase manufacturing skills that are a pre-requisite for accelerated diversification into more sophisticated products. This strategy is rather easy to implement and would lay the foundation for acquiring more sophisticated technical skills necessary for large scale manufacturing. Labor-intensive agri-light manufacturing led the economic transformation of many of the most successful developing countries.

Key advantages include:

In the agri-*light manufacturing industries,* agro-processing and textile industries present opportunities for Chad. Country-specific advantages include: (i) low labor costs, and (ii) abundance of natural resources that supply raw materials such as variety of vegetables and raw cotton for the foodstuffs and textile products.

68. **Well-targeted policies require concerted actions to foster and materialize the existing potential of such export products**. Gradually nurturing a higher-value-added export bundle will also enhance the sophistication of Chad's export products, as measured by the Product Complexity Index (PCI). As seen above, currently, Chad's traditional exports have low product complexity. Hence, fostering selected Chad's textile and agro-processing industries can play important role in Chad's industrialization process.

Medium-term strategy: Expanding new higher-value added export opportunities

69. **Learning from best practices, Chad should step up its export diversification efforts in the medium term by targeting a few more sophisticated products (Box 4.4).** Currently, manufacturing products are almost non-existent in Chad's exports basket. Therefore, Chad needs to encourage the upgrading and expansion of small scale enterprises. Light manufacturing in Chad is characterized by a few small-size formal firms providing products to local markets and by a vast number of small, low-productivity informal firms providing low-quality products to the domestic market. These enterprises provide low-paying jobs, little foreign exchange earnings, and few productive employment opportunities for young Chadians. Accelerating Chad's economic transformation would require expanding these firms' productive knowledge beyond existing capabilities. This means that in addition to strengthening their existing product lines, Chad would need to develop a few new strategic products, based on its current productive knowledge, and export them competitively. Being selective is a must, as diversifying into more sophisticated product lines will require highly skilled labor force, and significant investments in infrastructure and logistics.

70. **Unfortunately, Chad's product space clearly shows that the country has a daunting task to address its lack of diversification and create job opportunity.** There are not many manufactured products in the first place that could lay ground as knowledge. If so, this would suggest to first prioritize creating an environment conducive to attract foreign investment, while encouraging domestic investment in key sectors including agro-processing and textile (Box 4.3).

Box 4.3: A medium term export diversification strategy

- *Overall strategy: The most critical challenge for Chad's medium-term diversification is acquiring a sufficiently large pool of local industrial skills/capabilities, which cannot be imported or developed in a short period of time. The previously proposed short-term strategy would generate a selected pool of industrial skills/capabilities that are essential foundations for the production of more complex manufacturing skills necessary to produce more sophisticated manufactured exports.*

This leads to two types of product focus

- *Textile products. Given the availability of the productive knowledge and skills required to manufacture garments (such as, woven fabrics), there is palpable potential for domestic firms to increase their share in the domestic and global clothing markets. A significant labor cost advantage[51] offers Chad the opportunity to expand its textile industry. Foreign direct investment (FDI) could accelerate the process of ramping up production and exports. Chad's potential for expanding its production of high-quality cotton enhances the potential benefits associated with expanded production of high complexity fabrics. Moreover, particular attention should be given to remove the potential constraints on Chad's competitiveness in the textile industry, such as poor trade logistics, low access to credit and high-cost electricity.*
- *Agribusiness products: Developing Chad agri-value chains to export agricultural products (mainly fruits and vegetable oils lies in low wages and suitable condition for key crops. The inability to produce and process agro-industrial commodities has thus far limited the scope for industrialization, while opportunities to add value and create jobs have not been adequately exploited. Attracted FDI may stimulate Chad's agro-industry first by increasing agricultural productivity as well as by minimizing post-harvest losses resulting from inadequate storage, packaging and transport facilities. Overall, to unleash the vast potential of agribusiness, the government should (i) facilitate private sector investments in key input markets, such as fertilizers and hybrid seeds; (ii) pilot in key locations the use of land and cattle as collateral; and (iii) facilitate access to rural land for good-practice investors.*

Box 4.4: Export diversification – lessons learned

Malaysia and Thailand stand out as successful examples of both vertical and horizontal diversifications. The governments of these two countries adopted a dual strategy to upgrade natural resource-based industries (such as palm oil and rubber products in Malaysia and agricultural and fish products in Thailand) and to encourage labor-intensive manufactured exports, most notably clothing and electronics. Agriculture played a key role in their industrialization process, making these countries a successful example of Newly Agro-Industrializing Countries (NAIC). The combined development of traditional (e.g. rice and rubber) and high-value, export-orientated agriculture stimulated the growth of agro-industry. In the case of palm oil and rubber, Malaysia set up specialized agencies to promote production and upgrading, and used the proceeds of production and export taxes to finance research and development investments. Both countries established special zones and licensed bonded warehouses as a means of stimulating manufactured exports and attracting foreign investment. FDI came mostly from neighboring Asian countries (Japan and Asia).

Kenya has sought to diversify away from traditional commodities (i.e. tea and coffee) to processed products (such as preserved fruit and fish products) and to the production of new types of niche products (such as "off-season" and "specialty fresh vegetables" or cut flowers) and new manufacturing (apparel, clothing accessories and leather products). Results have been mixed, however. While Kenya is now the largest African cut-flower grower and one of the biggest exporters of fresh horticultural products, the country has been less successful in manufacturing. The provision of incentives to export-oriented manufacturing firms has failed to sustain export growth. Kenya already emerged in the late 1960s as a supplier of "off-season" fruits and vegetables to the United Kingdom and then to other European markets. Besides the booming trade in fresh horticultural produce, Kenya started to develop cut-flower exports. This industry underwent a major transformation, thanks to foreign investment with the establishment of a Danish company which was granted attractive investment terms. The company brought in capital and expertise to generate considerable spin-offs. Several expatriate professionals left the company and started up their own small flower businesses. In the 1970s, the Horticultural Crops Development Authority managed an experimental program to train smallholding farmers in flower cultivation and to organize their harvest for export. The great expansion of the sector in the 1980s increased the demand for technical assistance, which gave rise to a technical support cluster of specialized service

[51] According to a study on selected African countries, wage levels remain the most important cost element for Africa's competitiveness (Doing Business, 2016).

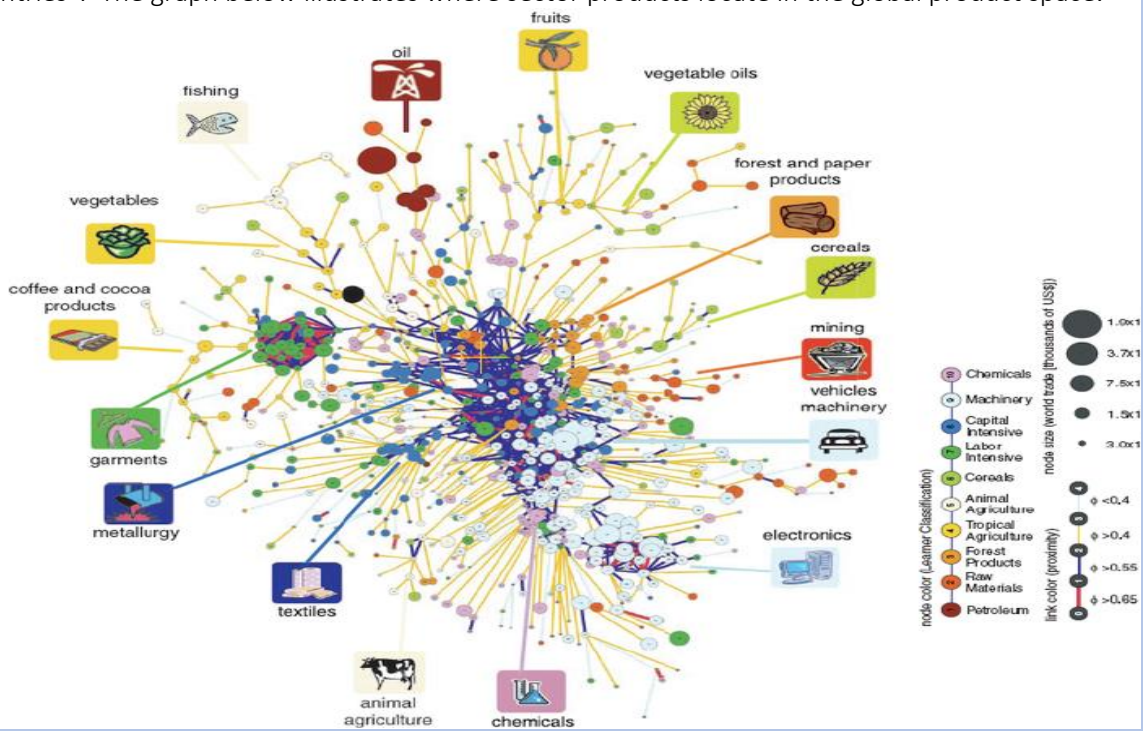
suppliers. Cut-flower exports took-off in the 1990s in conjunction with significant reforms in import procedures, foreign exchange and air freight sectors, improvements in infrastructure and active investment promotion. Historically dependent on foreign capital and expertise, the industry has increasingly seen the emergence of Kenyan players, with significant levels of expertise, to the point that the country is self-sufficient in in-house knowledge and provides business services to other African countries

Uganda: The Lake Victoria fish industry exemplifies both opportunities and challenges with respect to commodity upgrading. Overall, this sector has experienced spectacular growth in recent years. Fishing activities have developed around the Lake since the 1990s, providing today some $200 million per year in export earnings and employing around 200 thousand people. Until that time, large fish stocks were almost unexploited for commercial purposes. Only about a tenth of the fish population of the Lake was sold un-processed on the local market. During the 1990s, responding to an increase in the European demand for fresh water fish, a few Ugandan companies started processing and airlifted fresh Nile Perch in the form of fish fillets. As soon as the sector expanded, problems of quality and phytosanitary standards emerged, due to inadequate chilling equipment, as well as environmental concerns resulting from fish processing waste. Low yields (due to high wastage in fish filleting) and the 1999 EU ban on Ugandan imports due to suspected fish poisoning — leading to a 35 per cent decrease in exports — risked undermining the viability of the sector. The Uganda Fish Processors and Exporters Association (UFPEA) played a critical role in obtaining technical assistance from donors and establishing a reliable fish safety assurance system in compliance with EU standards. UFPEA members invested more than $100 million in the sector. The growth of the fresh fillet sector has spurred the development of side sectors — such as processing of wastage for producing animal feed and fertilizers — as well as downstream sectors — such as the packaging and freight and shipping companies — and upstream sectors with fishermen adapting their techniques to the new quality and organizational requirements set by the industry. Fish exports have also generated spillovers to other sectors, thanks to the improvement of cold storage and freight services. For instance, fish exporters joined forces with flower exporters' ground-handling firms to bring down freight rates and improve freight services at Entebbe Airport.

Sources: Reinhardt (2000) on Malaysia/Thailand, Glenday et al. (2000), Thoen (1999) on Kenya, Dijkstra (2001) on Uganda.

Annex A4.1: The product space of a country

Analogy for the Product Space and capabilities approach: "Think of a product as a tree and the set of all products as a forest. A country is composed of a collection of firms, i.e., of monkeys that live on different trees and exploit those products. The process of growth implies moving from a poorer (tree-isolated) part of the forest, where trees have little fruit, to better (more tree-populated) parts of the forest. This implies that monkeys would have to jump distances, that is, redeploy (human, physical, and institutional) capital toward goods that are different from those currently under production. Traditional growth theory assumes there is always a tree within reach; hence, the structure of this forest is unimportant. However, if this forest is heterogeneous, with some dense areas and other more-deserted ones, and if monkeys can jump only limited distances, then monkeys may be unable to move through some areas of the forest. If this is the case, the structure of this space and a country's orientation within it become of great importance to the development of countries". The graph below illustrates where sector products locate in the global product space.



Annex A4.2: Data Sources

The analysis in this report is based on HS 1992 6-digit data from the BACI International Trade Database (BACI-Base pour l'analyse du Commerce International) spanning 1995-2015. BACI is the World trade database developed by CEPII using United Nations Statistical Division COMTRADE high level product disaggregation. Updates conducted by BACI ensures more accurate reporting of bilateral trade flows, by applying procedures such as reconciling exports with the corresponding imports.

Services are added to our analysis using the COMTRADE and UNCTAD database and are available up until 2013.

Annex A4.3: Technical Specifications

A. <u>Revealed Comparative Advantage:</u>

The index for country *c* and good *i* is calculated as follows:

$$RCA(c,i) = \frac{x(c,i) \Big/ \sum_i x(c,i)}{\sum_c x(c,i) \Big/ \sum_{i,c} x(c,i)}$$

where *x(c,i)* is the value of the exports of country c in the *i'th* good. The index of revealed comparative advantage (*RCAic*) has a relatively simple interpretation. If it takes a value greater than unity, the country has a revealed comparative advantage in that product. Conversely, when *RCA*(*c,i*)<1 that country is not a competitive exporter of that product. (Belassa, 1965) .

B. Product Space density

Density represents the average proximity of a new potential product j to a country's current competitive export (Hidalgo et al, 2007):

$$\omega_j^k = \frac{\sum_i x_i \phi_{ij}}{\sum_i \phi_{ij}}$$

Where ω_j^k is the density of good j for country k. ϕ_{ij} is the proximity between good i and good j, where proximity is defined as the minimum pairwise conditional probability of a country exporting good I given that it exports good j.

C. Fitness and Complexity:

Fitness of *countries* and complexity of *products* are specified as a dynamical system as follows (Tacchella et al, 2012):

$$\tilde{F}_c^{(n)} = \sum_p M_{cp} Q_p^{(n-1)}$$
$$\tilde{Q}_p^{(n)} = \frac{1}{\sum_c M_{cp} \frac{1}{F_c^{(n-1)}}}$$

Where $F_c^{(n)}$ is the Fitness of country c at the n'th iteration of the algorithm. Conversely, $Q_p^{(n)}$ is the n'th iteration of the Complexity of product p. M_{cp} represents the matrix of binary RCA values that indicate whether country c is a competitive exporter of product p. At each step, F and Q are normalized.

Starting conditions for the algorithm are F_c =1 and Q_p =1.

Annex A4.4: Chad: Estimated RCAs for its Full Export List of Products (2015)

Product ID	Product description	Export Value	Share of export (%)	RCA
130120	Natural Gum Arabic	29000000	1.400%	625.6800
722910	Wire of high speed steel	86620.4	0.000%	605.7140
120740	Sesamum seeds	22000000	1.100%	57.0982
520100	Cotton, not carded or combed	32000000	1.600%	21.9693
270900	Petroleum oils and oils obtained from bituminou	1.9E+09	93.000%	19.6892
110220	Maize (corn) flour	889591	0.040%	17.3571
50710	Ivory, its powder and waste, unworked	14070	0.000%	4.624160
551429	Dyed woven fabrics, <85% synthetic fibers + cot	71736	0.000%	3.760170
410320	Hides and skins of reptiles, fresh or preserved	111089	0.010%	2.668300
560122	Wadding of man-made fibres and articles thereof	254327	0.010%	1.766210
410729	Leather of reptiles, nes	44782	0.000%	1.060990
551349	Printed woven fabrics, <85% synthetic fibers +	8556	0.000%	0.749553
730900	Reservoirs, tanks, vats & sim ctnr, cap >300L,	314323	0.020%	0.646214
410130	Hides and skins of bovine animals preserved but	32873	0.000%	0.612020
151610	Animal fats and oils and fractions, hydrogenate	10738.7	0.000%	0.563169
440130	Sawdust, wood waste and scrap (incl. agglomerate.	213693	0.010%	0.526048
130239	Mucilages and thickeners, derived from vegetables	58280	0.000%	0.400421
100610	Rice in the husk (paddy or rough)	51011.7	0.000%	0.396727
271000	Petroleum oils, etc, (excl. crude); preparation	29000000	1.400%	0.391658
611490	Garments of other textiles, knitted or crochete	58617	0.000%	0.348851
270119	Other coal, not agglomerated, nes	811395	0.040%	0.325718
130190	Natural gums, resins, gum-resins and balsams (e	19454	0.000%	0.320647
151919	Industrial monocarboxylic fatty acids;acid oils	129086	0.010%	0.290850
690290	Refractory bricks etc nes	26993.7	0.000%	0.258260
520849	Coloured woven cotton fabrics, with >=85% cotto	20371	0.000%	0.241932
600299	Weft knits or crocheted fabrics, nes	30522	0.000%	0.232892
540741	Unbleached or bleached woven fabrics, >=85% nyl	13217	0.000%	0.217845
392310	Boxes, cases, crates and similar articles of pl	242374	0.010%	0.183433
250100	Salt and pure sodium chloride; sea water	71572.1	0.000%	0.182007
730792	Threaded elbows, bend and sleeves, iron or stee	26115	0.000%	0.168291
481820	Handkerchiefs and cleansing or facial tissues o	75611.1	0.000%	0.143834
390469	Fluoro-polymers (excl. polytetrafluoroethylene)	34424	0.000%	0.130247
701920	Woven fabrics, including narrow fabrics of glas.	34874	0.000%	0.111905
630229	Printed bed-linen of other textiles (excl. knit	1994	0.000%	0.108407
440721	Specified tropical woods (Meranti, etc) sawn le	6131.65	0.000%	0.102529
251400	Slate, crude, roughly trimmed or merely cut	1032.73	0.000%	0.100990
520829	Bleached woven cotton fabrics, nes, with >=85%	6101	0.000%	0.094860
720429	Waste and scrap, of alloy steel, other than sta	18195.4	0.000%	0.086270
700100	Cullet and other waste and scrap of glass; glas	4303.04	0.000%	0.084773
410390	Other hides and skins, fresh or preserved, not	3861.83	0.000%	0.081571
350790	Enzymes; prepared enzymes (not elsewhere specif	48628	0.000%	0.076841
420340	Clothing accessories of leather or composition	1543	0.000%	0.074074
251622	Sandstone, merely cut into a square or rectangu	1511.02	0.000%	0.069353
780600	Articles of lead nes	2531	0.000%	0.064617
720842	Flat rolled prod, i/nas, not in coil, hr =>600m	80169.2	0.000%	0.064602
10410	Live sheep	14112.4	0.000%	0.063958
680210	Tiles etc rect or not >7 cm etc; arti coloured	2074.02	0.000%	0.054226
540239	Textured yarn, nes, nprs	2278.37	0.000%	0.047925
610439	Woman's or girls' jackets, of other textiles, k	2339	0.000%	0.047423
440110	Fuel wood, in logs, in billets... or in similar	2419.32	0.000%	0.042878
710310	Prec or semi-prec stones (o/t diamonds) unwkd o	4250	0.000%	0.041995
600292	Weft knits or crocheted fabrics of cotton	27091	0.000%	0.041633
90240	Black tea (fermented) and partly fermented tea,	18347.1	0.000%	0.040926
722530	Flat rlld prod, as, o/t stainless, in coils, nf	38418.5	0.000%	0.040021
732690	Articles, iron or steel, nes	197736	0.010%	0.038835
200520	Potatoes, preserved other than by vinegar or ac	10277.9	0.000%	0.037959
732399	Table,kitchen or oth household art&parts thereo	15991	0.000%	0.037773
711810	Coin (other than gold coin) not being legal ten	2504	0.000%	0.036155

420500	Articles of leather or of composition leather,	11580	0.000%	0.031072
630399	Curtains and interior blinds; curtain/bed valan	1369	0.000%	0.030317
620333	Men's or boys' jackets and blazers of synthetic	8764	0.000%	0.028623
731822	Washers, iron or steel, nes	7125	0.000%	0.027844
520839	Dyed woven cotton fabrics, with >=85% cotton, n	3050	0.000%	0.027239
691390	Statuettes and other ornamental articles of cer	3338.8	0.000%	0.024024
380992	Finishing agents, etc, of a kind used in the pa	2656.59	0.000%	0.023136
382340	Prepared additives for cements, mortars or conc	4889.41	0.000%	0.022465
10290	Live bovine animals, other than pure-bred breed	21070	0.000%	0.022421
271113	Butanes, liquefied	39466.4	0.000%	0.022396
720843	Flat rlld prod, i/nas, not in coil, hr=>600mm w	7441.08	0.000%	0.022217
350610	Products put up as glues or adhesives for retai	6021	0.000%	0.021002
251749	Granules, chippings and powder of stones (excl.	1006.42	0.000%	0.019726
731816	Nuts, iron or steel, nes	14407	0.000%	0.019578
711790	Imitation jewellery nes	4712	0.000%	0.016614
710813	Gold in oth semi-manufactured forms,non-monetar	85109	0.000%	0.015786
71320	Dried chickpeas, shelled	2461.12	0.000%	0.014879
392490	Household and toilet articles of plastics, nes	13354	0.000%	0.014418
590320	Textile fabrics impregnated... with polyurethan	7820	0.000%	0.014343
540772	Dyed woven fabrics, >=85% synthetic filaments,	3858	0.000%	0.013989
340111	Soap and organic surface-active products in bar	4912.79	0.000%	0.012751
283620	Disodium carbonate	4196.73	0.000%	0.010417
732219	Radiators and parts thereof, iron or steel,	2212.26	0.000%	0.010252
391739	Other tubes, pipes and hoses, nes	4478	0.000%	0.009809
761690	Articles of aluminium, nes, for example casting	14186	0.000%	0.008175
750800	Articles of nickel, nes	1313	0.000%	0.007219
701090	Carboys/bottles/flasks etc for conveyance of gd	8101.82	0.000%	0.007126
253090	Other mineral substances, nes	1145.35	0.000%	0.007073
392690	Other articles of plastics, nes	45697	0.000%	0.006431
490700	New stamps; stamp-impressed paper; banknotes; c	1888	0.000%	0.006247
420231	Articles normally carried in pocket or handbag,	3283	0.000%	0.006056
730449	Tubes, pipe & hollow profiles, stainless steel,	1394	0.000%	0.005885
300490	Other medicaments of mixed or unmixed products,	167514	0.010%	0.004661
392390	Articles for the packing of goods, of plastics,	3933.88	0.000%	0.004444
392321	Sacks and bags (incl. cones) of polymers of eth	5957.5	0.000%	0.004366
330499	Beauty, make-up, skin-care (incl. suntan)	12682	0.000%	0.003702
292250	Amino-alcohol/acid-phenols; amino-compounds wit	1030	0.000%	0.003132
620443	Dresses of synthetic fibres	2685	0.000%	0.003060
340290	Washing and cleaning preparations, not put up f	2216.94	0.000%	0.002991
732599	Articles of iron or steel, cast	1096.94	0.000%	0.002987
330590	Preparations for use on the hair, nes	2656	0.000%	0.002927
401693	Gaskets, washers and other seals, of vulcanized	4078	0.000%	0.002822
640291	Footwear, nes, covering the ankle of rubber or	1230	0.000%	0.001730
392190	Other cellular plates, strips..., of plastics,	2752.27	0.000%	0.001555
481920	Folding cartons, boxes and cases, of non-corrug	1498.19	0.000%	0.001503
420221	Handbags with outer surface of leather, or comp	2171	0.000%	0.001408
600293	Weft knits or crocheted fabrics of man-made fib	1167	0.000%	0.001164
611030	Jerseys, pullovers, etc, of man-made fibres, kn	2775	0.000%	0.000942
731815	Bolts or screws nes, with or without their nuts	2016.97	0.000%	0.000912
220300	Beer made from malt	1067.76	0.000%	0.000620
90111	Coffee, not roasted or decaffeinated	1479.86	0.000%	0.000561
240220	Cigarettes containing tobacco	1226	0.000%	0.000472
640299	Footwear, nes, not covering the ankle, of rubber	1042	0.000%	0.000358
271111	Natural gas, liquefied	1718.48	0.000%	0.000116

Chapter 5: Upgrading Chad's Global Value Chain in Sesame Seeds and Gum arabic[52]

Abstract

- Chad is well positioned for success in sesame seeds and gum Arabic global value chains.
- Given strong competition, as an agricultural seller, the initial step requires densification, i.e. engaging more local actors (firms/farmers) and international players (FDI) in the GVC network strengthening.
- Sesame ranks 7th in world production of edible oil seed crops. Major markets are the Unites States and Europe's food industry, Asia's edible industry and Middle East's food industries.
- Vertical integration of leading firms keeps Chad distant from global buyers and consumption rates, and reduced to supply raw seeds. Firms determine price, quantity and quality.
- Most gum Arabic worldwide is produced in 17 African countries. Chad is 3rd producer worldwide. Only Sudan has entered the processing segment of the chain.
- Agricultural performance in both products has been low and highly variable due to policy failures and structural challenges.
- Policy failures in agricultural policy include overlapping priorities, lack of articulation, no monitoring, scarce or no resources and weak coordination.
- Structural challenges include a generalized set of upgrading needs in all segments of the value chain.
- An organizational upgrading of the value chain requires to tackle 5 objectives:
- Developing institutional capacity to promote industry growth.
- Building reliability by moving toward product certification.
- Improving reliability and efficiency by shifting decisions to the farm level.
- Raising producers' and harvesters' incomes by increasing global demand fo Chadian crops.
- Strengthening linkages between both products projects and complementary infrastructure projects

5.1 Introduction

71. **The sesame seeds and Gum arabic value chains are growing export commodities that can contribute to Chad's economic diversification**. This is a priority, as agriculture is the largest economic sector in Chad, with over 80 percent of the population participating in it; both chains have revealed comparative advantage and can complement more traditional ones, like cotton; and multiple shocks--including social and political unrest--and the oil discovery have contributed to the neglect of the sector in the last 15 years. Only recently, the new *Plan national de développement* (PND), inspired by "*Vision 2030: le Tchad que nous voulons*" seeks to encourage economic diversification and processing in agriculture.

72. **However, upgrading both value chains is not an easy task**. Terms of trade from buyers' in global markets are complex, regional competition is intensifying, and the country's exposure to trade disruptions is high. In fact, in the Global Value Chain (GVC) taxonomy, aside from oil, Chad would partly be considered as an "agricultural seller" (Taglioni and Winkler, 2016).[53] Its typical characteristics are: (i) they are strongly

[52] This chapter is based on Ahmed and Fandohan (2018)'s background paper for this study.

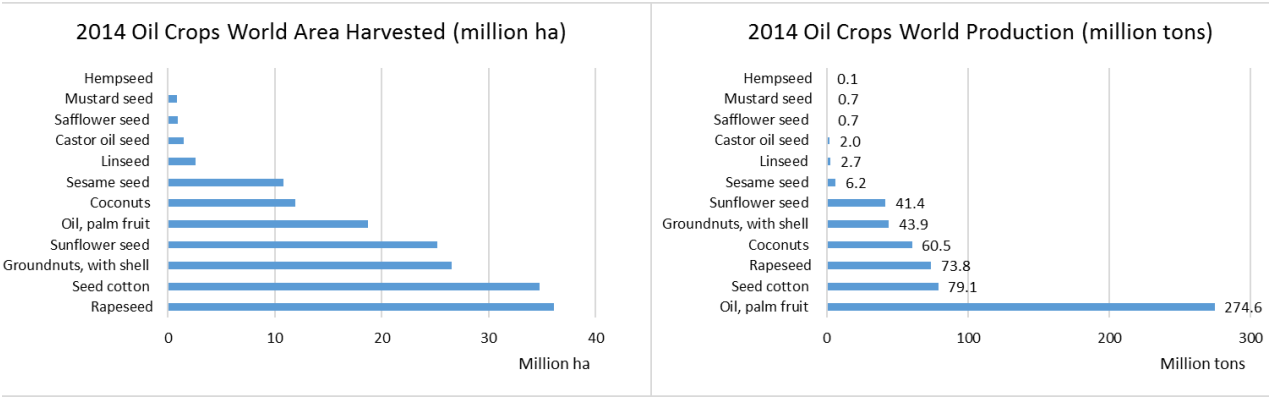
[53] Global value chains refer to the sequence of value-added activities that include the creation, delivery, and end-use of economic sub-sectors, products or services. Agricultural sellers are predominantly specialized in agricultural production. Mostly their production is upstream and they have little foreign value-added content in their own products. Low income countries, including most SSA, are considered agricultural sellers.

integrated into perishables GVCs on the selling side, as this is their obvious market opportunity; (ii) have a negative trade balance gap (import minus export), unless related manufacturing exports develop; (iii) their majority moves toward light manufacturing through agricultural upgrading, even though a minority of countries has rather become more concentrated agricultural sellers (even if expanding artisanal processing); and (iv) their typical upgrading trajectory is to become some type of light agro-manufacturing diversified sellers and/or buyers with a stronger service sector (Taglioni, 2017).

73. **As an agricultural seller, strengthening Chad's participation in global value chains will initially require densification, followed later by a gradual economic upgrading to higher value-added activities**. "Densification" is about engaging more local actors (firms and workers) and international firms (FDI) in the strengthening of the agricultural GVC network. This contributes to the overall goal of increasing a country's value added as it creates spillovers across sectors and resilience to external shocks (likely to increase with greater export orientation). Densification could even mean that performing lower value-added activities on a large scale can generate large value-addition for the country. In turn, "economic upgrading" is about gaining competitiveness in higher value-added products, tasks and sectors; which usually takes longer.[54]

74. **This chapter analyzes the sesame seeds and gum Arabic value chains in Chad to reveal advantage points to develop these commodities and contribute to the country's export diversification strategy**. It provides a brief review of the state of their related industries in global markets. Then, it examines the organization and performance of Sesame seed and Gum arabic value chains in Chad; and finally, based on some lessons from comparative country cases, it formulates the policy recommendations.

Figure 5.1: Global oilseeds area harvested and production in 2014



Source: (FAO 2017)

5.2 The Sesame Seed Global Value Chain

75. **Sesame seeds are part of the edible oil seed sector**. Sesame ranks seventh in the world production and area harvested of edible oil seed crops (Figure 5.1). Trading in sesame seeds reached over 2.5 billion USD in 2015 (AJG Simoes and Hidalgo 2017). The crop grows mostly in tropical and sub-tropical countries, is draught tolerant and grows well in cotton producing areas. Sesame adds value to crop rotation and takes only about 35-40 days to bloom (Ray Langham and Wiemers 2007). The oil content of sesame seeds is high

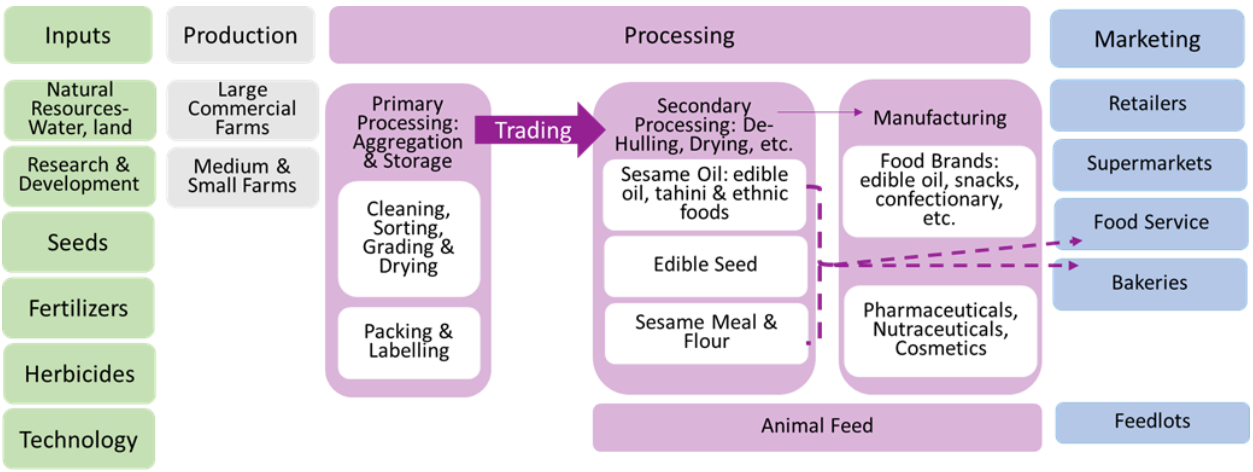
[54] Three types of economic upgrading exist: (i) moving into new and more sophisticated products; (ii) increasing value-added shares in existing GVC tasks with technology; and (iii) moving into new – multi products - value chains with higher value added shares/markets. Thus, Chad's policy makers and private investors would need to decide which type of economic upgrading (products, functional, process, market/chain) they would want to pursue in the future.

at about 50 percent and protein content is about 25 percent, which makes the seeds highly desirable for human consumption and healthy diets. High global demand, particularly from Asia, is driving growth in production especially in Africa. African sesame represents over 70 percent (in volume) of global trade with some African countries experiencing almost 20 percent growth (Fages 2016).

76. **The sesame seed chain has four main segments: inputs, production, processing and marketing** (Figure 5.2). Multinational processors and retailers drive the value chain. The production segments are in developing countries. Processing, branding and retailing is concentrated in developed and emerging economies. Profit margins in the chain vary with brokers making about 0.5–2 percent, importers about 5–20 percent and refiners making over 230 USD per ton (CBI 2017). The highest value in sesame is in the processed and branded products. Large global trading houses and processors such as Olam, Mitsui, Wilmar, Cargill, ADM and COFCO are the lead players in the chain that connect producers to food and industrial manufacturers and retailers.

77. **The sesame seed markets include the United States and Europe's food industry, Asia's edible oil and condiments industries and the Middle East's tahini, snack and bread industries.** Globally, demand for oilseeds will continue to increase while price volatilities will also rise. At the same time, regulation and buyer requirements will continue to become more stringent with an increasing emphasis on food safety, traceability and quality. Producer countries such as India and China are shifting strategies to focus on upgrading in processing and trading segments of the chain while shifting to sourcing raw oil seeds from Africa. Strategic government policy, establishing and enforcing standards, private sector development, education and developing producer and processor organization are some of the key elements to upgrading in the chain to the processing segments.

Figure 5.2: Sesame seeds' global value chain map



Source: Ahmed et al. 2018.

- **Inputs:** The chain requires very little fertilizer and agrochemicals. A balanced commercial fertilizer during planting can help improve production in low fertility areas. There are not any agrochemicals specifically made for sesame and the crop is sensitive to herbicides. Seeds' quality is important for better yields and the quality of the harvest. The plant is drought tolerant and consumes little water. Human picking is the ideal harvesting method. Agricultural services and research are key to develop new seed varieties, improve farming practices, increase yields and develop industry linkages.
- **Production:** Countries enter the chain producing the seed and starting to export it. Small holders as the main growers of sesame seeds. Growers benefit from scale economies in input purchases, logistics and marketing, which makes the role of famer organizations important to achieve this. The crop works well

for rotation after cotton, maize, sorghum and other staple crops. Mechanization is low in harvesting and many farmers only use a machete to cultivate the crop. Good storage keeps low levels of moisture. Sesame farms produce many varieties: white, red, brown and black. Farmers can produce organic seeds. Sesame farmers need good horticulture, mechanical, managerial and market skills. Farmers sell their crops through local markets and intermediaries or traders. Export product quality certifications and niche certifications occur at the farming and processing segments. Organic and fair trade sesame is one of the fastest growing niche markets for buyers in North America and Europe.

- Processing: Countries upgrade by entering the primary processing segment and then exporting or moving the seed to secondary processing for oil extraction, food manufacturing and other industrial processes. Cooperatives and/ or traders are involved in primary processing. Actors in this stage clean, sort, bag and label the seeds for buyers in secondary processing such as food manufacturers and exports. Processors also ensure that the seeds are free from aflatoxins and salmonella, the two major health concerns in sesame production. The seeds are sometimes toasted to increase their oxidative stability for oil extraction. This stage is mechanized and technology applications are important for traceability, quality and meeting standards. Primary processors involved in exports have to ensure that their operations meet international regulations such as HAACP and ISO. Processors have to protect seeds during storage against moisture and pests.

- Marketing. Sudan Ethiopia, Tanzania, Burkina Faso, Mali and Nigeria are the largest producers and exporters. African sesame yields are low at about 150–250 kg per hectare. Factors such as knowledge gaps, poor crop management practices, and use of appropriate technologies contribute to low yields and quality. African countries in the chain grow sesame almost exclusively for exports. Tanzania is the largest producer of sesame globally, while it was barely a small producer in the early 2000s. On the other hand, India and China are shifting from being the largest producers to expanding their processing segments to higher value activities in the chain. China's shift from being the largest exporter in 2005 to one of the largest importers is driving fast production growth in Africa. Lead firms such as Olam and development programs such SNV sesame have been instrumental in raising production and assisting developing countries enter the sesame global value chain (Box 5.1). The company is establishing processing facilities in key producing countries such as Nigeria and more recently Burkina Faso.

Box 5.1: Olam's sustainable villages program

Olam has been instrumental in growing African sesame production. The company ran campaigns educating farmers on how to grow sesame and preserve the quality in the limited infrastructure of Africa and hosted training programs using model farms. This 'Train the Trainer' program helped some countries achieve a CAGR as high as 20%. Olam provided farmers with liquidity in the form of working capital and set them up with end-users.

Production in countries such as Ethiopia and Sudan is continuing to increase. Sudan is the largest producer of sesame in Africa, with more than 2.1 million hectares of production area. In addition, countries such as Nigeria, Burkina Faso, Mali, Tanzania and Mozambique are experiencing a fourfold growth in sesame production in only eight years.

Olam launched the "Sustainable Villages Program" in Nigeria 2011 to improve the yield ratios of sesame production and the deliver a value-based agro-enterprise across the production chain. The crop from this program was channeled to Olam's processing facility in Sagamu, Ogun State. The project involved some 1,500 farmers in 2016 and 39 percent of them were women. Olam trained the farmers on good agricultural practices and provided them with free seeds and inputs such as fertilizer and herbicides. The project revealed a high correlation between farmer education and the yield increase. Olam's program also included farmer quality and traceability certifications, training on sustainable agriculture and investments in education, water and sanitation and infrastructure.

Source: Sharma 2016, Adefeko 2017.

- **Secondary processing.** It usually takes place in importing countries such as Japan, India, China and Mexico to produce sesame oil for domestic consumption and exports. The Middle East and North Africa processes sesame seed imports into pulp, tahini, halva and other branded foods that are exported globally. Over 80 percent of the sesame goes into sesame oil production and tahini based products. The food processing industry is the primary buyer of sesame seed as an ingredient to produce semi-finished and finished products (Box 5.2). Factors such as ethnic tastes, health and consumer preferences are driving demand globally especially in Europe and North America.
- **Marketing**. Climatic conditions are affecting production in the last few years making Asian sesame expensive and shifting production to Africa. Tanzania, India, Myanmar, India, China and Sudan produce 70 percent of the global sesame seed (Table 5.1).

78. **Major sesame seed exporting countries include India, Ethiopia, China, and Myanmar (Figure 5.3). Major importing countries include China, Japan, Turkey, France, Germany, Australia, Brazil and the United States of America (Figure 5.4).** The demand for organically grown sesame seeds is growing worldwide with Germany and Japan providing good opportunities for growth in this segment. For its part, Japan is the world's second largest sesame importer. Sesame oil, particularly from roasted seed, is an important component of Japanese cooking and traditionally the principal use of the seed. China is the second-largest importer of oil-grade sesame. China exports lower-priced food-grade sesame seeds, particularly to Southeast Asia. Other major importers are the United States, Canada, the Netherlands, Turkey, and France. In 2015, trading in sesame seeds exceeded USD 2.5 billion (AJG Simoes and Hidalgo 2017).

79. **Governance in Sesame seeds is an oligopoly in the higher value sesame processing segments of the chain**. Lead firm buyers are vertically integrated and have the technology, finance, and infrastructure, logistical and technical capacity to manage a complex supply chains. Firms, such as Olam, are responsible for the sourcing of sesame and its transformation into intermediate products that meet public and private standards. These firms have an arm's length market driven transaction with their suppliers in Africa based on the price, quantity and quality of sesame, as they seek to increase revenues by reducing prices to their suppliers. In exchange, local exporters generally do not invest in complex upgrading. Their upgrading is limited to primary processing in the cleaning, sorting and packaging of sesame to prepare it for exports. This organization generally keeps African producers distant from global buyers and consumption trends, which deepens information asymmetry in the chain and makes upgrading more challenging. Only recently, Olam has been developing supply chain linkages by collaborating with African producers directly through future contracts or direct farm investment to improve their production and link them to market.

Box 5.2: Sesame seeds applications

Seeds: As a food ingredient in its whole, broken, crushed, powdered and paste forms. Sesame seeds supply the confectionary, edible oils, sesame butter/paste (tahini), cake, flour and food processing industries.

Oil: Sesame seeds contain the highest oil compared to other oilseeds. Unique qualities of sesame oil are stability and resistance to rancidity, with long shelf life due to the presence of the high level of natural antioxidants. Oil is used in cooking, salad dressings, manufacturing of soaps, pharmaceuticals, lubricants, and the personal care (cosmetics, skin care and other consumer products) industries.

Meal: Sesame seeds are rich in protein. Sesame meal contains 35-50% protein and used as feed for poultry and livestock.

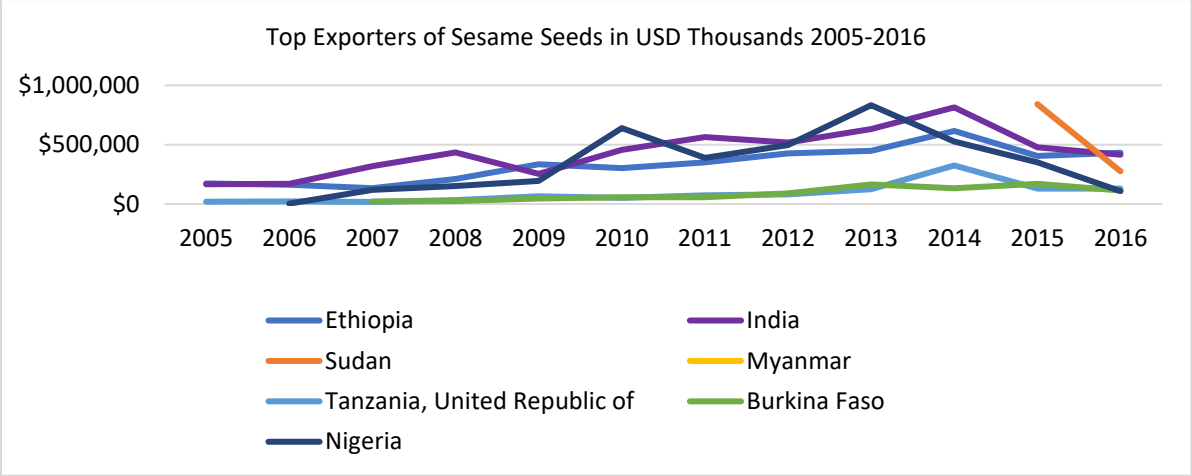
Source: (Government of Gujarat 2017)

Table 5.1: Top ten producers of sesame seed (in tons)

Country	2013	2014	% Change
United Republic of Tanzania	1,050,000	1,138,920	8%
India	636,000	811,000	28%
Sudan	562,000	721,000	28%
China	624,831	632,108	1%
China, mainland	623,492	629,900	1%
Myanmar	539,800	519,400	−4%
Nigeria	584,980	434,990	−26%
Burkina Faso	137,347	321,837	134%
Ethiopia	*220,216*	*288,770*	*31%*

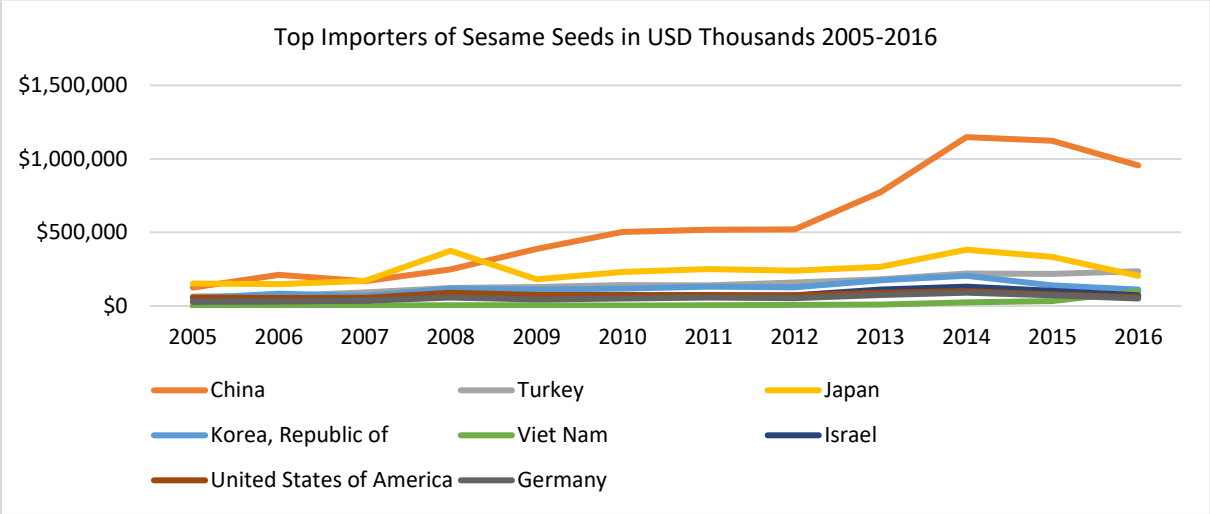
Source: FAO 2017.

Figure 5.3: Top exporters of sesame seeds



Source: ITC 2017.

Figure 5.4: Top importers of sesame seeds



Source: ITC 2017.

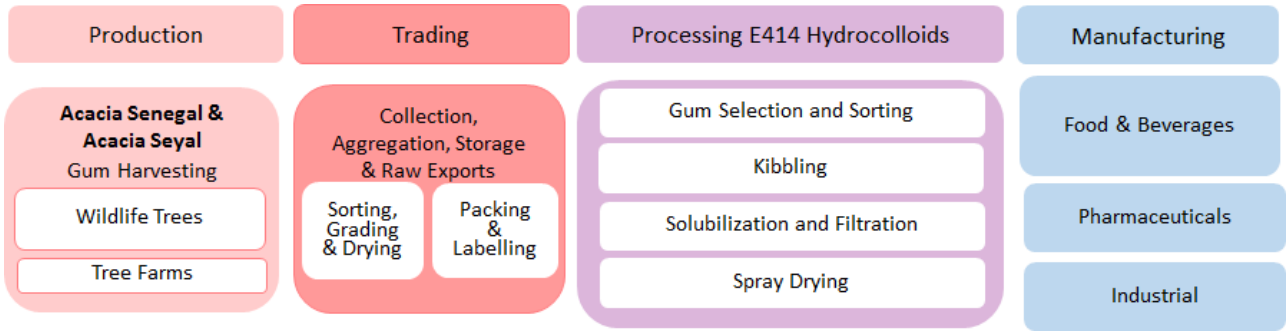
5.3 The Gum arabic Global Value Chain

80. **Gum arabic is a non-timber forest product, part of the hydrocolloids global market**. The gum exudes teardrop-shaped globules from the bark of Acacia trees. Gum Arabic is among the oldest carbohydrate (polysaccharides) used in Africa. The gum is also known as Gum Acacia or E414. The gum Arabic acts as an emulsifiers and stabilizer to control moisture and flavors in many industries including food, beverages, pharmaceuticals and industrial products (Idris and Haddad 2012). The hydrocolloid market is concentrated into a few major commodity processors in Europe and the United States, such as DuPont, Archer Daniels Midland Co., Arthur Branwell & Co., Ashland Inc., Cargill Inc., CP Kelco, Darling Ingredients Inc., Ingredion Inc., and Tate & Lyle Plc. (BCC Research 2016).

81. **The African gum belt in sub-Saharan Africa is the producing and exporting region of crude gum.** Acacia trees are wild. The number of trees and total gum production is difficult to estimate in the gum belt. Gum Arabic exports range between 114,000 and 150,000 metric tons per year. Most Gum Arabic is produced in 17 African countries in varying quantity and quality (14 of these countries are members of the Network for Natural Gums and Resins in Africa (NGARA in 2007). These 17 countries are: Sudan, Chad, Nigeria, Cameroon, Niger, Senegal, Mali, Mauritania, Burkina Faso, Kenya, Ethiopia, Tanzania, Eritrea, Somalia, Zimbabwe, Uganda and Ghana. Sudan is the only African country that has entered the processing segment by investing in research and development, education and deregulation of the sector (Touré 2008, ITC 2018).

82. **The global value chain has four main segments: production, trading, processing and manufacturing (Figure 5.5)**. Countries enter the chain by collecting and trading in Gum arabic. Upgrading in processing and manufacturing segments requires investments in research and development, technology, standards, human capital and infrastructure.

Figure 5.5: Gum Arabic Global Value Chain Map



Source: Ahmed et al. 2018)

- **Production:** There are about 36 varieties of acacia gum. The most important are Acacia Senegal (hashab) and Acacia Seyal (talha) (Fadl 2012). The African gum belt produces about 95 percent of the world's Acacia gum. Sudan is the leading producer followed by Chad, Nigeria and Senegal. The carbohydrate composition of the gum depends on the location, age of the tree, season and tapping. Gum arabic also consists of a small amount of protein which forms an integral part of the gum structure. Acacia Senegal is a higher quality gum and more expensive. The production segment is fragmented where many small holders and pastoralists engage in gum collection. Access to producing areas is usually difficult. Weather and water influence gum season and production. Acacia trees must be at least five years old to produce gum. Small holders tap, collect, dry and clean the gum manually before selling their harvest. Male farmers tap the trees during the fall when leaves start falling. Male farmers

tap the trees using sharp tools such as an axe. After about four to six weeks from tapping the trees, farmers—including women--manually collect the gum. Healthy trees can produce up to five collections every two weeks. Sand and bark is manually removed from the dried gum.

- **Trading:** There are multiple trading channels in domestic, regional and international markets. Primary markets are local exchanges that are accessible to farmers, cooperatives and collectors that supply regional and urban markets. Secondary markets are regional exchanges that supply larger urban markets where big buyers meet. Traders that deal directly with international buyers (processors) have trading power because of a deeply rooted relationship that they developed with buyers. International firms have regional and country level sourcing desks and a well-developed network of traders to secure supply. Large traders buy the gum directly from farmers, collectors and smaller traders in primary and secondary markets to sell in terminal markets. Terminal markets are the central urban markets that also handle exports. These traders are the gum exporters and have contracts with multinational firms with specific quantity and quality requirements. Exporters employ women to clean, sort and bag the gum into 25, 50 and 100 kg bags according to buyers and importing country requirements. Many Sudanese and Nigerian traders source gum Arabic from Chad, which they sell in their own countries to other traders and international customers. International trading firms also trade in other commodities such as spices and other gums. International traders differentiate themselves through certifications and standards such as FDA and organic, processing and the type of international buyers they work with.

- **Processing.** This step involves transforming gum arabic into an intermediate product that goes into foods, beverages, pharmaceuticals and industrial manufacturing. First, the gum is mechanically kibbled or ground to about 0.5 mm to 6.0 mm granules that are water-soluble. The kibbled gum goes through several filtration steps to remove impurities and any type of microorganisms. The filtered gum solution is then pasteurized and sprayed into fine droplets using atomization or hot air to evaporate the water and produce dry gum powder from dry air. Spray dried gum can be used directly in different applications and is a requirement by food and pharmaceutical buyers. The spray dried gum powder goes through an agglomeration process, which causes particles to stick together at a consistent small size making it easier to dissolve (Idris and Haddad 2012). The gum is then packaged, stored and shipped to buyers. Leading processors are large family-owned multinational companies in Europe and North America that have been in business for almost 100 years. Nexira, the French based agro-industrial group, is the largest player. Other lead firms are Alland & Robert (France), Kerry (Ireland), TIC Gums (U.S.A.), Ingredion (U.S.A.), Agrigum (U.K.), Norevo (Germany), and ISC Gums (U.S.A).

- **Manufacturing:** Lead buyers from processors are brand and private label manufacturers including Colgate, Coca-Cola, Proctor and Gamble, Breyers, Nestle, and Haribo. Processors and manufacturers are increasingly under public scrutiny to make their supply chain more transparent, ethical and sustainable. The confectionary and beverage industries are the largest users of the gum as a stabilizer and emulsifying agent. The bakery and other health foods widely use the gum for its film forming and fiber properties. The pharmaceutical and nutraceutical industries use it to enhance coating quality of their products. These applications drive gum Arabic demand in the food and beverage industries. Other buyers include the paper treatment industry, which is increasingly using the gum in paper-coating applications (BCC Research 2016).

83. **Chain governance is characterized by captive and relational market interactions in upstream activities and relational and modular governance structure in downstream activities**. In upstream production, producers are highly reliant on collectors and traders to connect to market. Large traders have a developed network of other traders that also buy gum arabic from producers and collectors. Trading with international

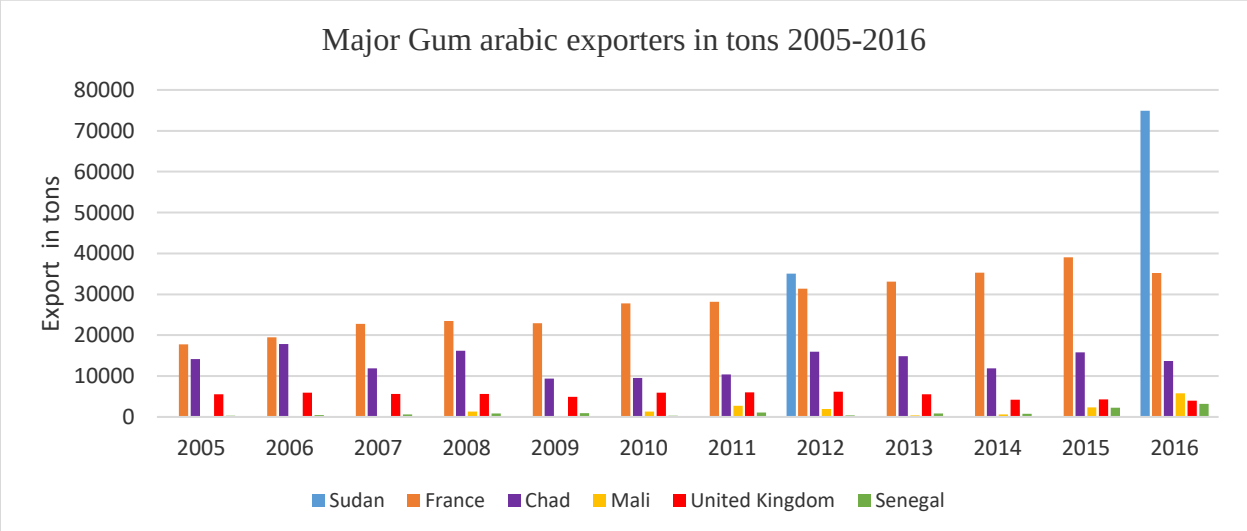
processors is captive and limited to a handful of large dealers that have a long working relationship with global buyers in Europe and North America. Downstream firms are an oligopoly that has the economies of scale, the technology and soft and hard infrastructure to have power in the chain. Generally, transparency in the chain is low and insecurity is among the leading threats to the chain. The chain is fragmented in the production segment, trading is monopolized by large traders and consolidated among a handful of lead firms that are the main buyers and users of gum. Processors are the main link that connect African traders to demand markets. These firms have significant market power and deep relationships with large food, beverage, pharmaceutical, and industrial manufactures. The relationship between processors and buyers is also modular where transactions involve the exchange of specific information regarding product specs and applications. Processors are responsible for the procurement of the gum Arabic, contracts with suppliers, intermediate product development, and delivery to customers.

84. **The chain is sensitive to geopolitical dynamics and insecurity**. For instance, in 1997, the United States government exempted gum arabic from the trade sanctions against Sudan due to the limitations on supply and potential impact on markets. The high value of the crude product contributes to ethnic clashes, tensions with pastoralists, cross border smuggling and other challenges.

85. **Sudan, Chad, Mali, Senegal and Nigeria exported over 102,000 tons of gum accounting for over 95 percent of all crude gum arabic**. Sudan is the largest producer with over 35,000-74,000 metric tons exported annually, followed by France with 17,000-39000 metric tons and Chad with 9,000-19,000 metric ton (Figure 5.6). In 2016, trade in the gum Arabic was valued at about US$361 million.

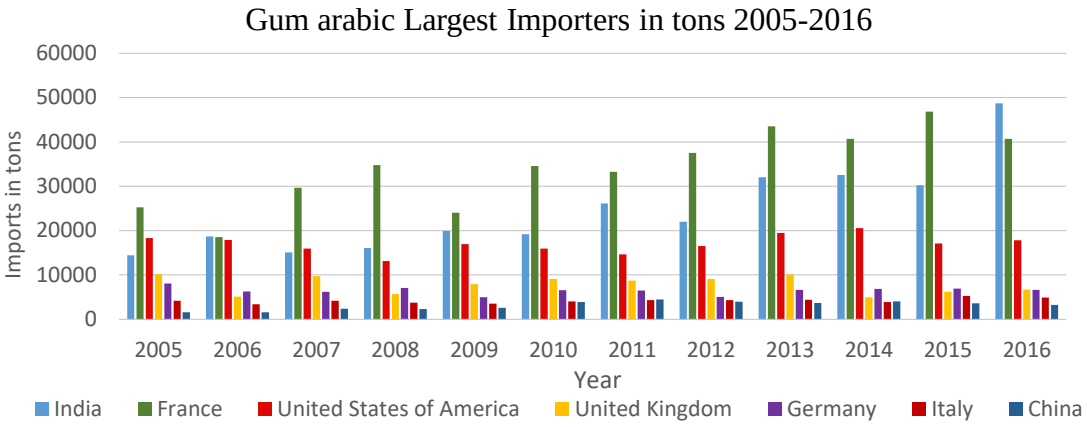
86. **Europe is the largest importing region with about 662,179.00 tons at approximately US$2.45 billion from 2006 to 2016 (Figure 5.7)**. France is the largest importer of Gum Arabic with 384,248 metric tons compared to India with 280,771 metric tons from 2006 to 2016 (ITC 2018). India is growth in imports is an indicator of its growing role in processed foods in global markets. The leading importers by value and in tons are in figures 14 and 15. Between 2006 and 2016, France, the United Kingdom and Germany re-exported more than 40,6840 tons of Gum Arabic, about 85 percent of the world's total. France is the leading importer and re-exporter of Gum Arabic with a high value added that exceeds 80 percent.

Figure 5.6: Leading Global Gum Arabic Exporters 2005 - 2016 in tons



Source: (ITC 2018)

Figure 5.7: Leading Importers of Gum Arabic 2005-2016 in tons



Source: (ITC 2018)

5.3 The Case of Chad--Sesame Seed and Gum Arabic Value Chains

87. **Agricultural performance has been low and highly variable because of policy failures and structural problems.** Five policy pillars guide the agricultural strategy in Chad. These are food security, agricultural production, livestock development, water, and poverty reduction. Their implementation suffers from several problems including overlapping priorities, lack of articulation, lack of appropriate monitoring mechanisms, scarce or no resources and weak coordination. The high variability in Chad's agricultural output reveals that these policies have not achieved their desired objectives. Limited resources is a major issue: The government depends on development aid for policy formulation, coordination and support of public expenditure. The Ministry of Agriculture and Environment (MoAE) and the Ministry of Livestock and Hydraulics (MoLH) are the lead agencies in terms of public expenditure and agriculture policy. Overall agricultural expenditure in Chad is low at about 4 percent of GDP (World Bank 2014). The bulk of such expenditure goes to administrative wages leaving very little room for investments in research and agriculture value chains' development. Agricultural budget allocations depend on the institutional relationships to the ministerial structures without clear objectives or performance standards. Budget sources are foreign loans and grants, petroleum revenues and bank loans. Contraction in oil revenues in the last few years have severely reduced the government's ability to support programs. Rural financial services are very limited and can cost farmers about 25 percent in monthly interest. Informal money lenders are available but are expensive and charge a high interest rate around 100 percent per month (Loening 2010). Farmer organizations in the cotton sector have better access to credit from Cotton Tchad and other subsidy programs than other agri-value chain producers. However, the accumulation of arrears has also increased the number of non-performing loans, which in turn has constrained the banking sector's ability to finance or provide rural credit and private sector loans.[55] Last but not least, and beyond agricultural policy, most of sesame and gum arabic productions are located in the regions of Sila, Logone Occidental and Oriental, Salamat and Chari Baguirmi which face significant infrastructure—water and roads—gaps.

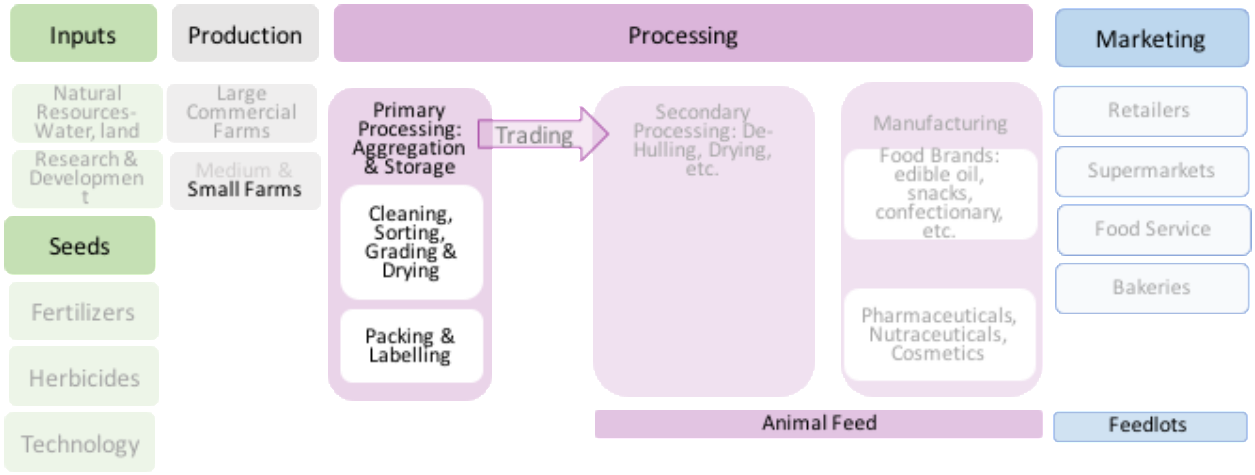
[55] For a full description of Chad's agriculture sector, policy and institutional framework refer to Ahmed and Fandohan (2018).

88. **Institutional shortcomings are also multiple.** International organizations have been the primary vehicle for developing agricultural value chains in Chad. The main Chadian institutions supporting the sector are ITRAD, the Training and Rural Promotion Centers (CFPR), INADES and the Chamber of Commerce, ANNIE and the Ministry of Environment (very limited). These organizations lack the appropriate financial, technical and human capital resources to develop the sesame seeds and gum Arabic value chais. Both value chains have several cooperatives and federations that represent producers and traders but lack permanent technical, market and organizational training.

5.4 Sesame

89. **Chad is a small producer of sesame, but its value chain is undeveloped and disorganized (Figure 5.8).** The country entered the global value chain in the 1990s when the Ministry of Agriculture and the Environment started promoting its production for exports with the sorting of sesame by color and function (USAID 2017). Sesame is a cash export crop that is planted during the rainy season and complements the cultivation of food staples (Conseil 2001, Gergley 2002). The crop has considerable potential for development to address food insecurity and increase the protein content of animal feed. However, the production side of the chain is fragmented among many small holders who have entered the chain but have difficulty at improving their production and market access. Processing to finished and semifinished products is limited to underdeveloped artisanal markets. Actors in the chain are price takers with international demand and regional markets supply driving prices. Informal trade in the chain is dominant and traders command the chain: they can achieve small economies of scale; have access to logistics, buyers and finance; and are active in exports and imports of many food commodities. The successive elements of the chain are examined below.

Figure 5.8: The sesame value chain in Chad



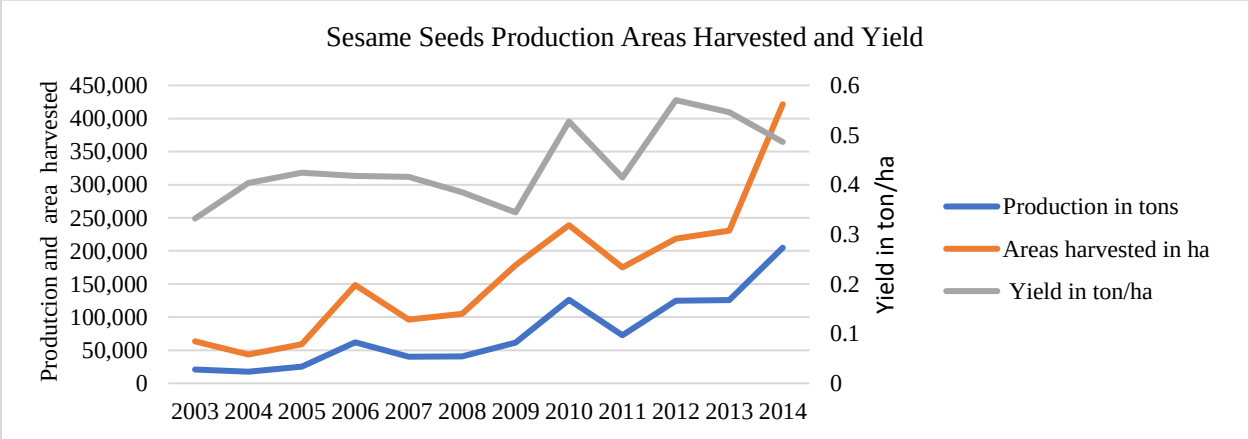
*The sesame value chain in Chad is underdeveloped. Faded value chain segments indicate degree of activity and intensity.

- **Inputs:** Farmers in the chain are not well organized and do not use fertilizers, certified seeds or herbicides to protect their crop and improve yield quantity and quality. Most farmers obtain their seeds from their harvest, which usually bears a mixed variety of sesame that meets acceptable quality. Producers depend on word of mouth to obtain market information about buyers and prices. Only four farmers out of 32 farmers used mobile phones to obtain market information (Ahmed and Fandohan, 2018). None of the farmers are certified and do not understand global and regional market dynamics.

Most farmers sell their crop quickly and only few farmers have storage. Access to credit, storage, market access, and plant disease are among the leading constraints that producers face.

- **Production:** Chad sesame production reached 170,000 tons in 2016, accounting for about 2.8 percent of global sesame production and almost five percent of Africa's sesame (Figure 5.9). Production fluctuates significantly. Yield in Chad is around 5,152 hg/ha; which is below the global average of about 5,778 hg/ha (FAO 2018). Sesame cultivation happens in the rainy season and competes with peanut production. Land preparation and planting takes place from January to August, harvesting in September and October, and storage and marketing from October to December/January (Terra 2015). The Sahelian zone is the main producing region with the largest increases in total hectares and total production numbers. Sila, in the Sahelian zone, is the highest producing area in the country and has the highest yield. Logone Occidental and Logone Oriental are the largest producing areas in the Soudanian Zone and the second largest producing regions in Chad. Sesame producers are small farmers who often switch to sesame production when prices increase and peanut and cotton prices decline. Sesame cultivation represents about 15 percent to 100 percent of the area harvested (Terra 2015). Farmers can operate about 2-50 hectares and form cooperatives to improve the marketing of sesame. About 90 percent of the producers are male, as few female farmers are involved in trading, cleaning and artisanal processing (terra, 2015). Government's support is minimal.[56]

Figure 5.9: Sesame production in Chad



Source: (FAO 2018)

- **Processing:** The primary processing segment of sesame in Chad is small and limited to few traders who are also involved in the Gum arabic industry. Primary processing is minimal and manual to remove foreign matter, sort and bag seeds for exports. Quality standards are limited to seed color and lack of debris. Most cleaning and sorting of sesame occurs in border markets in Cameroon and Nigeria before export. Low quality and quantity is an obstacle to the competitiveness of Chadian sesame[57]. Secondary processing is primarily artisanal transformation of sesame seeds into sesame oil, sesame cakes, and

[56] None of the farmers in Ahmed and Fandohan (2018) sample survey recognized the role of the Ministry of Agriculture as important to their operations and had never interacted with the ministry; while acknowledge the Ministry of Environment's role in relation to export licenses. They recognize, however, the importance of training, quality improvements and market development to improve their production capacity, incomes and market share; also learning about sesame markets and price.

[57] Traders export bags of mixed sesame, which often contain sand and other materials that do not meet quality standards.

tahini. Processors uses manual, mortar and semi-manual methods to produce about 0.5 to 1 liter of sesame oil from 2 kg of sesame. In some cases, sesame seeds are pressed with peanuts to produce edible oil when peanut prices are high. Sesame oil processing is for local consumption. Access to credit, training and packaging are some of the major constraints to sesame oil production. Sesame cakes are a byproduct of sesame oil and are used for animal feed locally and by Nigerian buyers. There is also at least one small tahini and sesame based sweets processor in N'djamena for local consumption (Terra 2015, Ahmed et al. 2018).

- Marketing: Producers sell their harvest in small quantities directly and through cooperatives. Collectors are small traders/resellers called 'mossos'. Collection capacity by intermediaries varies from 600 to 300 bags. They buy from producers in local markets and sell to artisanal processors and other buyers for local consumption. Semi-wholesalers buy and stock the sesame to sell in larger markets. Wholesalers buy the sesame in larger regional markets and N'Djamena. They sort, grade, store and export the sesame. Wholesaler package the sesame in 50 and 80 kg bags. The largest wholesaler exporters in Chad include Seyal Chad, Afrimex, and Africa Gums. Traded sesame is manually and minimally processed (minimally cleaned, bagged and stored). Traders from cross-border markets buy directly from producers and from other local, regional and N'Djamena markets. These traders operate on the behalf of other traders, exporters and international brokers in regional markets. Informal cross-border trading is high which makes it difficult to determine the amount of Chad's regional and global sesame seeds' exports. Traders and cooperatives have tried to coordinate the marketing of sesame but often have faced difficulties. For example, in 2005, farmers and Olam did not agree on the price; ditto when Cotton-Tchad negotiations did not go in favor of Olam in 2017. Similarly, in 2013 and 2014, Madj-Le-Keur cooperative tried to coordinate the sale of sesame with Cameroonian traders at a fixed price of 700 FCFA per bag for 2,000 bags for six facilities, but the buyer was only able to procure few bags for one facility and part for another; and as the local government taxed the sale (10 percent on sale and 10 percent on arrival of bags), the buyer lost interest in completing the transaction (PADL-GRN and Rongead 2013, Terra 2015). Among foreign markets Turkey, Egypt and Greece are the main ones.

90. Sesame production costs and prices vary considerable on factors such as farm size and location on the former, and on season and market location on the latter. Generally, production costs are high and are around 228,800 FCFA per hectare (excluding seed treatment and security costs) which is about $432 USD per hectare (Terra 2015, Ahmed and Fandohan, 2018). In Ethiopia, the lead producer in sub-Saharan Africa, average production cost for small holders amounts to approximately $173-$190 USD per hectare with a higher yield of about 7,927 versus 5,152 hg/hectare in Chad (Temesgen, Gobena et al. 2017). For its part, sesame seed selling price is about 6,000 FCFA per 100 kg. with an estimated average profit margins of 131,200 FCFA for 600 kg of sesame. However, prices vary considerably during the year, from year to year and from one region to another. From late October to early January prices can range from over 400 FCFA to about 550 FCFA per kilo when sesame is readily available (N'Kalo 2017). Prices peak in the summer from June to early September when sesame supply is low. Prices at the wholesale level are about 20 percent higher than at farm gate.

91. The sesame value chain in Chad is underdeveloped, with key actors not organized, fragmented and not competitively linked to markets. Producers are price takers and lack the skills to improve their performance in the chain and capture higher gains. Low investment, opportunistic trading and lack of public support limits gains to short-term profits. Table 5.2 summarizes the leading challenges that stakeholders are experiencing. International organizations have been the primary vehicle for developing the sesame value chain in Chad. The leading international organizations that support the chain are the European Union, and Catholic Relief Services; but they lack the appropriate financial, technical and human capital resources to develop the chain.

Table 5.2: Challenges in the sesame value chain in Chad

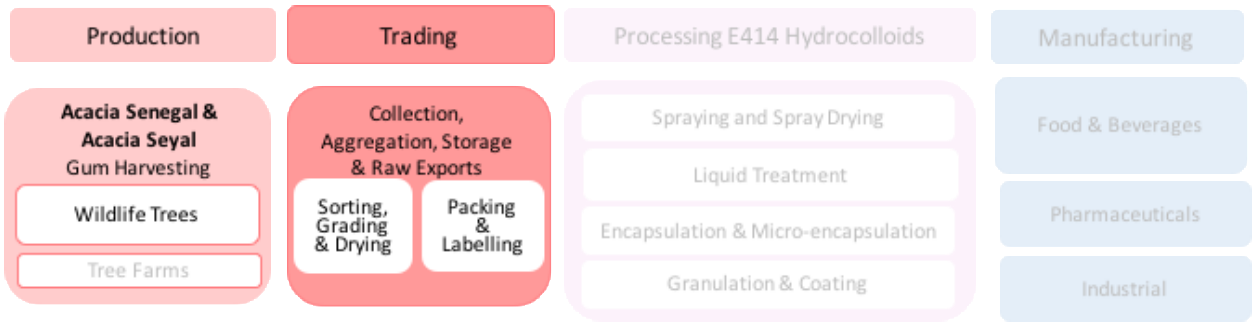
Chain Segment	Challenge	Impact
Inputs	Lack of certified seeds	Low yields and low quality
	Lack of access to fertilizer	
	Water stress	
Production	Low-skilled farmers	Poor farm management, low output, high waste
	Lack of finance	Cannot expand production and manage sales
	Low farmer organization	Low economies of scale
	Pests	Crop loss
Processing	Artisanal	Does not meet export requirements
	Lack of private sector	Lack of actors in upgrading
	Lack of international players	Low chain development
	Lack of finance	Little to no investment in upgrading
Trading	Informal trading	Lower prices and higher leakage
	Traders monopoly	Lower margins for producers Monopoly on price, transport and market access
Policy	Lack of strategy	Low outputs Low quality Cannot attract investments Increase in rural poverty Insecurity threats (food, environmental, etc.) Decreased competitiveness
	Lack of investment	
Services	Lack of research	
	Lack of extension services	
	Lack of finance	
	Lack of hard and soft infrastructure	

Source: Ahmed et al. 2018, based on field interviews in Chad.

5.5 Gum arabic

92. **Chad is the second largest producer in Africa and third largest global exporter of gum arabic after Sudan**. The gum is among the top three non-oil exports (cotton, gum Arabic and livestock). The chain involves about 500,000 to 8 million people who depend on gum arabic for about 15-30 percent of their income. Employment in the sector is mostly in the harvesting, drying, sorting and bagging segments of the chain. Harvesters use very basic manual tools in the collection of gum and most of them received little to no training. The existing gum arabic areas that are exploited seem limited to those most accessible by farmers, often within 20-50 km of the villages (Ministère du Commerce et de l'Industrie and Développement 2014, Rongead 2014). The chain is informal, fragmented and unorganized, and fraught with tensions between actors (Figure 5.10). Governance in the chain relies on a handful of large traders in N'Djamena who are the main link between the Chadian gum sector and international buyers. These traders entered the market in the 1990s and developed relationships with buyers such as Nexira and Kerry. The chain relies mostly on poor agro-pastoralists, who resort to gum collection to increase or supplement their income. Challenges such as water, mistrust, land access and social tensions are across the chain. Its key features follow next.

Figure 5.10: The gum Arabic value chain in Chad



Source: Ahmed et al. 2018.

- **Production:** Producing regions in Chad are Batha, Sila, Chari Baguirmi, Hadjer-Lamis, Guéra and Salamat. Other areas such as Kanem and Ouaddaï have some producing trees as well. Both Acacia Senegal (hashab) and Acacia Seyal (talha) are available. The number of trees is unknown and there is no agroforestry policies to replenish, treat and protect them. Field experts estimate that at the current harvesting rate, Chad will lose its Acacia trees in about 25 years (Ahmed and Fandohan, 2018), leading to tensions between gum pickers, timber harvesters and farmers on the pace of deforestation. Cash needs are the driver for pickers to harvest the gum which is more accessible during the dry season (Ministère du Commerce et de l'Industrie and Développement 2014, Rongead 2014). Families of agro-pastoralists with limited tools are the primary harvesters. Traditional chiefs usually distribute the right to bleed the trees and tools as they see fit. The trees start bleeding when they start losing their leaves. Harvesters then use a flat tool to cut the bark to allow the gum to ooze into globules. The lack of training in collecting the gum leads to mutilating and damaging the trees. Harvesters can usually pick the trees twice in Chad compared to four to seven times in Sudan. Harvesters dry, clean and pack the gum for sale, and are in a captive relationship with collectors and traders. Storage capacity is very low in the harvesting segment of the chain.

- **Trading:** The three key actors in trading are collectors, wholesalers and exporters**.** Collectors link the network of pickers to wholesale and export markets; are unorganized and depend on cash advances from buyers to source the gum. They are responsible for aggregation and transport of the gum to local buyers. Wholesalers and exporters are in N'Djamena, usually have contracts and advance payments from their buyers. Main features are next, based on Ahmed and Fandohan (2018) field interviews.
  Collectors. Many actors participate in the collection of gum including intermediaries, harvesters, local businesses, traders and exporters. They make advance payments; repackage the gum in 100 kg bags and transport it to buyers in other areas. Traders and intermediaries also source the gum directly from pickers, aggregate it and transport it to the wholesalers and exporters in N'djamena and in border areas. There are also seasonal collectors. Collectors' margins vary and sometimes share their commission with sub-trackers. Collectors can make between 2,000 CFA – 5,000 CFA/ 50 kg bag.
  Wholesalers are large traders in urban areas, active in sesame and other commodities. Sanfil is the largest wholesaler in N'Djamena and forms an association that includes actors from Dourbali. Verbal contracts govern transactions between exporters and wholesalers. Traders that work on behalf of international firms transfer cash to wholesalers who are responsible for delivery to the local exporter or cross border delivery of a specific amount and quality of the gum. Profit margins at the wholesale level are considerably higher than those for collectors and harvesters as they assume a certain amount of risk if market prices increase or collectors demand higher prices.
  Exporters are large firms dealing on many commodities and have long relationship with multinational firms. There are four major firms in N'Djamena: SCCL, Africa Gum, Sanimex and Sodex; which are also

the largest importers of food. Exporters sort, grade and package the gum in about 50 kg. bags and ship them to the port of Douala—30 to 45 days--where they are exported to Europe, the United States and other countries. Bolore Africa handles over 30 percent of export logistics. SCCL is the only firm that is exploring upgrading Gum arabic into processing soluble powder, but faces financing difficulties.

93. **Gum arabic production costs and prices vary considerably.** Price and quality information asymmetry is high in the chain, with price-taker producers barely having accurate market price information. Producer costs are low and frequently limited to cash needs. The cost for intermediaries (collectors and traders) is limited to the purchase of gum and its transport to the wholesaler. Exporters, instead, capture the highest margins in the chain. Similarly, a mix of falling quality, low supply and limited wholesaler funding are reducing trading prices. Chad trading prices in April 2017 dropped to 800 FCFA/kg (US $1.31/kg) for high demanded Acacia Senegal. Seyal gum, on the other hand is in good supply in Chad, but its demand is weak. Seyal prices dropped to about 160-200 (FCFA)/kg (US $0.26-0.33/kg) (N'Kalo 2017). In 2018, prices started improving but Chad's supply continues to be uncertain and of variable quality.

Table 5.3: Challenges in the gum Arabic chain in Chad

Chain Segment	Challenge	Impact
Harvesting	Gum collection tools	Low yields and low quality
	Water stress	
	Low-skilled farmers	Poor farm management, low output, tree damage
	Lack of finance	Cannot expand production and manage sales
	Low organization	Low economies of scale
	Pests	High gum loss and lower quality
Processing	No Processing	Lower value exports
	Lack of finance	No investment in upgrading
Trading	Informal trading	Lower prices and higher leakage
	Traders monopoly	Lower margins for harvesters Monopoly on price, transport and market access
	Lack of proper cleaning and standards	Low quality exports
Policy	Lack of strategy	Low outputs Deforestation threats and loss of Acacia Senegal Low quality Cannot attract investments Increase in rural poverty Insecurity threats (food, environmental, etc.) Decreased competitiveness
	Lack of investment	
	Over taxation	
Services	Lack of research	
	Lack of extension services	
	Lack of market information	
	Lack of finance	
	Lack of hard and soft infrastructure	

Source: Ahmed et al. 2018, based on field interviews in Chad in 2017.

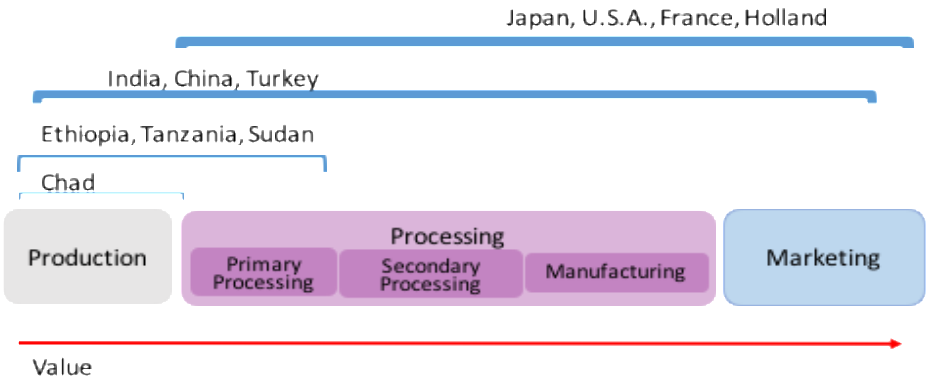
94. **The gum arabic chain is fragmented, but multiple efforts aim to reinvigorate it.** Public entities, traders and wholesalers are the drivers of a few organizations improving management of the industry. The National Agency for Investment and Exports (ANIE), the Chamber of Commerce and large exporters are the organizations involved in the external marketing side of the sector. Table 5.3 summarizes the challenges stakeholders are experiencing. Poor harvesting, collection and handling practices reduce the quality.

Environmental issues such as water stress, tree damage and deforestation threaten the sustainability of the industry. Harvesters are unskilled. Lack of trust, low investment, opportunistic trading and weak public support affects competitiveness, limit profits and preserves potential for conflict among stakeholders.

5.6 Policy Recommendations

95. **Chad has a low position in both the sesame seeds and gum arabic global value chains.** (Figures 5.11-5.12). Chad production volumes in both industries are below their potential and underperforming compared to lead players in the region (Ethiopia and Tanzania in sesame seeds and Sudan in gum Arabic). This implies that the country (i) is only a backup supplier to lead regional exporters; and (ii) is vulnerable to be displaced by regional players in sesame and emerging players in gum arabic such as Mali and Senegal, which would reduce the industries' revenues. Finally, as far as the sesame seeds and the gum arabic crude products are treated as agricultural commodities, Chad will keep exposed to three important market risks including: (i) market substitution, as main buyers are already present in multiple countries across Africa and can shift sourcing strategies quickly to meet their supply requirements[58]; (ii) price pressures, as the price of Sudanese gum Arabic and Ethiopian sesame seeds are reference prices in global markets, and are driven by large buyers in Europe and Asia; and (iii) supply disruptions related to security concerns, mistrust in the chain, or climatic vulnerabilities.

Figure 5.11: Chad's position in the sesame seed global value chain

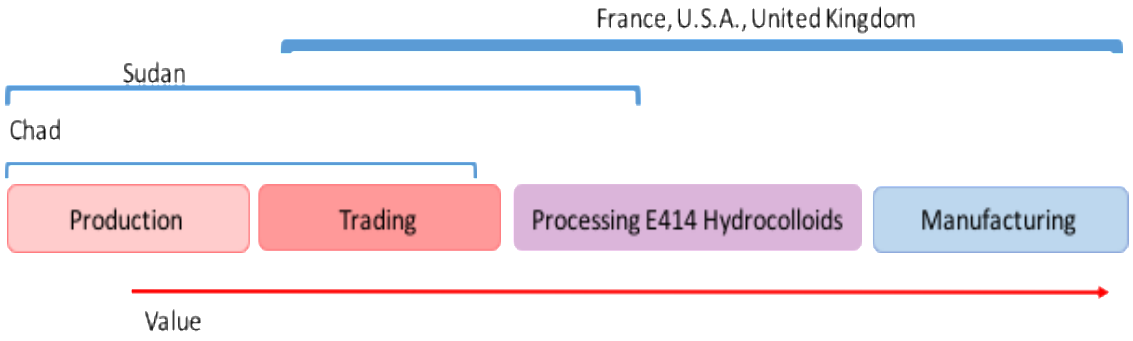


*Line thickness indicates degree of participation in the global value chain.
*Ethiopia and Sudan are Africa's largest producers and are primary processing.
*India, China and Turkey are large primary and secondary processors
*Japan, U.S.A. and Germany, France and Holland are large importers, primary and secondary processors and food brand leaders.

Source: Ahmed et al. 2018.

[58] For instance, as security risks increased in Nigeria, India shifted to importing gum Arabic from Chad and Sudan.

Figure 5.12: Chad's position in the gum Arabic global value chain



*Line thickness indicates degree of participation in the global value chain.
*Sudan is Africa's largest producers and is in primary processing.
*France and USA are among the leading processors and are in the manufacturing segments

Source: Ahmed et al. 2018.

Table 5.4: SWOT exercise in Chad's sesame seeds and gum Arabic value chains

Strengths	Opportunities
• Chad's climate is potentially favorable for sesame • Chad is the second largest producer of gum Arabic • Few players are exporting to key markets • Producers and processors are interested in developing both chains	• Global and regional demand is increasing in high value markets • Stakeholders are keen to improve the sector • International assistance and government support of developing the agricultural sector • Growing sesame exports to Turkey and Olam's interest • Growing exports of gum arabic to India • Physical, language and cultural proximity to Sudan and the Middle East
Weaknesses	**Threats**
• Low aggregate amounts constrain • Low human capital capacity • Lack of data on sesame and gum Arabic • Poor organization and low investment across all segments and actors in the value chain • Insufficient orientation towards quality, certification and traceability • Lack of branding • Non-existent value addition • Producers are not getting the best prices • Misaligned objectives of stakeholders • Misaligned objectives of policy, market realities, state actor and value chain actors • Imbalanced market with fragmented producers and concentrated exporters • Poor research and lack of extension • Deficits in logistics, infrastructure	• The potential for market displacement • Growing competition from gum Arabic belt countries with better enabling environment • Low aggregate amounts constrain exports and upgrading • Informal trading and cross border exports do not reveal Chad's contribution to global trade • High insecurity • Government debt • Weak financial and marketing sector • Low capacity government institutions

- Inadequate sequencing/continuity of aid programs

Source: Ahmed et al. 2018.

96. **A Strengths, Weaknesses, Opportunities and Threats (SWOT) exercise was conducted in December 2017 in N'djamena to understand the opportunities and strengths that producers can leverage to overcome obstacles and mitigate risks (Table 5.4)**. Guiding questions were: (i) Which parts of the value chain segments in Chad need to be strengthened to develop a more favorable environment for stakeholders to develop sesame seeds and gum arabic? (ii) what are the critical elements of success from the external environment? and (iii) what type of 'controls' are needed in the internal environment?

97. **Table 5.6 offer several policy recommendations that are informed by good practices in global and country level value chain analysis and the SWOT.** The government of Chad and international development programs will need to take into considerations the lessons learned from other benchmark countries: Ethiopia and Tanzania (Sesame) and Sudan and Nigeria (gum arabic) (see Table 5.5), as well as its own good experience with Danone (Box 5.4). For instance, Ethiopia and Tanzania developed policies that attracted foreign investments while increasing product quantity and quality and developing cooperatives in the sesame seeds and other agro products. Sudan prioritized the development of gum Arabic by privatizing the industry and investing in research and development, gum collection and drying (See.Box 5.3 as well).

98. **Hence, an alternative model that focuses on developing the production and processing segments of the chain by developing the capacity of producers and reorienting the public-sector institutions to become private sector oriented (centric) is proposed**. Sector development and upgrading requires private sector championship at the producer level by leveraging existing producers that can incorporate quality imporvements. The proposed upgrading strategy prioritizes five objectives: (a) Develop both value chains' institutional capacity to promote industry growth; (b) Build product reliability by increasing quantity and quality; (c) Improve both value chains' efficiency and reliability by shifting industry decisions and coordination to the farm level; (d) Raise producers and harvesters' incomes by increasing demand for Chadian crops; and (e) strengthen linkages between sesame seeds and gum arabic projects to other projects such as livestock and cotton clusters and infrastructure.

Table 5.5 Country comparisons in the sesame and gum Arabic value chains

Upgrading type		Chad	Ethiopia	Tanzania
Process	Production	Low	Lead producer	Lead producer
	Quality, certification	Not available	Low	Low
	Market and trading	Not available	Ethiopia Commodity Exchange	Developing Tanzania Mercantile Exchange
	Institutional and organization of actors	Undeveloped	Early development Sector councils and agencies, public private partnerships and cooperatives	Early development Sector councils and agencies, public private partnerships and cooperatives
Product	Primary processing	Undeveloped	Early development Quality control and certification of exports	Early development Quality control and certification of exports
	Secondary processing	Not available	Low / developing Sesame oil and animal feed	Low/ developing Sesame oil and animal feed

Firms	Lead firms	Undeveloped Traders	Olam, Wilmar, East Africa Holdings	Olam, TATA and ETG
The Gum Arabic Value Chain				
Upgrading type		Chad	Sudan	Nigeria
Process	Production	Undeveloped	Lead producer	Declining
	Quality, certification	Undeveloped	Good quality, certification	Undeveloped
	Market and trading	Undeveloped	Developing	Undeveloped
	Institutional and actors	Undeveloped	Developing Privatizing the sector	Undeveloped
Product	Primary processing)	Very low	Developed Gum collection, cleaning, drying and certifications	Undeveloped
	Ssecondary processing	Undeveloped	Developing	Undeveloped
Firms	Lead firms	Undeveloped Traders	Agrigum, Alland and Robert, Afritec	Undeveloped

Source: Ahmed et al. 2018.

Table 5.6: Upgrading trajectory in Chad's sesame seeds and gum Arabic value chains

Timeframe	Key actions in Upgrading	
Develop the institutional capacity to promote industry growth		
Short Term	Process - First step in the upgrading strategy is to develop the organizational capacity of key value chain actors. Education, certifications, exchange programs, organizational design and market research are key tools.	Develop the capacity of the Chadian sesame and gum arabic Councils to understand regional and global dynamics to improve the sector; rethink the mandate of ANIE toward a PPP promoting exports, and make institutional assessment of existing organizations in both chains towards a more competitive market structure.
		Develop community producer organizations (CPOs) by converting existing cooperatives into production clusters/hub with marketing power
		Develop training capacity of organizations with support from INADES
Short to Mid Term	Policies - Second step is to define tax incentives based on best practices that target production improvements, processing and exports.	Redefine tax, licensing and incentives regimes; and set score-cards to evaluate key performance indicators by beneficiary stakeholders
	Finance - After organizational development. Finance will be tied to CPOs, production improvements, processing and exports.	Redefine access to finance policies by small farmers in both chains and introduce digital finance mechanisms
Build reliability by increasing quantity and quality toward certified products		
Short Term	Product - In parallel with organizational development, Product quality certifications is key as part of export certification requirements.	Develop the capacity of the Chad's Food Quality Controls on global certification and regular training on quality standards

Short to Medium Term	Process – Following organizational development, a need for data collection (number of trees, other agroproducts). Public private partnerships possible with global firms, i.e. Google Earth, Training on GIS technology.	Invest in a GIS system and train ITRAD to update forestry data and expand planting of new trees, taking into account irrigation, harvesting and environmental requirements
	Logistics - Second step in parallel with GIS and product certifications.	Ensure safe transportation from farm to port, and proper wharehousing to meet quality requirements from buyers
Improve value chains' efficiency and reliability by shifting industry decisions/coordination to farm level		
Short Term	Product - Follows the organization of the CPOs above to transform them into production and marketing clusters.	Invest in training CPO pilots to collect and distribute agriculture and market information, and develop processing capacity
	Process -- Follows the organization of the CPOs above to transform them into production and marketing clusters.	Finance storage and processing facilities
		Provide regular training in cleaning and drying of both products
Raise producers and harvesters' incomes by increasing demand for Chadian crops		
Short to Medium term	Product - In parallel with producer training and developing certification schemes	Develop premium market brand products, e.g. organic and fair trade
	Markets - Follows the development of CPOs, ANIE revamping and upgrade of certifications	Participate in global campaign improving reputation of Chadian products
	Upgrading Local Market -- Follows the development of CPOs	Promote the development of artisanal products: soaps, cosmetic or salad dressing sesame oil, etc.
Strengthen linkages between sesame seeds and gum arabic projects to other projects		
Short to Medium Term	Process – After organizational development and revamped institutions, this step relies on the development of market strategies.	Identify infrastructure project clusters for pilot CPOs and engage coordination efforts with ministries/donors in their implementation

99. **Whereas Table 5.6 provides the "what to do", the "how to do it" is also relevant, which would be complementary to the suggested possible sequence of actions on value chains upgrading included above**. Such desirable sequence could be as follows:

i. *Make a thorough evaluation of the potential for attracting specific FDI/foreign firms to support those particular RVCs/GVCs selected*. The list of well identified agri-based firms with experience and interest in Africa is not long and well known, and a dedicated event could address them. Once these are identified, a dedicated and well-planned effort should be done to invite those specific firms to be approached/invited to Chad on those products.

ii. *Design a geo-spatial prioritization of the production areas related to those RVCs/GVCs to prioritize and their needs*. Such design should be linked to (i) the decision on the selection of the strategic trade corridors and their needs in terms of infrastructure/backbone services/Customs procedures simplification); and (ii) the identification of the infrastructure gaps required to support the production and marketing of the products selected.

iii. *Fill the key gaps in the entire value chain upgrading* (read Table 5.5): training in technical standards, key business regulations to eliminate/simplify, etc. The key point here is to identify the minimum set of "gaps" that require to be filled in the short and medium term.

iv. *Design and implement a renewed export promotion policy*. It should be led by a renewed ANIE, in tandem with fiscal space available, and supported by new policy instruments (matching grants, digital money, online markets search, etc.).

v. *Materialize external donors' support to selected GVCs development needs*. Donors can provide not only financing to new players, but fill market failures and provide guarantees to encourage private sector participation.

Box 5.3: Learning from best practices worldwide on process and product upgrading

The Michoacán Avocado Cluster. The Mexican Ministry of Agriculture has empowered producers organized in regional committees and local phytosanitary boards to implement and monitor their own phytosanitary policies and programs. The fact that these boards composed mainly by small farmers are competent to issue phytosanitary certificates to export avocado, gives them control over the marketing of their produce. According to Aguirre and Medina (2006), this has been possible thanks to the high degree of organization of avocado producers and their willingness to comply with export quality and safety standards, and the support of the public authorities (Galvez-Nogales 2010).

Gum Arabic Quality System and Private Sector development in Sudan. As one of the key countries in gum Arabic production and marketing, Sudan has a well-established grading, system for gum Arabic. The grading system provides an important reference point to determine the value of the, harvested gum and provides the basis for proper pricing. There are six main grades and the most expensive grade is grade 1 which is hand-picked-selected or HPS (Selected Sorts); the cleanest, lightest color, uniformly shaped, medium sized nodules. Source: (Tahir and Vishwanath 2015). There are now several private sector processors in Sudan. The Khartoum Gum Processing Company and several other small processors are spray dried and kibbled gum. More recently, the government announced investments by US firms in the industry. In 2017, the largest gum drying facility opened and has the capacity to spray dry 5.500 tons that is worth 37 million dollars. The facility is affiliated with Dal Food Industry Group, Sudan's Coca Cola bottling company and the largest food and beverages manufacturer. The factory includes dried milk operation (All Africa 2017).

The Indian Oilseeds and Produce Export Promotion Council (IOPEPC). IOPEPC is mandated for the development and promotion of exports of oilseeds, oils and oilcakes, Indian Oilseeds and Produce Export Promotion Council (IOPEPC), erstwhile known as IOPEA, has been catering to the needs of exporters since last six decades. Besides focusing on exports, the Council also works towards strengthening of domestic supply chain by encouraging farmers, shellers, processors, surveyors and exporters to enhance the quality of oilseeds in India. A Chairman heads the council. The Council places higher emphasis on development of oilseeds, edible oils, oilcakes and other products under its purview. The Council works towards improvement of yield and quality of oilseeds being produced in India to match the requirement in global markets. The importing countries are always concerned about the Aflatoxin (in case of groundnut), pesticides residues and other chemical and microbiological contamination in the agricultural products being supplied by other countries. The Council organizes various activities (such as workshops, distribution of pamphlets) to create awareness amongst the farmers to control Aflatoxin and use safe and permissible pesticides at the farm(India 2017).

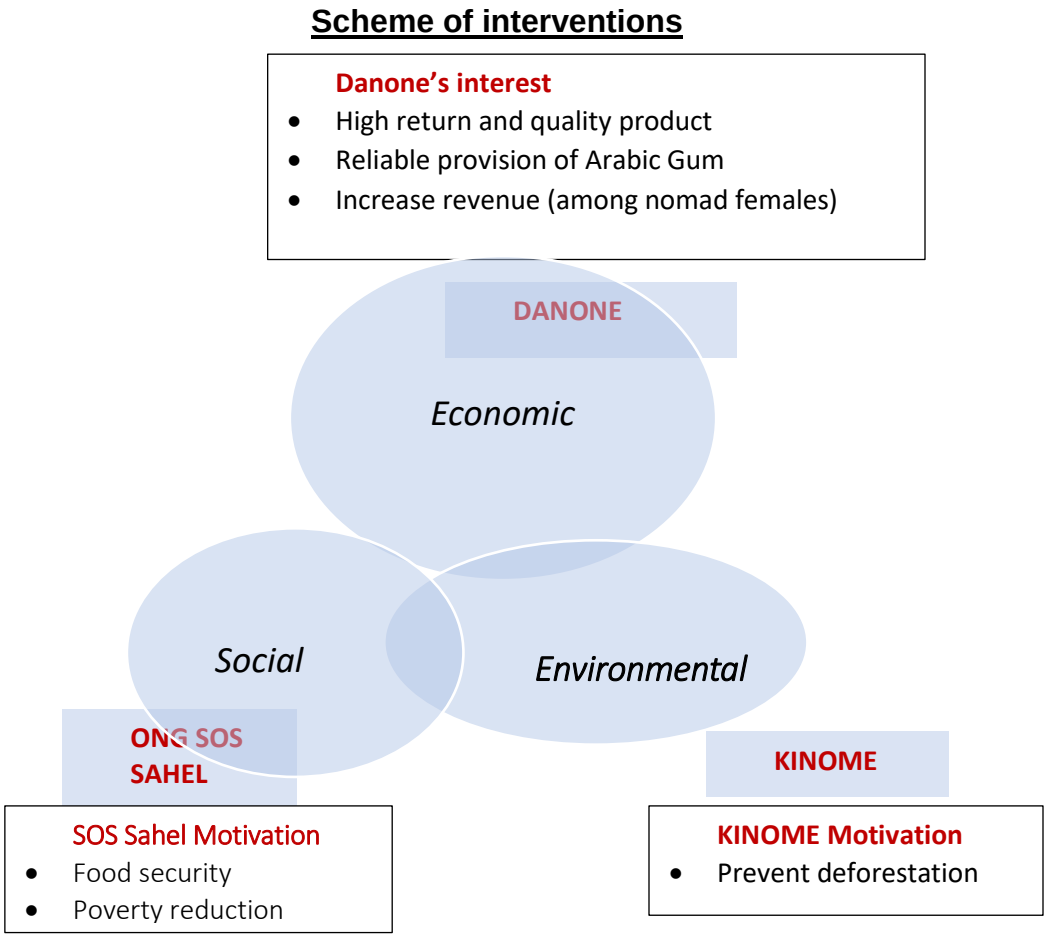
The Case of AgroCenta in Ghana. AgroCenta was founded by two ex-esoko employees, Francis Obirikorang and Michael K. Ocansey in 2015 to improve the agricultural value chain in Ghana. Two critical problems within the value chain, which are the lack of an access to market for smallholder farmers in the rural areas, which subjected them to activities of exploitative, buying from intermediaries and the lack of a coordinated truck delivery system to cart their commodities from farms to markets to sell. Once a farmer gets offers from interested buyers, the problem of logistics and transportation were sorted using AgroCenta's patent TrucKR solution that allowed the smallholder farmer in any remote village in Ghana access trucks at the click of a button. You can call it the Uber for trucks. AgroCenta is changing the very lives of smallholder farmers by using technology to solve problems they encounter in agriculture (AgroCenta 2018).

Argan oil in Morocco. The product that was traditionally used by women and sold locally has become in a very few years a worldwide famous product. The distribution of hand-pressed argan oil is done by the

women's cooperatives, the Union of Women's Cooperatives of the Arganeraie (UCFA). The part which is not self-consumed goes to the local market is ordered by urban end producers, grocers, informal street traders or sold to small private companies in the tourist centers such as Agadir and Essaouira (Nill et al., GTZ, 2006) (Benni and Reviron, 2009).

Box 5.4 How Danone, Kinone and SOS Sahel brought market solutions to gum Arabic in Chad

In 2009, a pilot Gum Arabic project was introduced by Danone, Kinone and SOS Sahel.[59] The objective of the project was to introduce Arabic Gum extracted from Acacia Seyal into Danano's yoghurts, thus replacing one of its chemical components. The project would have 3 main benefits: *economic*, as it would contribute to reduce poverty among Chadian collectors; *environmental,* as it would contribute to valorize the Acacia tree and its conservation; and *social*, as it would contribute to valorize women's empowerment and access to water, critical for production. The project is ongoing in 4 regions: Hadjer Lamis, Bata, Chari Baguirmi and Guera. Its most important difficulties have been facilitating access to basic services (water, electricity…), increasing low returns for the collector, when the collection area is far from water provision and the marketing center, and the nomad character of the female population participating in the collection areas.



[59] Danone is a French global leading firm in agribusiness products specializing in milk, bottled water and medical nutrition products; Kinome is a French social enterprise firm working on deforestation prevention; and SOS-Sahel is an international NGO focused on food security in Africa.

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