



CHAD

SELECTED ISSUES

July 2019

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CHAD

SELECTED ISSUES

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CONTENTS

NON-OIL GROWTH IMPEDIMENTS IN CHAD: CRISIS LEGACIES AND STRUCTURAL WEAKNESSES	3
A. Background and Recent Developments	3
B. Crisis Legacies	5
C. Long-Term Structural Weaknesses	9
D. Reforms to Diversify the Economy and Unlock Sustainable and Inclusive Growth	13
References	16
FIGURES	
1. Background	4
2. Non-oil GDP, 2014–19	5
3. Stock of Domestic Arrears	7
4. Crisis Legacies	8
5. Non-oil GDP Growth, 2019–24	9
6. Physical Capital	11
7. Human Capital Index, 2018	12
8. Business Climate	12
9. Financial Inclusion Indicators	13
10. Exports Diversification and Growth Volatility	13
11. Indicators of Oil Dependence and Diversification	14
GOVERNANCE IN CHAD: MACROECONOMIC IMPLICATIONS AND POLICY PRIORITIES	17
A. Introduction	17
B. The Macroeconomic Implications of Governance and Corruption	17
C. Fiscal Governance	21
D. Oil Sector Oversight	22

E. Anti-Corruption Framework	26
F. Conclusion	27
References	28

BOX

1. Estimated Impact on Growth of Enhancing Governance and Reducing Corruption	19
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FIGURES

1. Governance and Corruption Indicators	18
2. Governance and Tax to GDP Ratio	22
3. Estimates of Chad's Tax Potential	22
4. Oil Revenue Flows, end-2018*	24
5. Distribution of Government Government Oil Exports Revenues in 2017	25
6. Distribution of Government Government Oil Exports Revenues in 2018	25

SOCIAL SPENDING AND DEVELOPMENT OUTCOMES IN CHAD 29

A. Introduction	29
B. Development Outcomes in Chad	30
C. Social Spending in Chad	31
D. Meeting the Sustainable Development Goals in Health and Education	33
E. Conclusion	35

FIGURES

1. GDP per Capita, PPP	30
2. Maternal Mortality Ratio	31
3. Literacy Rates, Adult and Youth	31
4. Public Spending on Health and Education	32
5. Doctor and Primary School Teacher Ratios	32

TABLES

1. Human Development Index	30
2. Costing Estimates for Meeting the SDGs in Health and Education	34

ANNEX

Sustainable Development Goals and Methodology	36
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NON-OIL GROWTH IMPEDIMENTS IN CHAD: CRISIS LEGACIES AND STRUCTURAL WEAKNESSES¹

Chad, which became an oil producer in the early 2000s, was strongly impacted by the 2014/15 oil price shock. After three consecutive years of recession, signs of stabilization became evident in 2018, and Chad is gradually recovering. However, non-oil growth is still weak, and non-oil GDP is far from having recovered to its pre-crisis level. It has become apparent that Chad's economic activity is being held back relative to other Sub-Saharan African countries. This chapter explores non-oil growth impediments in Chad to better understand why the Chadian economy has not sufficiently rebounded from the crisis. It discusses how the economy is held back by crisis legacies such as high public debt and a fragile banking sector and how Chad continues to face long standing structural weaknesses which hamper potential growth. The chapter ends with a discussion of how Chad's economic potential will require reforms to address those weaknesses to foster economic diversification.

A. Background and Recent Developments

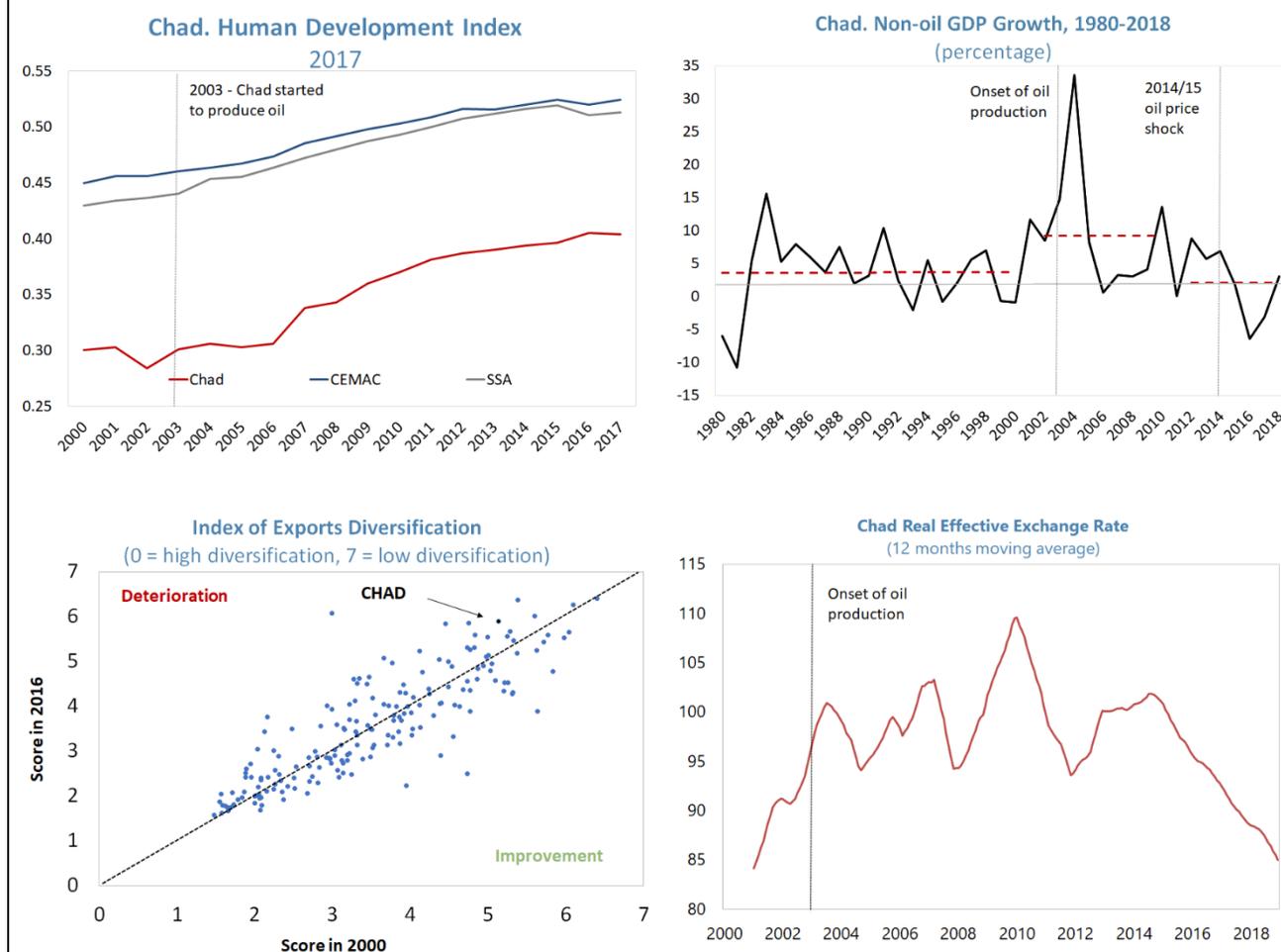
1. Chad is a low-income fragile country with substantial and multifaceted development challenges. Chad is one of the poorest and least developed countries in the world, ranking 186th on the Human Development Index in 2017. It faces a difficult geographical and geopolitical environment; it is the 5th largest country in Africa, landlocked, crossed by the Sahara, and has a very low population density. The security and humanitarian situations are also challenging given the security tensions along the border areas, serious terrorist threats particularly in the Lake Chad region, and given that Chad hosts the most refugees (on a per capita basis) in Africa.

2. Chad became an oil producer in the early 2000s and although the onset of oil production and exports led to some improvements in development indicators, the gains of the last 15 years were not permanent. As Chad started to produce and export oil in the early 2000s, GDP growth jumped, GDP per capita and development indicators improved markedly. However, the increase in oil production and related government revenues did not translate into higher growth enhancing public investment, critical for long-term growth. Instead, the private sector became increasingly dependent on public expenditure and the overall non-oil sector more vulnerable to developments in the oil sector. Using the synthetic control method, a World Bank study showed the increase in GDP per capital could not be sustained into permanent higher GDP per capita levels.² Furthermore, as Chad became an oil producer, export diversification declined (Figure 1).

¹ Prepared by Moez Ben Hassine and Samuel Delepierre.

² "Escaping Chad's Growth Labyrinth" (World Bank, 2018)

Figure 1. Chad: Background



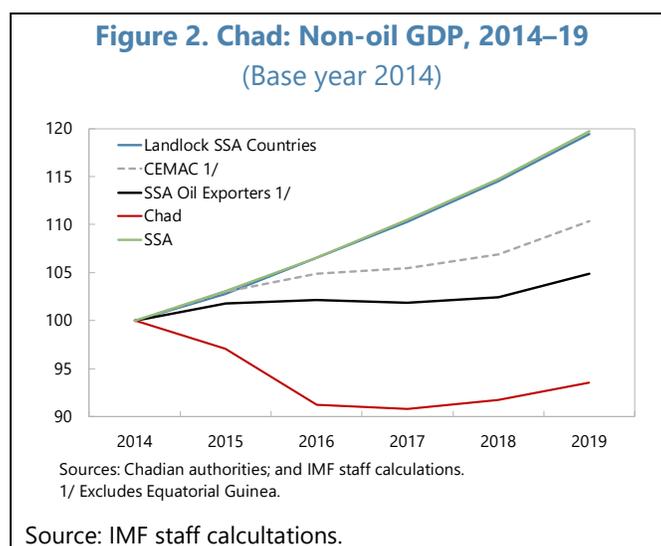
Source: HDI, WEO and IMF staff calculations.

3. More recently, Chad was hit by the 2014/2015 oil price shock, which had a severe and lasting impact on the Chadian economy. The considerable contraction in oil revenue between 2014 and 2016, as well as the heavy debt service burden of external commercial debt, primarily debt to Glencore, necessitated dramatic spending cuts, leading to an adjustment in the non-oil primary deficit of almost 12 percentage points of non-oil GDP in two years. This adjustment, along with a large domestic arrear accumulation, had set in motion a vicious cycle of contraction in non-oil economic activity, non-oil revenue, and government spending.

4. Signs of economic stabilization, particularly on the fiscal front, emerged in 2017 and continued in 2018. After three years of contraction between 2015 and 2017, non-oil growth returned into positive territories, with modest growth in 2018 which is expected to slowly firm up. Oil activity also improved in 2018 following two years of contraction. On the fiscal front, after bottoming out in mid-2017, non-oil revenues increased markedly, notwithstanding the decline in

late 2018. Oil revenues also improved as oil production increased and the Glencore debt service was reduced following its restructuring. The restructuring significantly reduced debt vulnerabilities and included features to accelerate and decelerate debt service depending on the availability of oil receipts.

5. Despite these recent encouraging developments in the Chadian economy, the non-oil economic recovery remains subdued and below that of peer countries. Following a sharp three-year recession, the Chadian economy has been recovering very timidously and is far from having recovered to its pre-crisis level (Figure 2). At the current juncture, Chad's GDP growth performance is significantly lagging that of peer countries.



6. This chapter seeks to better understand why the Chadian non-oil economy has not adequately recovered by exploring the impediments to growth. At the current juncture, non-oil activity in Chad is held back by two ranges of obstacles. First, as the economy is just exiting from recession, crisis legacies, namely high domestic public debt and stock of domestic arrears and a fragile banking sector, are still prevalent and weigh heavily on the recovery (section B). Second, Chad continues to face long standing structural weaknesses which hamper potential growth (section C). Unlocking Chad's economic potential will require reforms to address those weaknesses to foster diversification in non-oil sectors (section D).

B. Crisis Legacies

7. Three years of recession in Chad have left important legacies that continue to affect fiscal policy and performance in the non-oil private sector and the banking sector. After the sharp and persistent decline in international oil prices in 2014/2015, the authorities' response included a large fiscal adjustment together with a rapid increase in domestic debt, as the country tapped the regional security market.³ Still, the government accrued a sizable amount of domestic

³ Selected Issued Paper—Chad's First Steps in the Regional Public Securities Market (IMF, 16/275).

payment arrears. Although the economy has bottomed out and started to gradually recover, both the non-financial and the banking sectors are still bearing the aftermath of the crisis. In particular, the large stock of domestic arrears is weighing on private sector and banks' balance sheets, while the domestic public debt overhang has put pressure on banks' liquidity position and has reduced the government's fiscal space to support the recovery.

8. Public domestic debt more than doubled with the crisis. As the Chadian economy was hit by the oil shock, while dramatically cutting spending, the government had to rely on large domestic financing to cushion the impact of the shock. The government first resorted to central bank financing through statutory and exceptional advances, which reached the regulatory CEMAC limit of CFAF 420 billion in 2015. The government also financed the deficit through the regional security market. The stock of securitized debt on the regional market increased dramatically, from close to zero in 2014 to CFAF 484 billion (10 percent of non-oil GDP) by the end of 2017 (Figure 3).

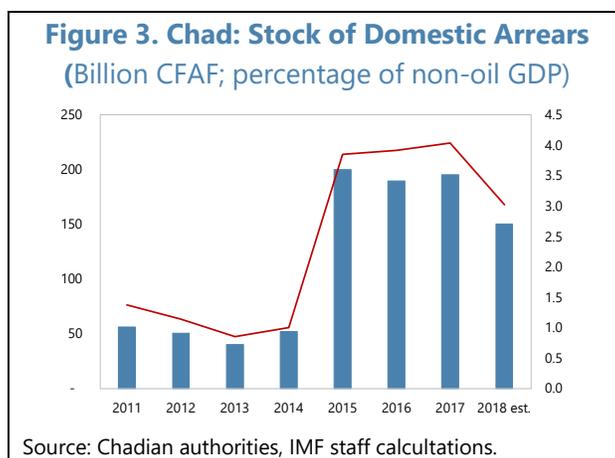
9. The large increase in domestic public debt resulted in a jump in debt service which limited space for productive spending. The initially planned repayment of statutory and exceptional advances towards the BEAC (about 1 percent of non-oil GDP every year) has been reduced as the BEAC consolidated and restructured all advances in 2017.⁴ Despite the restructuring, interest payment on domestic debt increased to about 14 percent and 9 percent of non-oil revenue and primary spending respectively in 2018 (Figure 3).

10. Expenditure arrears increased sharply during the crisis. In addition to explicit contractual debt, the government accumulated a large stock of domestic arrears on its goods and services spending, investment, and transfers and subsidies. The arrears accumulated mostly vis-a-vis private suppliers and public entities. The stock of arrears peaked in mid-2017 at around CFAF 270 billion or 5.6 percent of non-oil GDP. However, it has since then been gradually declining, as the government has been paying down arrears recorded at the Treasury, with the stock declining to about CFAF 160 billion at end-2018 (Figure 3). In addition to these arrears recorded at the Treasury, a more sizable stock of yet to be verified arrears—consisting for instance of spending commitment by line ministries—accumulated. These arrears are currently being audited.

11. While the government started paying arrears, the remaining stock is very large and present a drag on the non-oil economy. The impact of the accumulation of arrears has been significant and multidimensional. Because of their effect on the private sector balance sheet and its ability to conduct normal activities and invest, arrears have held back economic activity and forced companies to lay off workers. Investment projects stalled as the government failed to make payments to construction companies. In addition, the main and most damaging indirect effect of arrears on the private sector has been the deterioration of banks' balance sheet through an increase in non-performing loans (Figure 3), as the banking sector had massively financed the private sector, on the basis of government IOUs ("avis-de-credit"). More broadly, the increase in domestic arrears worsened the business environment and heavily affected trust in the government. Lastly, arrears to

⁴ A four-year grace period on principal repayment, extension of maturity and reduction in interest to 2 percent were agreed.

social sector ministries have led to a deterioration in the level and quality of social services which further weakened social conditions in the country. Domestic stakeholders (the private sector, the banking industry, sectorial ministries, labor unions and the civil society in general) consider domestic arrears as the main drag on the recovery.

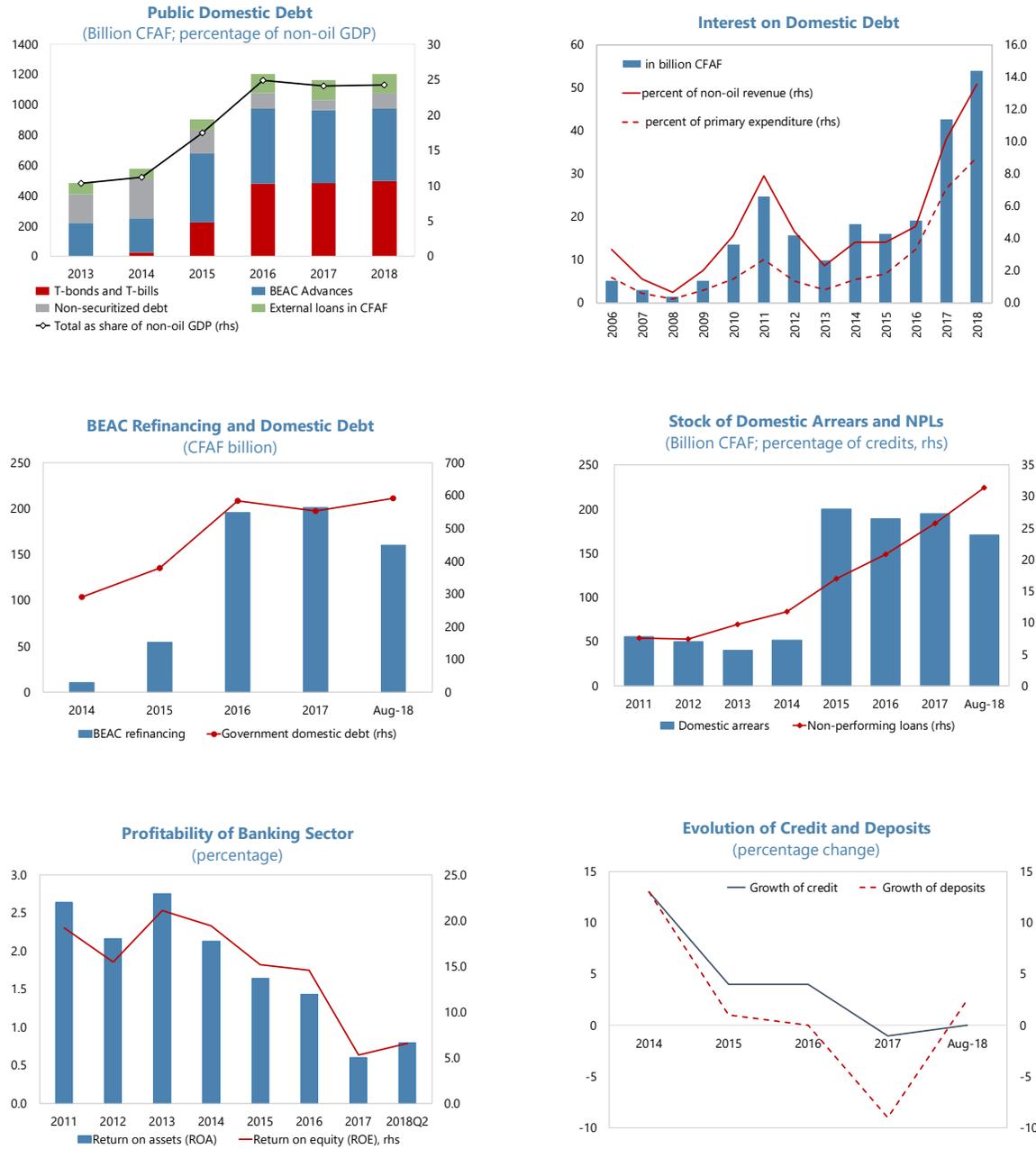


12. Liquidity pressures in the banking sector and the asset quality deterioration have undermined its ability to support the economic recovery. The recession, the increase in public debt, and the accumulation of domestic arrears have been having a detrimental impact on the banking sector. Banks portfolio quality deteriorated significantly with overdue loan increasing from around 12 percent at end 2014 to around 31 percent at end 2018. In parallel, the banking system has been under liquidity stress, mainly as public debt increased and had to be rolled over, which translated into a large increase in banks' refinancing at the BEAC (from CFAF 10 billion in December 2014 to CFAF 160 billion in December 2018) at a time when the discount by the BEAC on government bonds used as collateral was high given the fiscal difficulties up to mid-2018. As a result, not only the profitability of the banking system has declined but also its capacity to collect deposits and provide credit. While credit and deposit grew at about 12 percent in 2014, they shrank in 2015, 2016 and 2017, before stabilizing in 2018 (Figure 4).

13. Addressing crisis legacies (domestic public debt overhang, large stock of domestic arrears and banking sector weaknesses) is critical for the economic recovery. Three areas of focus are critical:

- **Reduce domestic debt.** The government needs to reduce its domestic debt, particularly debt held by public banks. This would help reduce the debt burden and loosen the sovereign bank nexus.

Figure 4. Chad: Crisis Legacies



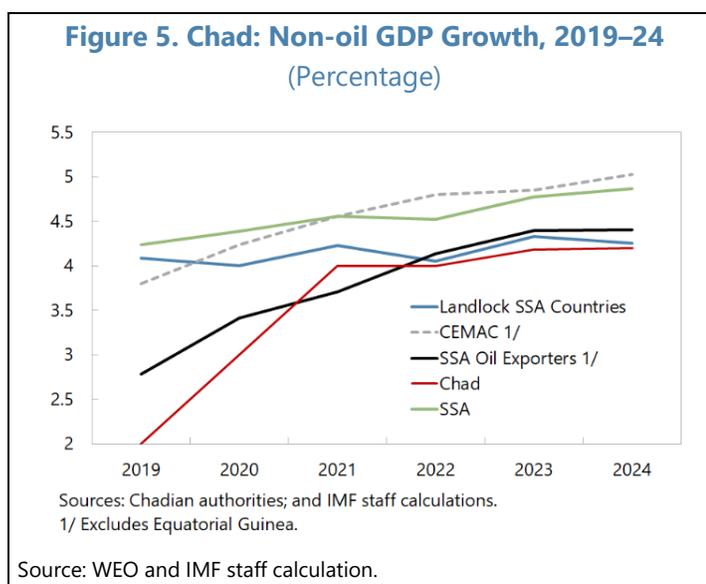
Sources: Chadian authorities; and IMF staff calculations.

Under the ECF arrangement, the government plans to gradually reduce the rollover rate of securitized debt, to 85 percent in 2019 (after 90 percent in 2018). Improving non-oil revenue mobilization and channeling part of any exceptional budget receipts towards reducing domestic public debt would help support these efforts.

- **Repay domestic arrears.** Efforts to continue paying arrears on goods and services towards private sector as well as on transfers and subsidies towards social sector ministries are necessary to create the conditions for the non-oil private sector to contribute to the economic recovery and to improve social conditions. Going forward, as a large stock of yet to be recognized arrears is being audited, the government will need to develop and implement a clear and transparent strategy for domestic arrears clearance.
- **Address non-performing loans in the banking sector.** Efforts will need to focus on adopting an action plan for reducing non-performing loans that would include: (i) increasing provisioning, (ii) facilitating extra-judicial resolution, (iii) creating an asset management company, and (iv) adopting restructuring plans. The choice of the strategy will depend among others on the following factors: the size of NPLs, the fiscal space, the liquidity of the banking system, and availability of external financing.

C. Long-Term Structural Weaknesses

14. In addition to legacy factors that weigh on the recovery, Chad has deep rooted structural problems that affect its medium and long-term growth prospects. In particular, insufficient and poor-quality physical capital, low human capital, and weak governance drag on Chad's diversification. As such, non-oil growth prospect is less favorable than those of peer countries in Sub-Saharan Africa (Figure 5). Notwithstanding exogenous factors affecting Chad's growth potential (see paragraph 1), staff has found that other countries in similar situations managed to put in place the conditions for better growth performance. Addressing these structural weaknesses would therefore have sizable and durable positive impacts on Chad's economic prospect.



15. Chad's level and quality of infrastructure are among the lowest in the world. Despite relatively high public investment, notably in the 2000s as Chad started to produce and export oil, the level of physical capital stock in the country is very low compared to peer countries including landlocked countries and oil exporters (Figure 6). Although the infrastructure gap in Chad has

narrowed since the early 2000s, it remains significant compared to other African low-income countries.⁵ The low quality of physical capital stock also further aggravates the impact of the infrastructure gap. According to the World Economic Forum indicator on quality of infrastructure, and IMF data on the quality of investment, Chad has some of the lowest scores in the world for investment and infrastructure quality.⁶ Unsurprisingly, these elements translate very concretely into alarming indicators of energy access and electrification, transport infrastructure, and telecommunication (Figure 6). For example, less than 10 percent of the population has access to electricity, and 6.5 percent of the population has access to internet.^{7, 8}

16. Chad also lags peer countries on human capital indicators. To assess the level of human capital, staff relied on the recently developed Human Capital Index by the World Bank.⁹ The index measures the human capital of the next generation, defined as the amount of human capital that a child born today can expect to achieve in view of the risks of poor health and poor education currently prevailing in the country where that child lives. It has three components: (i) *survival* measured with the under-5 mortality rate, (ii) *expected years of learning-adjusted school* reflecting both the quantity and the quality of education, and (iii) *health* measured with the rate of stunting of children under age 5 and the adult survival rate. Chad's Human Capital Index is the lowest in the world (Figure 7), indicating very weak health and education outcomes.

17. Chad's long-term growth prospect is also affected by weak governance and business environment indicators and corruption. Chad scores poorly with respect to governance, corruption and business environment. Paying taxes, starting a new business, getting electricity, trading across borders, and protecting minority investors are particularly problematic (Figure 8). Based on IMF staff's estimates of the elasticity of per capita real growth¹⁰, Chad would gain significant benefits from improving the quality of governance and reducing the prevalence of corruption.¹¹ In 2018, the Forum for the Recovery ("Forum pour la Relance") organized by the private sector in Chad identified the fight against corruption as the first and foremost priority in order to support the role of the private sector in the economic recovery.

⁵ Selected Issues Paper – Public Investment Efficiency in Chad (IMF, 16/275).

⁶ Making Public Investment More Efficient (IMF, 2015).

⁷ World Bank (WDI, 2017).

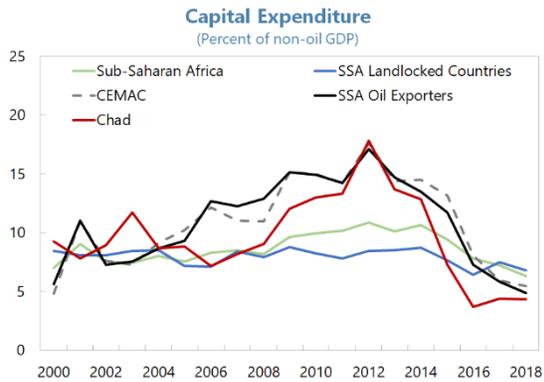
⁸ Tracking SDG7: The Energy Progress report (WB, 2018).

⁹ The Human Capital Project (World Bank, 2018)

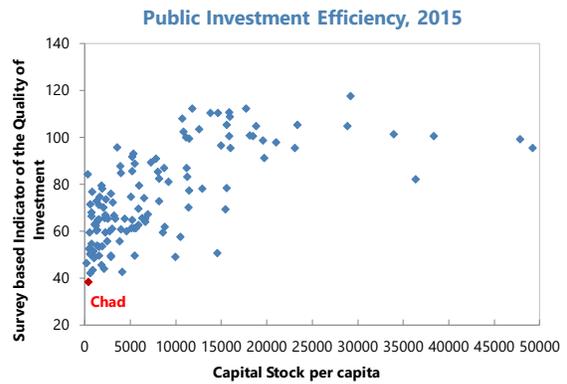
¹⁰ A Governance Dividend for Sub-Saharan Africa? (IMF, 2018).

¹¹ For more details on the methodology and on estimates, see Selected Issues Paper on Governance (IMF, 2019).

Figure 6. Chad: Physical Capital

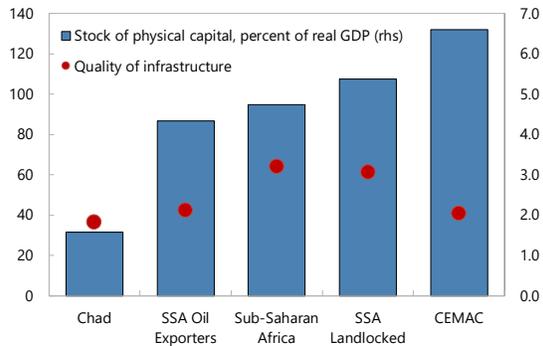


Sources: Chadian authorities, and IMF staff calculations.



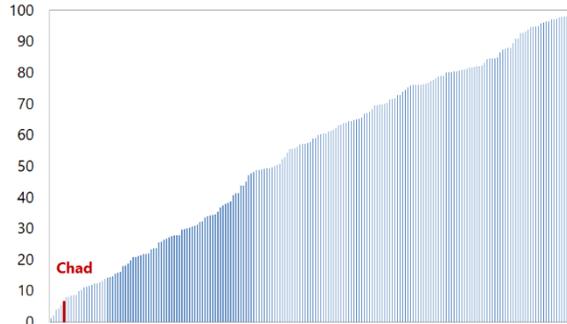
Source: IMF Investment and Capital Stock database.

Stock of Capital and Quality of Infrastructure, 2015



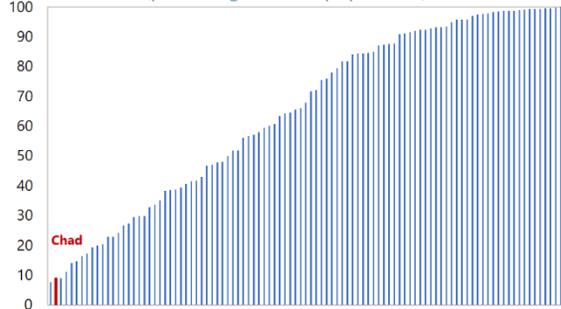
Source: IMF Investment and Capital Stock database.

Individuals using the Internet, 2017
(percentage of total population)



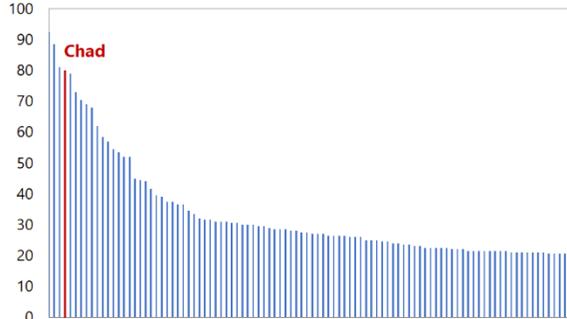
Source: World Bank World Development Indicators.

Electrification Rate, 2017
(percentage of total population)

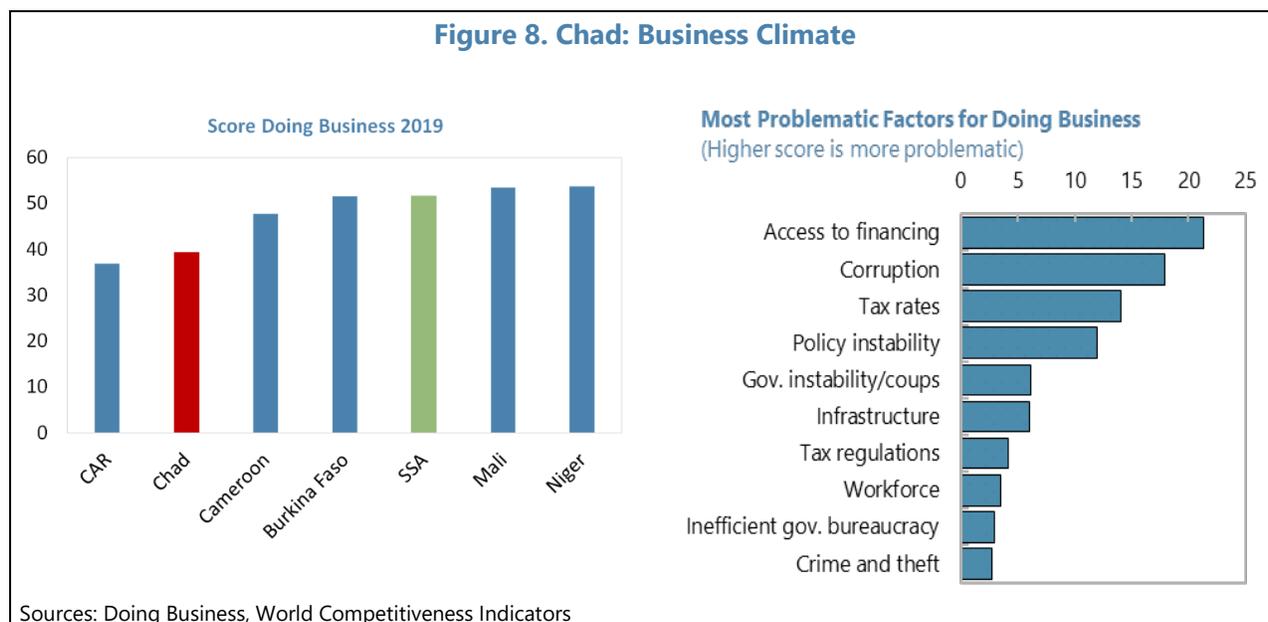
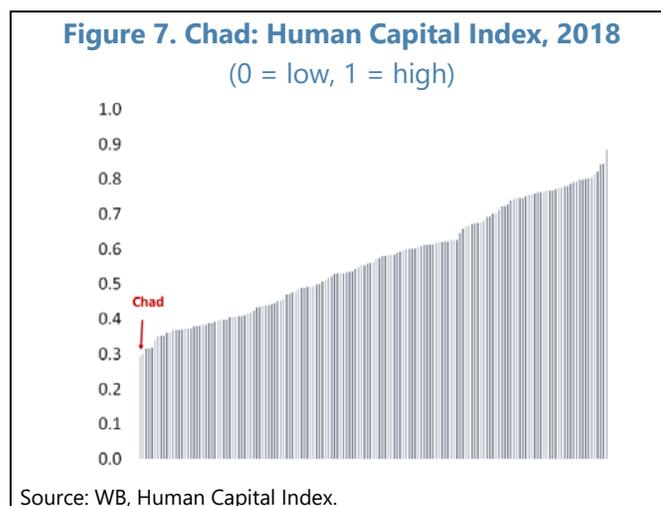


Source: World Bank World Development Indicators.

Time to Transport Export and Import Products, 2015
(average number of days)

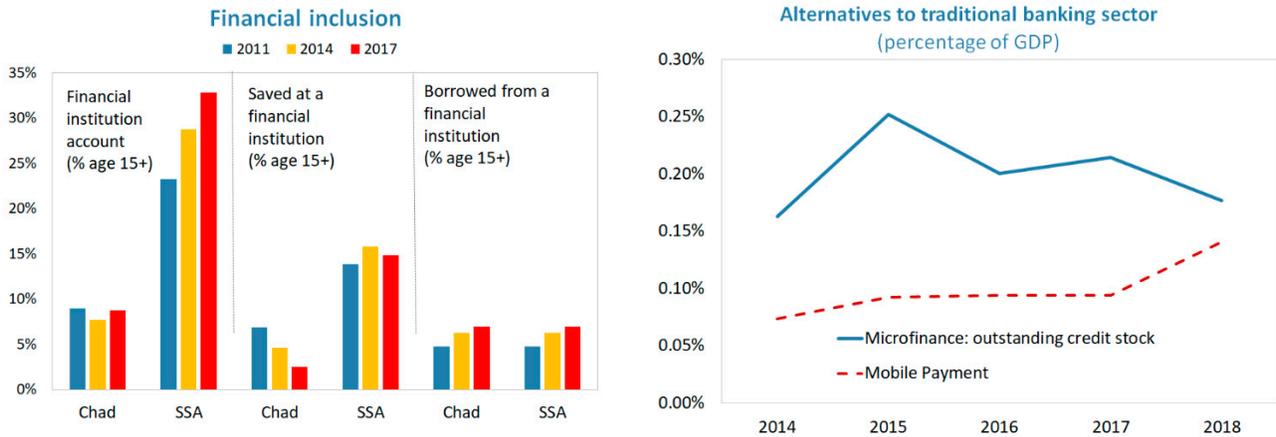


Source: World Bank World Development Indicators.



18. While the financial sector is underdeveloped, alternative ways of financing are at an embryonic stage. Despite rapid banking sector growth prior to the crisis, its size remains small compared to SSA peers, and its ability to finance private sector activity is limited. In addition, financial inclusion is very limited with 9 percent of the population having a bank account and less than 5 percent of the population ever having contracted a credit (Figure 9). In addition, microfinance remains at a very early stage of development, providing very limited credit to the economy and facing difficulties with high NPLs level. Mobile payment is still under developed.

Figure 9. Chad: Financial Inclusion Indicators



Source: Findex

D. Reforms to Diversify the Economy and Unlock Sustainable and Inclusive Growth

19. The challenging environment for non-oil private sector has translated into a low level of diversification, leaving the government far too dependent on oil revenues and the economy vulnerable to oil price volatility (Figures 10 and 11). Chad’s export diversification index is low, with exports largely dominated by oil (around 94 percent) and with very small shares in cotton, livestock, and other agri-products. Low diversification and dependence on oil revenues have made the budget very vulnerable to oil price volatility. For instance, during the 2014/15 oil price shock, the drop in oil revenues forced Chad into a sharp and brutal expenditure based fiscal consolidation, with dramatic effects on growth and social outcomes. In addition, with low diversification, Chad’s GDP growth volatility is one of the highest in Sub-Saharan Africa.

Figure 10. Chad: Exports Diversification and Growth Volatility

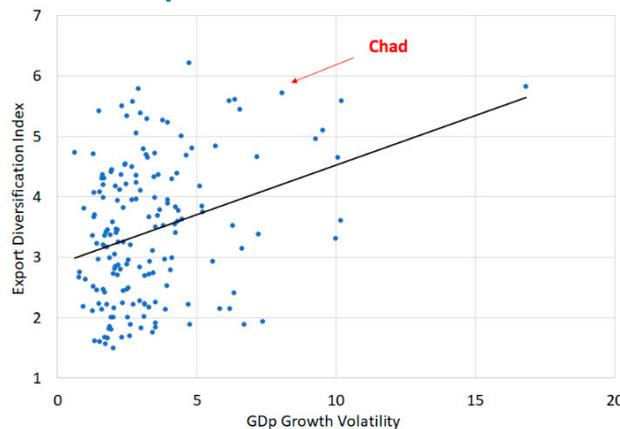
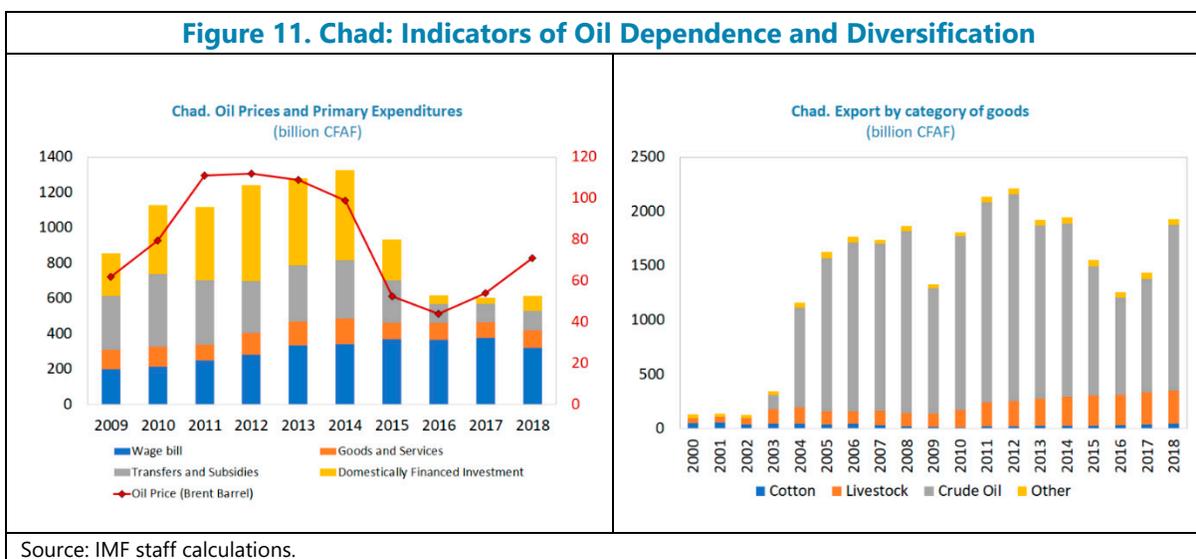


Figure 11. Chad: Indicators of Oil Dependence and Diversification

20. Lifting Chad out of the low growth trap will require efforts in many areas. Cross country experience shows that countries that reached higher and more robust growth through diversification have done so through more efficient allocation of resources to higher productivity sectors.¹² Key areas to create the conditions for productivity gains and economic diversification in Chad include (i) improving the business environment for non-oil private sector, (ii) enhancing fiscal governance, and (iii) deepening financial inclusion.

21. The private sector in Chad operates in a rather difficult climate. In this regard, areas to improve include streamlining procedures for the creation of small and medium size enterprises, facilitating access to financing for exporting companies to foster trade, modernizing tax administration to reduce non-compliance, widening the tax base, and reforming regulation to facilitate investment in the electricity sector to increase access to reliable and affordable power supply needed to improve Chad's competitiveness.

22. Good fiscal governance is also critical for economic diversification and fiscal sustainability.

- **Reducing the budget dependence on oil revenues.** At the macro level, fiscal policy plays an important role in ensuring macroeconomic stability, which is a prerequisite for achieving and maintaining economic growth.¹³ In Chad, the high volatility of oil prices and the procyclical fiscal policy conducted in the past have clearly hampered economic activity. Strengthening non-oil revenues collection and using conservative oil price assumption in the budget would enable Chad to gradually accumulate fiscal buffers and allow the government to conduct more counter-cyclical fiscal policy to absorb fiscal shocks.

¹² Regional Economic Outlook – Sub-Saharan Africa (IMF, 2017)

¹³ Fiscal Policy and Long-Term Growth (IMF, 2015)

- **Enhancing public financial management.** The authorities should improve the process of budget preparation and public debt management, strengthen the reporting and monitoring of spending. In addition, the use of emergency spending procedures needs to be curtailed to impart a degree of certainty to the budget execution and help avoid the accumulation of domestic arrears.
- **Increasing social and growth-enhancing expenditure.** Spending on social sector is low in Chad compared to peer countries, totaling 4.3 percent of GDP compared to 7.2 percent on average in low-income countries. Increasing spending in social sector and improving its quality will help improve social conditions and human capital both important for growth.¹⁴
- **Improving government spending quality.** Prior to the crisis, Chad's level of public investment was high relative to SSA countries. However, its impact on growth was transitory and didn't crowd in private sector activity nor increased long term growth. Indeed, Chad still suffers from a large infrastructure gap and public investment remains largely inefficient.¹⁵ It is therefore essential to improve public investment management through stronger, more transparent institutional arrangement at key stages of the investment (planning, allocating, and implementing).

23. Developing financial inclusion is essential for inclusive growth. In that respect, the authorities should:

- **Ensure financial stability and improve resilience.** A sound, reliable, and resilient banking system is needed to develop financial inclusion. Mistrust in the banking sector appears as a drag on financial inclusion in Chad at the current juncture. Banks should publish their audited financial statement and a credit bureau should be put in place to help restore confidence.
- **Enhance the regulatory system of microfinance institutions (MFIs) and mobile banking.** In the microfinance sector, accelerating the implementation of the 2017 regional regulation requiring first category MFIs to regroup under umbrella bodies would help facilitate control and supervision. It is also important to ensure that a regulatory framework for mobile money is put in place that guarantees both stability and innovation while protecting the consumers.
- **Promote financial education.** In parallel to the above-mentioned measures, promoting financial education will reduce recourse to costly informal financial sector due the lack of awareness of opportunities in the formal sector.

¹⁴ See Chapter 3 of this Selected Issues Paper.

¹⁵ Selected Issues Paper – Public Investment Efficiency in Chad (IMF, 2016)

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Making Public Investment More Efficient (IMF, 2015)

Tracking SDG7: The Energy Progress Report (WB, 2018)

Escaping Chad’s Growth Labyrinth (WB, 2018)

GOVERNANCE IN CHAD: MACROECONOMIC IMPLICATIONS AND POLICY PRIORITIES¹

A. Introduction

1. **Good governance, including the control of systemic corruption, is critical for sustainable and inclusive economic growth.** Weak governance and corruption are systematically associated with lower growth and investment and higher inequality (IMF, 2018). Improving governance and reducing corruption are largely budgetary-neutral reforms that ameliorate the business climate, strengthen government effectiveness, boost economic activity, and create jobs.
2. **Improving governance and addressing corruption is an important priority for the government.** Currently, Chad performs poorly across a range of governance and corruption indicators which are associated with holding back private sector growth. As such, the government's Vision 2030 has four objectives, one of which is strengthening good governance and the rule of law. It was also set as a priority reform for the National Development Plan and a key measure to improve the business climate as proposed at the national week of reflection on private sector contribution to the economic recovery held in 2018.
3. **This chapter looks at three dimensions of governance in Chad and describes the progress made and areas for future development.** It first discusses the macroeconomic implications of weak governance and corruption and presents estimates of the positive impact of an improvement in governance. It then discusses fiscal governance, oil sector oversight, and the anti-corruption framework which are considered key areas where improved governance is needed.

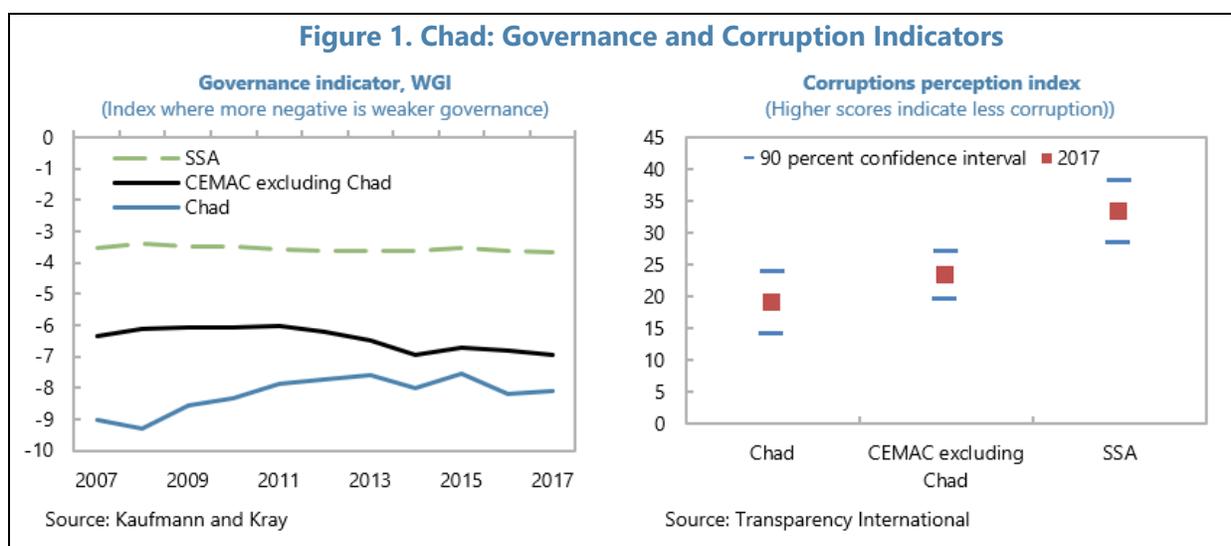
B. The Macroeconomic Implications of Governance and Corruption

4. **There are a number of channels through which governance and corruption have macroeconomic implications.** Corruption can be seen to influence macroeconomic outcomes through the main channels of interaction between the state and the economy, such as the execution of budgetary policy and the delivery of public services, market regulation, financial sector oversight, and public order and enforcement. While the precise transmission mechanisms are difficult to pin down, there is an adverse corruption-growth nexus. For example, this can take the form of weak governance and corruption reducing the attractiveness of economic space to domestic and foreign investment. This can feed into predatory tax behavior because of a narrowing in the productive base that reduces revenues to the government. Lower revenue along with inefficient and untargeted spending result in poor infrastructure and human capital which in turn makes the economic environment less conducive to investment and private sector activity.

¹ Prepared by Moez Ben Hassine, Samuel Delepierre and Preya Sharma. Section E benefited from input from Mr. Chady Adel El Khoury and Ms. Sabrina Lando (Legal Department).

5. There is a broad set of literature which seeks to measure the macroeconomic implications of governance and corruption. A meta-analysis covering 43 studies indicates that corruption and weak governance are associated with slower growth (IMF, 2018). These studies use a variety of techniques to estimate the direct impact on growth and the indirect impact through channels such as investment, human capital, and public finance. Moreover, the finding of the negative association with growth is robust across different measures of corruption and governance quality, estimation techniques, and controls for institutional quality. Nonetheless, despite this strong body of evidence, it is important to bear in mind that corruption and governance are difficult to measure categorically and there are endogeneity issues in identifying a causal relationship to growth.

6. Measures of governance and corruption indicate that while there has been some improvement, Chad performs poorly relative to peers. Indicators of governance and corruption are based on a comparison across countries and surveys of perceptions of the private sector. The *governance indicator*, WGI, is constructed as an aggregate measure using the sum of the six indicators from Kaufmann and Kraay (see Kaufmann et al, 2010): voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption (CCI). The *corruptions perception index* (CPI) is developed by Transparency International and is a combination of 13 surveys and assessments on perceived levels of public sector corruption according to experts and businesspeople. On both of these measures, Chad performs lower than the average for CEMAC and is considerably below the average for sub-Saharan Africa.



7. Estimates suggest that the growth payoff from improving governance and reducing corruption could be sizable. Using estimates of the potential long-run growth gains in other countries with higher levels of governance and lower perceptions of corruption, it is possible to provide a guide to the growth payoff to Chad (Box 1). The growth payoff is based on elasticities calculated for sub-Saharan Africa and alternative measures of governance and corruption (Hammadi et al, 2010).

- *Estimated impact of enhancing governance.* Increasing the level of governance to the average of CEMAC countries could potentially raise GDP per capita growth in Chad by 0.6 percentage points. An improvement to the average of sub-Saharan Africa would have an even larger growth impact of 2.3 percentage points.
- *Estimated impact of reducing corruption.* Reducing corruption to the average of CEMAC countries could potentially raise GDP per capita growth in Chad by 0.6 percentage points, using either measure of the Control of Corruption (CCI) or the Corruptions Perceptions Index (CPI). A reduction in corruption to the average of sub-Saharan Africa would have an average effect of about 2.1 percentage points.

Box 1. Estimated Impact on Growth of Enhancing Governance and Reducing Corruption

The positive correlation between improved governance and economic growth is well established in the literature.

The elasticities used in this paper to estimate the potential growth payoff of improvements in governance are based on a recent working paper by Fund staff and are broadly in line with the existing literature (Hammadi et al, 2010). The paper estimates the growth payoff for an overall sample covering all countries in the world including advanced, emerging, and low-income economies, and also estimates the impact for sub-Saharan African.

Estimates suggest that the correlation between governance and growth in sub-Saharan Africa could be stronger than in other regions.

The estimates are based on a standard growth model augmented for governance and corruption to assess the impact on GDP per capita growth for 190 countries using 5-yearly observations over the period 1984-2015 in a system generalized method of moments model. The control variables are initial GDP per capita, gross capital formation, level of education, dummy variable for high inflation, and terms of trade. The sensitivity analysis suggests that the results are robust to changes in the time period and alternative governance indicators. The estimated elasticities imply that:

- *The growth payoff from governance improvements in sub-Saharan Africa is two to three times larger than for the average country in the rest of the world.* A one-standard deviation improvement in governance in the sample for sub-Saharan Africa, equivalent to an average sub-Saharan African country converging to the world average, is associated with a 1-2 percentage point increase in GDP per capita growth.
- *Similarly, improving corruption perceptions up to the world average could increase GDP per capita growth by about 1 percentage point.* This impact is similar to that of other regions which are also perceived to have high corruption.

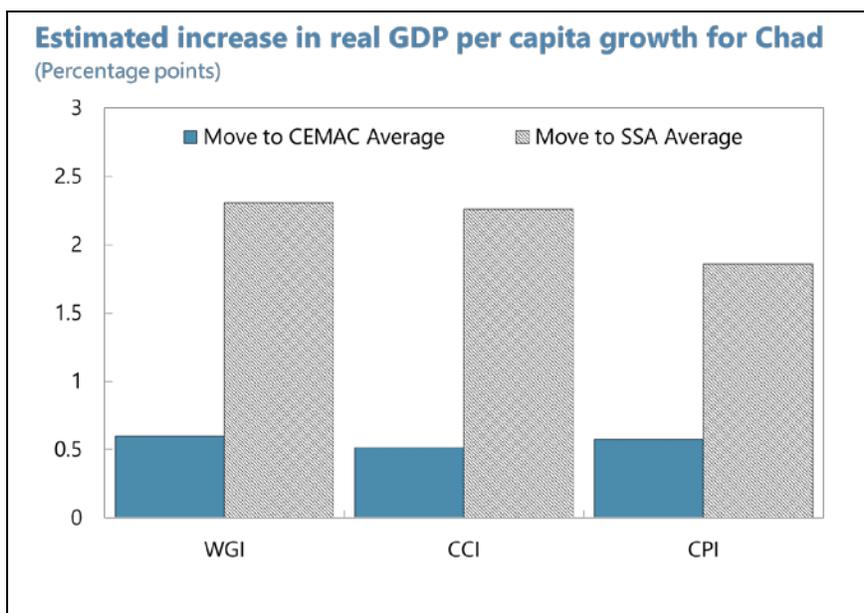
Box 1. Estimated Impact on Growth of Enhancing Governance and Reducing Corruption (concluded)

Estimated elasticities	Governance	Corruption	
	WGI	CCI	CPI
Overall sample	0.036	-0.02*	-0.012
Sample for sub-Saharan Africa	0.087*	-0.093*	-0.09*

Note: * indicates statistically significant at 10 percent significance level. WGI – World Governance Indicator, CCI – Control of Corruption, CPI- Corruptions Perceptions Index

Source: "A Governance Dividend for Sub-Saharan Africa?" IMF Working Paper, WP/19/1

Tailoring these estimates to Chad imply sizable growth payoffs from improved governance and lower corruption for Chad. The elasticities for sub-Saharan Africa are applied to the governance and corruption indicators for Chad. It is important to note that this is a partial analysis which captures the marginal impact of governance and corruption improvements, while other variables remain constant. Moreover, given that the process of institutional reforms takes considerable time and effort, the time period over which these gains are achieved is likely to be long. Nonetheless, they do suggest that the indicative growth payoff is economically meaningful.



Source: IMF staff calculations.

C. Fiscal Governance

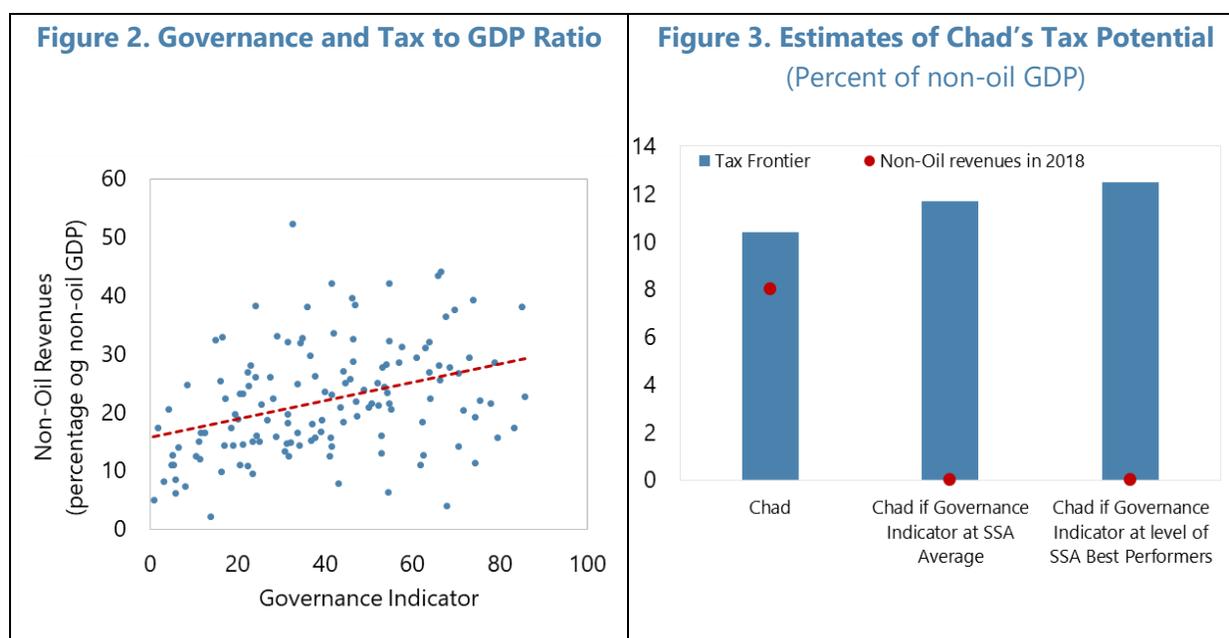
8. Tax revenue performance is hampered by widespread exemptions and weak VAT collection. The cost of tax exemption is particularly high.² In addition, based on a sample of 47 (out of a total of 150–250) “conventions d’établissement”, a European Union financed audit estimated the cost of exemptions for the Tax Directorate at about one percent of non-oil GDP in 2015. Revenue from the VAT, which stands at about 1 percent of non-oil GDP, is among the lowest in Africa, given weak VAT administration, the large deficiencies in the VAT refund mechanism, exemptions on VAT, and the large size of the informal sector in Chad. Given the critical need to improve non-oil revenue mobilization, efforts are underway to widen the tax base, rationalize exemptions and strengthen the VAT regime. This includes measures to better control the extension of exemptions, plans to regularly publish a list of all new exemptions, set-up a VAT refund mechanism, and reduce VAT exemptions. In January 2018, the authorities introduced a new measure requiring payment of taxes through the banking system (so called “banca-risation des Recettes”), which helped improve tax collection in the first half of 2018.

9. Strengthening governance would help yield significantly higher tax revenue (Figures 2 and 3). Cross-country analysis shows that there is a positive correlation between the level of governance and the non-oil revenue to GDP ratio. In that context, an improvement in governance would improve the tax potential in Chad. Based on current estimates, Chad’s non-oil tax potential stands at about 10.5 percent of non-oil GDP.³ Holding other factors constant, improving Chad’s level of governance to the level of the CEMAC average would increase the tax potential to about 12 percent of non-oil GDP. Improving the level of governance to the average of sub-Saharan African countries would increase it to 12.5 percent.

10. Public financial management in Chad is very weak. According to the Public Expenditure and Financial Accountability (PEFA), Chad scores poorly relative to peers with a D score on 31 indicators, and a C score on four other indicators. The PFM is marked by a weak respect of the spending chain, excessive use of emergency spending procedures, and weak cash management which led to the accumulation of large amount of arrears and has undermined the effective implementation of the budget.

² Despite the difficulty to precisely assess the shortfall in revenues, partial estimates by Fund TA missions assessed the shortfall at around CFAF 45 billion (about 1 percent of non-oil GDP) for the Tax Directorate in 2016 and CFAF 140 billion (2.7 percent of non-oil GDP) for the Customs Directorate in 2015.

³ Staff applied a fixed effect linear specification to estimate tax potential and tax effort in Chad using a panel data for 153 countries between 2000 and 2016, see Country Report No. 17/246 for more details.



11. While efforts are underway to improve budget implementation and address the large stock of domestic arrears, more determined reforms and a stricter implementation of existing processes are needed to improve governance in this area. In spite of a series of measures to limit the use of emergency spending procedures (DAO) and accelerate the regularization of DAO, their use was not significantly contained, and the accumulation of domestic arrears while not severe, continues. The authorities should improve the process of budget preparation and public debt management, strengthen the reporting and monitoring of spending, and limit the use of emergency spending. Despite some progress, delays in the completion of the audit of domestic arrears and development of a clearance strategy is holding back the economic recovery. The weak capacity of cash management and use of multiple accounts at banks are undermining the authorities' capacity to effectively execute the budget. Against this background, efforts should concentrate on (i) preparing monthly cash flow projections in the context of the 2020 budget, which would be updated on a semi-annual basis, (ii) adding information on investment plans to the 2020 budget, and (iii) initiating discussions on setting a single treasury account beginning with taking stock of all existing accounts in commercial banks.

D. Oil Sector Oversight

12. The oil sector has become a pillar of Chad's economy, accounting for the bulk of the country's exports and government revenues. The size of oil production and revenues have fluctuated since the beginning of oil production in 2003 reflecting oil price and volumes swings. In 2018, oil production accounted for about 20 percent of GDP (CFAF 1170 billion), oil exports were roughly 80 percent of export, and oil-related revenue made up about 45 percent government revenues. Given the size of the sector and its importance for the budget, transparency and good governance are crucial to improve its contribution to economic development in Chad. Chad has three main oil producing companies: the Doba consortium led Esso, the oldest (since 2004), the China National Petroleum Corporation International (CNPCI), the largest producer, and Glencore. In

addition, SHT (Societe des Hydrocarbures du Tchad) is the public enterprise that manages government oil assets and is set to increase its own production of oil.

13. The government holds considerable participations in the oil sector. These participations are assigned to the SHT for management. The major acquisition occurred in 2014 with the purchase of the 25 percent in the Doba Consortium from Chevron. Also, in 2014, the Government assumed 10 percent in the CNPCI's two producing fields.

14. The oil sector in Chad is marked by the coexistence of two legal regimes. Chad's revised Hydrocarbons Law adopted in 2007 added to the concession or tax/royalty regime a second regime, the Production Sharing Contract (PSC). In practice, all licenses issued since 2007 are of the PSC type. However, holders of previously issued licenses have used their fiscal stability clauses and opted to remain with the concession regime. Thus, the Doba Consortium and the first phase of the CNPCI production continue as concessions, while the second phase of CNPCI and Glencore are under the PSC. The main features of the two regimes are the followings:

- Under the concession regime, the government cedes to a company the ownership rights over a natural resource for a specific period of time, while the company pays royalties and profit tax.
- Under a PSC, the government retains the full rights over the natural resource. It appoints a company as a contractor for operations to produce the resource. For that, the company is rewarded with a share of the oil, after having been reimbursed for its expenses.

15. Multiple bodies are involved in the oversight of the oil sector. The oil sector is under the supervision of the Ministry of Petroleum and Energy which is responsible for the development and implementation of the government policies for the sector. In addition, the main bodies involved in the oil sector oversight are "Le Collège de Contrôle et de Surveillance des Recettes Pétrolière" which is in charge of verifying the appropriate budgetary allocation and use of petroleum resources and SHT is the public enterprise that manages government oil assets.

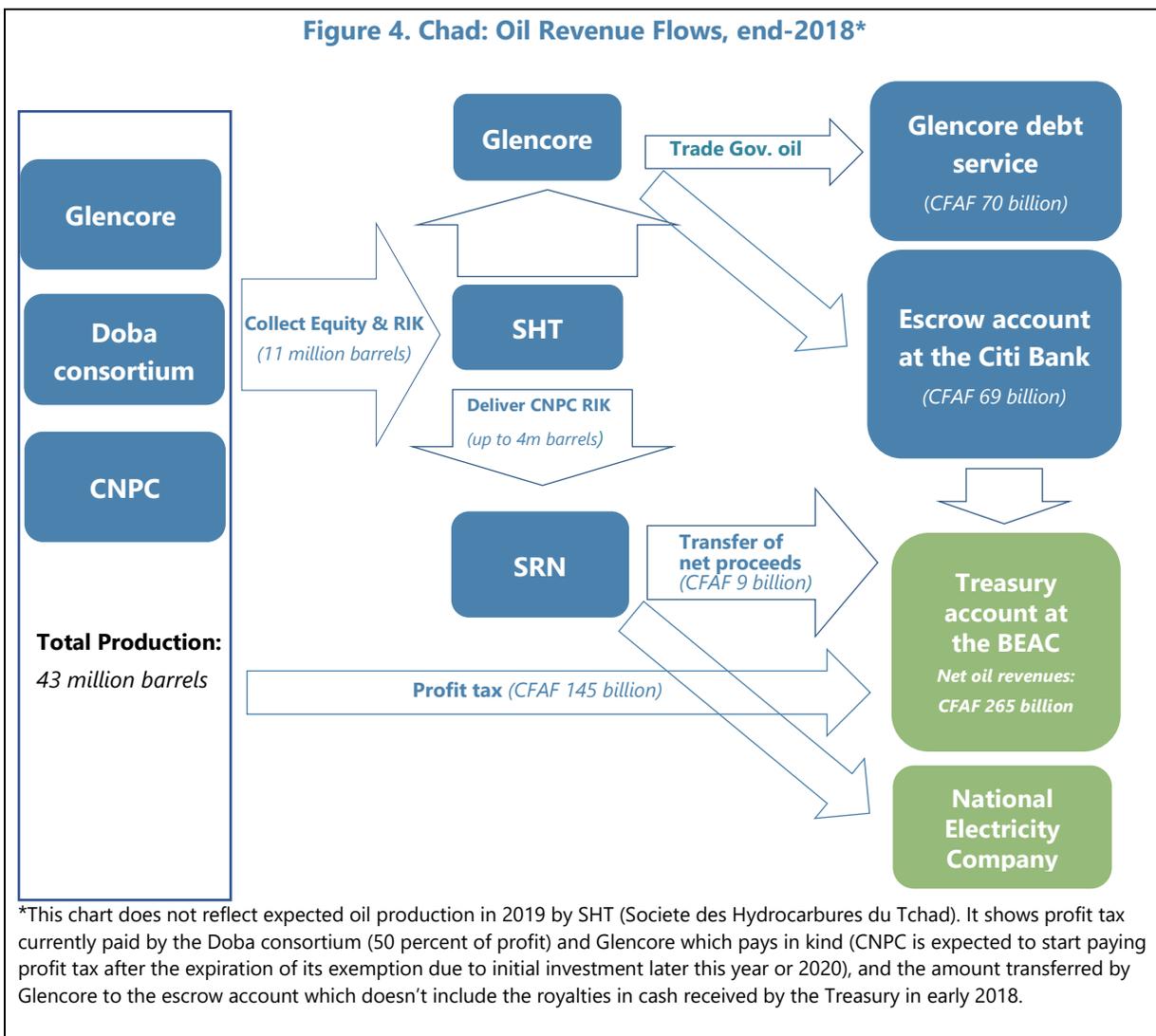
16. The commercial debt contract with Glencore has added complexity of the flow of revenue from the oil sector. In 2013, the Government borrowed US\$600 million for budget financing, and in 2014 the SHT borrowed—with a government guarantee—US\$1.356 billion for purchasing a 25 percent share in the Doba Consortium. The debt, collateralized by government oil, is serviced through direct deduction from the proceed of government-oil cargoes sold by Glencore - contracted to sell government-owned oil on the international market.

17. The June 2018, restructuring of the Glencore debt was an opportunity to shed transparency in Chad on the contract. More information on government oil revenues is now available for the authorities. Under the agreement, government oil which consists of royalties in kind and equity collected by SHT from the three oil producers is used for domestic consumption and exports (Figure 4):

- Up to 4 million barrels are sold to the national refinery (SRN) at a fixed price (\$46.85). Revenue to SHT from the sale are first available for the electricity company (SNE) to buy refined oil from

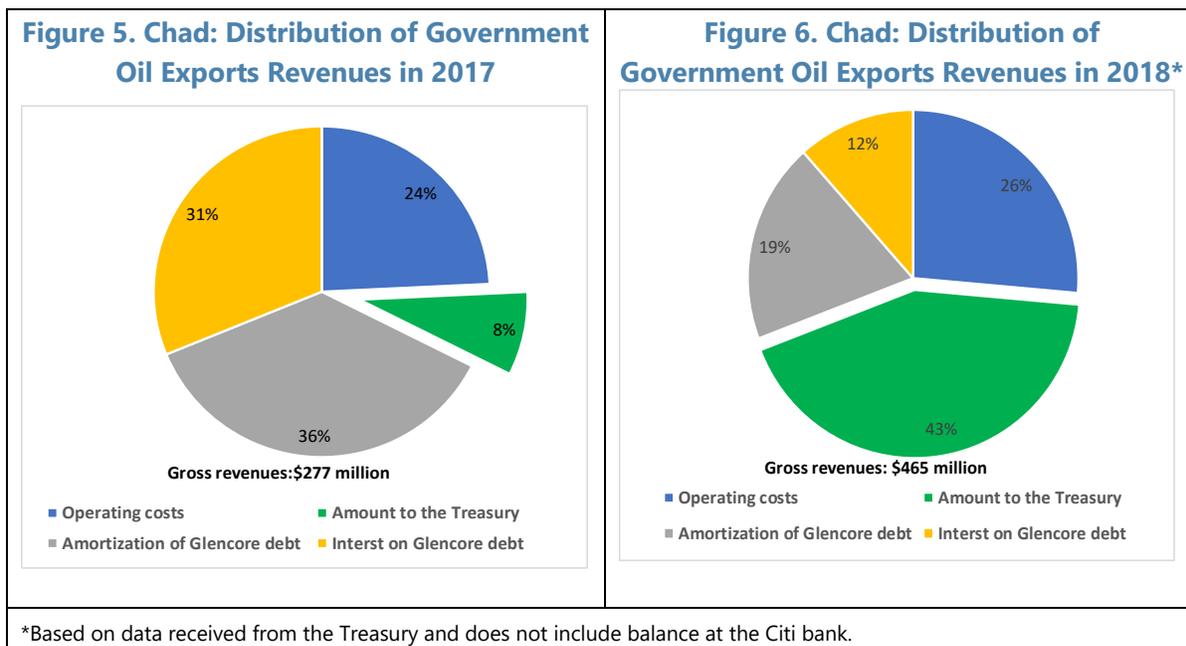
SRN as an off-budget operation and the remaining amount goes to the Treasury. The SRN, which is 60 percent owned by CNPC, compensates the government for 60 percent of the difference between international prices and the fixed price.

- The remaining quantity of government oil is delivered to Glencore for sale at the international market. The net oil proceeds after Glencore debt payment are deposited in a government offshore account. The ministry of finance is responsible for transferring net oil proceeds to the Treasury account at the BEAC. However, there is uncertainty on the periodicity of these transfers and information on the account balance is not available in a timely fashion.



18. The restructuring of the Glencore debt has helped to restore debt sustainability and generate significant resources to the budget. Specific contingencies are included to provide some protection to Chad in case of lower oil receipts. Debt service payment is now made on a quarterly basis, including additional debt service (amortization and interest) through the cash sweep mechanism if average year-to-date oil prices are higher than the baseline set in the new contract.

Under the new contract, oil export revenues received by the Treasury increased from 8 percent of gross revenues in 2017 to 43 percent in 2018 (Figures 5 and 6).



19. Good progress has been made in improving the transparency and oversight of the oil sector. The ministry of finance is publishing a quarterly note on oil sector that describes recent developments in the oil sector including information on production, export, new exploration, government oil revenues, and Glencore debt service. The authorities have also adopted a disclosure policy on oil contracts and licenses. In addition, Ernest and Young has been appointed to be in charge of the monitoring and calculation for the implementation of the 2018 Glencore debt contract. The EITI noted the good progress made by the authorities in the publication of oil contracts and of oil revenues, including those earmarked for debt servicing. It encouraged the authorities to publish all revenues paid locally and transfers to local communities and to ensure that all oil-related expenditures are reflected in the government budget. The next assessment by the EITI will start in November 2020.

20. Moving forward, efforts to further enhance transparency should focus on two main areas for improvement:

- The balance of the government offshore account should be more transparent to allow it to be reflected in the Treasury balance sheet. A transfer mechanism should be defined and implemented.
- Crude oil delivered from the SRN to the SNE should be transparently reflected in the budget as a subsidy to the electricity company with the corresponding oil receipts reflected as revenues to the government.

E. Anti-Corruption Framework

21. Strengthening governance and the rule of law are central to Chad's National Development Plan. The government's Vision 2030 has four objectives of which strengthening good governance and the rule of law is the second axis. From a broad perspective it covers (i) promoting performance and motivation in public administration, (ii) promoting good economic governance, (iii) strengthening real democratic culture as mode of governance, and (iv) strengthening security as a development factor.

22. The institutional framework around which anti-corruption efforts are undertaken includes a number of bodies. The institutions include, amongst others, the judiciary, the Cour des Comptes which sits with the Supreme Court and is responsible for supporting implementation of the finance law, an audit office in the Office of the President, which conducts inspections, audits and investigations to ensure the sound and transparent management of public finances, and Agence Nationale d'Investigation Financière (ANIF) which is the national financial investigative agency. The responsibilities of ANIF includes enforcing anti-corruption legislation on economic crimes which criminalizes active and passive bribery, embezzlement and influence peddling, and money laundering, among other crimes. As with other state bodies, these anti-corruption bodies face considerable resource and personnel constraints in meeting their objectives.

23. The United Nations Convention against Corruption (UNCAC) provides a framework for the development of an effective anti-corruption regime. The UNCAC calls for the development of an effective anti-corruption regime. The convention covers five main areas; preventive measures, criminalization and law enforcement, international cooperation, asset recovery, and technical assistance, and information exchange. In particular, preventative measures include the establishment of anticorruption bodies, asset declaration by public officials, and transparency in public services.

24. Chad ratified the UNCAC in 2017 and is now moving to implement the main elements of the framework. Against a background of limited capacity, fragility of institutions, and vested interests, a pragmatic and realistic strategy to tackle corruption could initially focus on actions to prevent corruption and detect the laundering of its proceeds abroad, while encouraging domestic investigative capacity building in the longer term. In that context, the anti-corruption legal framework should be strengthened to facilitate detection, investigations, and recovery of proceeds of corruption abroad through international cooperation by ensuring that; (i) all acts of corruption are criminalized in line with the UNCAC, (ii) the laundering of proceeds of these acts is criminalized in line with the requirements of the Financial Action Task Force (FATF), and (iii) there are no undue impediments to mutual legal assistance in cross-border cases. This will require ensuring adequate resources and skilled personnel for anti-corruption agencies.

25. An effective asset declaration framework is a valuable tool in strengthening the accountability of public officials. The authorities are working on an enforceable, transparent, and comprehensive asset disclosure system focusing on high-level officials. Asset disclosure obligations generally require the submission of a detailed form on both assets legally owned and beneficially owned, including of family members and close associates, and the publication of disclosures where

appropriate. Such a system should facilitate the implementation of customer due diligence requirements by domestic and foreign banks when their customers are senior officials from Chad, and the qualification of acts of corruption, including illicit enrichment, by law enforcement agencies. According to the Constitution, the President, and members of the parliament (articles 72 and 104) are required to declare their assets when entering their functions. The focus is now on developing implementing legislation and a well-equipped agency to ensure reporting, assessments and enforcement.

26. Steps are also needed to strengthen the AML/CFT framework. The Financial Action Task Force (FATF) calls for the mobilization of the anti-money laundering framework to help detect and trace the laundering of proceeds of corruption and assist in the investigation and prosecution of bribery. Specific elements of the AML/CFT framework are particularly relevant in Chad, including: implementation of enhanced due diligence requirements for domestic politically-exposed persons (PEPs) and reporting by financial institutions of transactions when they suspect or have reason to suspect that the funds are the proceeds of criminal activity, including corruption. Chad is a member of the Groupe d'Action contre le blanchiment d'Argent en Afrique Centrale (GABAC). It has been assessed against the 2002 FATF standard and has yet to be assessed against the revised standard. As a member of the Central African Economic and Monetary Community (CEMAC), Chad is subject to the regional legal framework on AML/CFT and the implementing regulations issued for banks by the Commission bancaire de l'Afrique centrale (COBAC). As indicated in the 2015 FSSA on the CEMAC and the 2019 Staff Report for the Common Policies of CEMAC Member Countries, the AML/CFT framework needs to be rapidly strengthened both at the national and regional levels, in particular the risk-based supervision of the banking sector to ensure implementation of anti-corruption related measures.⁴

F. Conclusion

27. Improving governance is central to the development process and is a key contributor to raising growth in Chad. Strengthening governance and reducing corruption through increased transparency and accountability provides an important opportunity to support growth, generate revenues, and improve the allocation of public resources. This paper focused on tangible reforms in fiscal governance, oil sector oversight, and the anti-corruption framework, all of which are central to improving economic management. Sustained efforts to continue to push forward reforms will help create an environment which fosters private sector led development and more sustainable and inclusive growth.

⁴ For more details, see: Staff Report on the Common Policies of Member Countries of the CEMAC (IMF country report No 19/1 published in January 2019) and the Selected Issues Paper on A Regional Approach to Enhancing Governance and Reducing the Potential for Corruption in the CEMAC (IMF Country Report No 19/2 published in January 2019).

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SOCIAL SPENDING AND DEVELOPMENT OUTCOMES IN CHAD¹

Social outcomes have improved in Chad and poverty has declined but current development outcomes remain weak. The prevailing challenging economic, social, and security backdrop create significant constraints to the delivery and financing of social spending. Looking ahead, sustained progress is needed to improve the health and education levels of a young and growing population. Higher social spending will help to deliver improved health and education outcomes together with a more efficient use of resources to ensure that any additional budget allocations can deliver the greatest impact.

A. Introduction

1. Chad has experienced an improvement in development outcomes, but the overall situation remains challenging against a backdrop of economic, social, and security pressures.

Chad is a low-income country which faces significant challenges to development due to insecurity, limited state capacity, and a tense social situation. There have been long-standing security issues, particularly along Chad's borders and in remote areas within the country. At the current juncture, terrorist attacks have led to increased deaths and injuries, sending more refugees into the Lake Chad region creating additional pressures on Chad's existing deep development challenges. At the same time, weak governance and a sparsely populated country makes the delivery of social services more costly and difficult. Weak economic growth outside of the oil sector and a high debt burden have created further constraints on the ability of the state to meet the needs of a growing youth population.

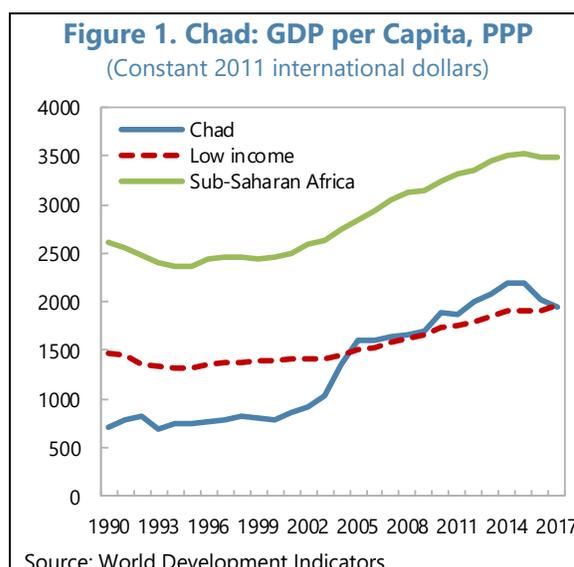
2. This paper focuses on health and education spending. Looking ahead, Chad's population is expected to grow at an average of 3 percent per year which will create additional demands on an already strained set of public resources. This paper gives particular focus on the impact on the health and education sectors as these are the largest component of government social spending and most significant social spending items in the Sustainable Development Goals (SDGs). The paper begins with a broader overview of development outcomes in Chad, the level and distribution of social spending in Chad, and the estimated costs of meeting the SDGs for health and education.²

¹ Prepared by Preya Sharma.

² See Gaspar V., Amaglobeli D., Garcia-Escribano M., Prady D., and Soto M. 2019. "Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs." IMF Staff Discussion Note 19/03, International Monetary Fund, Washington, DC.

B. Development Outcomes in Chad

3. Over the past two decades, the rise in national income has been associated with a decline in poverty. Following the onset of oil production in 2003, Chad experienced a rise in real GDP per capita and catch-up to the average level of income in other low-income countries across the world. Real GDP per capita more than doubled between 2000 and 2014. At the same time, the poverty headcount declined from 55 percent in 2002 to 48 percent in 2011 defined using the national poverty line.³ However, the large oil price and security shocks that began in 2014 led to a 15 percent decline in GDP per capita eroding some of the gains of the past. Economic activity has now stabilized, and per capita growth is recovering.



4. A broad measure of human development also shows an improvement over time, but Chad remains one of the lowest ranking countries in the world. The United Nation's Human Development Index (HDI) is a summary indicator for assessing progress along three dimensions; life expectancy, access to education, and standard of living measured using Gross National Income (GNI) per capita.⁴ In Chad, between 2000 and 2017 increases in life expectancy, years of schooling, and GNI per capita contributed to an increase in the value of the HDI from 0.3 to 0.4. However, the level of human development remains low at a position of 186 out of 189 countries and territories.

Table 1. Chad: Human Development Index

	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2011 PPP\$)	HDI value
2000	47.6	4.9	1.4	980	0.299
2005	48.1	5.5	1.5	1,519	0.330
2010	50.2	6.7	1.9	1,860	0.371
2015	52.6	8.0	2.3	2,014	0.407
2017	53.2	8.0	2.3	1,750	0.404

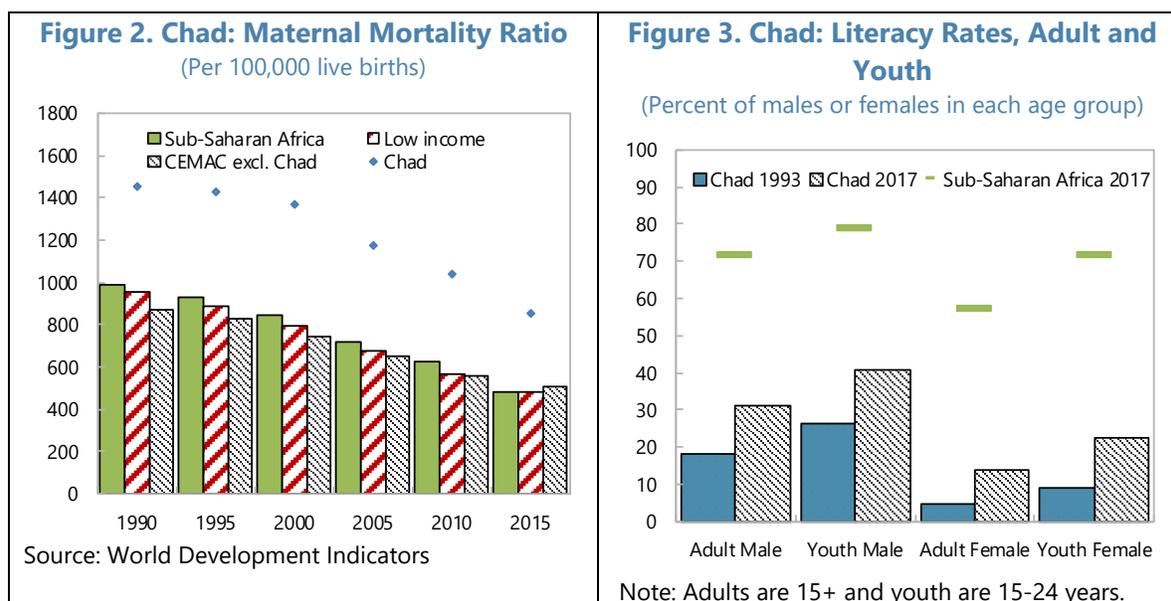
Source: UNDP

³ The national poverty line is the Chad specific poverty line rather than the \$1.90/day concept used by the World Bank and is defined by the National Statistical Office. It represents the consumption of food required to obtain 2,400 Kcal per day plus the average consumption of non-food items by a population around the food poverty line. Once regional disparities in prices of food are taken into consideration, the total poverty line represents 237,942 CFA (equivalent to US\$406) per person per annum deflated to N'Djamena equivalent prices.

⁴ Access to education is based on two indicators. Expected years of schooling is the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist. Mean years of schooling is the average number of years of education received by people ages 25 and older.

5. Health outcomes have improved but significant gaps with other countries in the region remain. Among health indicators, there has also been an improvement overtime with maternal mortality, infant mortality, and the incidence of diseases such as malaria declining. For example, maternal mortality declined from 1370 per 100,000 live births in 2000 to 856 in 2015. This is a substantial improvement and marks the largest absolute decline in maternal mortality rates in the CEMAC region over this period. Nonetheless, the level of maternal mortality remains well above the average level in other low-income countries (479 per 100,000 live births) and sub-Saharan Africa (547 per 100,000 live births). This compares poorly with the SDG maternal mortality goal which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030.

6. There have been strong gains in primary school enrollment rates, but access to education remains very low, particularly for girls. Primary school enrollment rates have increased from 64 percent in 2000 to 88 percent in 2016 compared with close to 100 percent gross enrollment rates in other low-income countries and sub-Saharan Africa. Secondary school enrollment rates in Chad are substantially lower at just 23 percent, compared with about 40 percent in other low-income countries and sub-Saharan Africa. Moreover, the ratio of girls to boys in primary and secondary school is just 0.7 compared with 0.9 in other low-income countries and sub-Saharan Africa. This gender disparity is strongly evident in education outcomes. Literacy rates for young males is low at 40 percent but for young females it is even lower at just 20 percent.



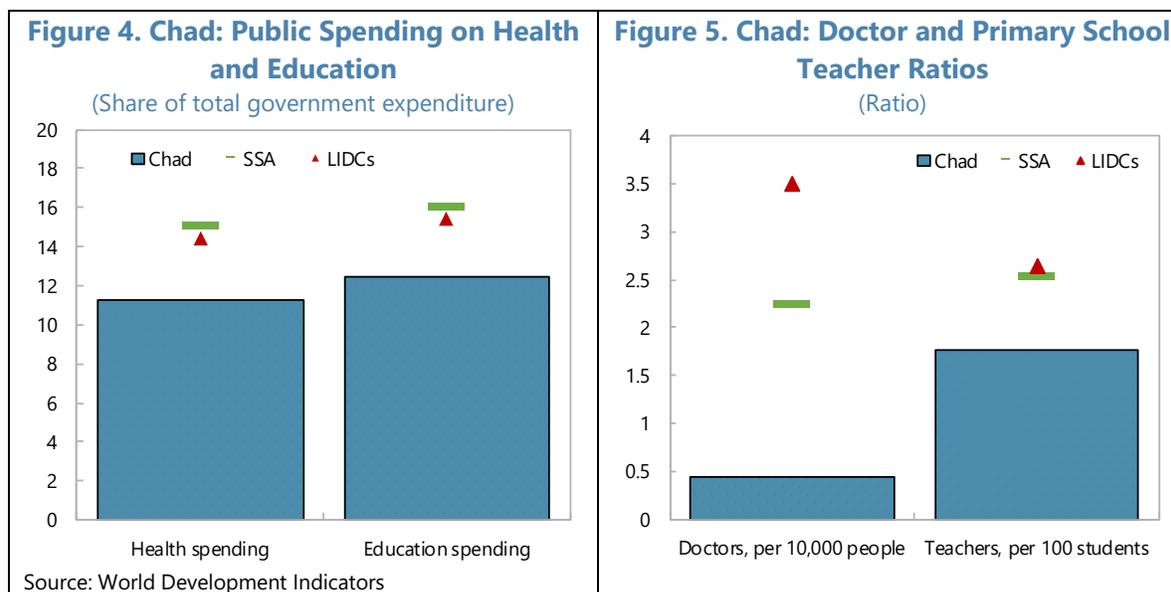
C. Social Spending in Chad

7. Health and social spending are the largest components of social spending in Chad. Under the Fund supported program in Chad, the level of poverty-reducing social spending in percent of domestically financed primary expenditure is targeted to increase gradually. Social spending is broadly defined to include spending on education, health, gender, early childhood

protection, agriculture, environment, water and sanitation and training and job promotion.⁵ Within these sectors, education and health spending comprises an average of 53 and 21 percent of total spending respectively and about 80 percent of total poverty-reducing social spending is in the form of wages.

8. Public health spending and the availability of healthcare is low compared to other countries. The level of public resources dedicated to health in Chad is below that of other low-income countries and sub-Saharan African countries. Public health spending in total government spending is 11 percent compared with 14 percent in other low-income countries. On a per capita basis, spending in Chad is \$130 on a PPP basis, compared with \$200 in other low-income countries. This translates into fewer doctors and other physical resources per capita compared with other low-income countries.

9. The education sector also faces a constrained financing environment. Spending on education is a smaller share of the budget and overall GDP compared with other low-income countries. In Chad, about 2.9 percent of GDP is spent on education compared with 4.3 percent in peer countries. The availability of teachers to students is also lower than other countries with Chad having 57 primary school students per teacher, compared with 38 in other low-income countries.



⁵The definition used in the Fund-supported program is broadly based on the expenditure of the following ministries in charge of social sectors, as recommended by the World Bank in the absence of a budgetary functional classification; (i) National Education and Civic Promotion, (ii) Public Health, (iii) Women, Early Childhood Protection and National Solidarity, (iv) Production, Irrigation and Agricultural Equipment, (v) Livestock and Animal Production, (vi) Environment, Water and Sanitation, and (vii) Professional Training and Small Job Promotion.

D. Meeting the Sustainable Development Goals in Health and Education

10. The SDGs for health and education are ambitious objectives, particularly given Chad's starting point. The SDG for health is to ensure healthy lives and promote well-being for all ages. The goal is underpinned by nine targets which can be measured using 21 indicators. For example, it includes the goal of reducing the global maternal mortality ratio to less than 70 per 100,000 live births and ending preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce under-5 mortality to at least 25 per 1,000 live births by 2030. The SDG for education seeks to ensure inclusive and quality education for all and promote lifelong learning which includes ensuring that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes by 2030.

11. Meeting the SDGs for health and education will require allocating adequate resources to these sectors to be spent efficiently. The cost of meeting the SDGs for health and education for Chad by 2030 can be estimated using a methodology developed by Fund staff (see footnote 1 for reference). For each sector, the main inputs for delivering the social service are identified together with a reference unit cost for each input. The total level of spending needed by 2030 is then estimated based on the underlying population and economic growth rate for Chad. For health, the main inputs are the number of healthcare workers and, for education, it is the number of teachers and other current and capital spending. The level of inputs and reference unit costs is based on the median for other low-income countries that perform well today in meeting the SDGs (see annex for details).

12. Low-income countries that perform well in meeting the SDGs are also among the most efficient in terms of spending. Low-income countries that perform well in terms of health outcomes tend to have more medical personnel and pay relatively lower wages than other countries of the same income group. Similarly, in the education sector, low-income countries with relatively high education outcomes tend to have fewer students per teacher and pay relatively lower wages (as a ratio of GDP per capita) than other countries of the same income group. Since the level of inputs and reference unit costs used in the estimations for Chad in 2030 are based on the high-performing low-income countries, there is an underlying assumption in the methodology that assumes that resources are re-allocated to increase the efficiency of spending.

13. Estimates suggest a sizeable scaling up of resources and a more efficient allocation of these resources are needed in Chad. It is important to recognize that these estimates are tailored to Chad in terms of estimated population and economic growth. However, they do not reflect all of the characteristics of Chad, including that it is a landlocked country with a highly dispersed population, and relatively weak security conditions in parts of the country which may mean that the cost of delivering these social services on a per capita basis may be higher for Chad than in other high-performing low-income countries. As such, the estimates provide an indicative guide as to the minimum level of spending that may be needed to meet the SDGs for health and education.

- Within the health sector, the reference ratios show that high performing low-income countries have more doctors and medical personnel per person. These countries have 9 doctors per

10,000 people compared with just 0.4 doctors in Chad in 2018. They also have many more other medical personnel such as nurses delivering health care. Moreover, the share of doctor wages relative to GDP per capita is also much lower in other low-income countries suggesting that better health outcomes can be achieved by allocating a relatively lower level of resources to doctor wages. Overall, the estimates suggest that health spending, as a share of GDP, would need to increase from 4.9 percent currently to 10.9 percent in 2030 to meet the SDG for health.

- In the education sector, high performing low-income countries have fewer students per teacher, with just 15 students per teacher compared with 46 in Chad. Given the increase in the number of students projected over the coming decade, this implies a significant increase in the number of teachers needed in Chad. Similar to the health sector, the share of teacher wages, as a ratio to GDP per capita, is lower in high performing low-income countries. Overall, projections out to 2030 for Chad suggest there is a need for a significant increase in education spending from 4 to about 14 percent of GDP.

Table 2. Chad: Costing Estimates for Meeting the SDGs in Health and Education

Health		
Main inputs	2018 Current	2030 Estimate
Doctors (Per 10,000 population)	0.4	9.1
Other medical personnel (Per 10,000 population)	5.6	42.6
Doctor wages (Percent of GDP per capita)	44.0	10.4
Other current and capital spending (Percent of total spending)	70.9	70.9
Results	2018 Current	2030 Estimate
Health spending (Percent of GDP)	4.9	10.9
Public	1.9	5.6
Private	3.0	5.2
Per capita spending (USD 2018)	41.7	91.2

Table 2. Chad: Costing Estimates for Meeting the SDGs in Health and Education (concluded)

Education		
Main inputs	2018 Current	2030 Estimate
Students per teacher (Ratio)	45.9	15.1
Teacher wages (Ratio to GDP per capita)	3.6	2.1
Other current and capital spending (Percent of total spending)	53	55
Results	2018 Current	2030 Estimate
Education spending (Percent of GDP)	4.0	13.7
Public	2.8	10.9
Private	1.2	2.8
Spending per student (USD 2018)	144	237

Source: Staff calculations

E. Conclusion

14. Raising outcomes in health and education requires a concerted effort to dedicate more public resources to these sectors. Chad has made progress in improving access to education and health services, but with population growth of 3 percent per year, continued efforts are needed to increase the provision of services. By 2030, there will be an additional 1.7 million youth that will be entering the education system and a total of about 5 million people in need of health care services. Key to the scaling up of these services will be to ensure that resources are allocated efficiently given the immense development needs of the country.

15. Identifying sustainable sources of financing is central to the challenge of improving development outcomes. Estimates suggest that efficiency gains alone will not be sufficient to meet the demands for health and education. Additional sources of revenue from domestic sources, international partners, and the private sector will be needed to meet the long-term financing challenge.

Annex. Sustainable Development Goals and Methodology

The annex provides the set of targets which are used to achieve Sustainable Development Goals (SDGs) and a summary of the methodology used to estimate the cost of meeting the SDGs in health and education by 2030.

A. Sustainable Development Goals: Targets for Health and Education

Sustainable Development Goal 3: Good health and well-being for all

Ensure healthy lives and promote well-being for all at all ages.

Goal 3 Targets

3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births.

3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.

3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.

3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents.

3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

Sustainable Development Goal 4: Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Goal 4 Targets

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes.

4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education.

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

B. Costing methodology

Education

Total spending for education can be expressed as

$$\text{Total education spending} = (\text{AWAGE} * \text{TSR} * \text{ER} * \text{SAP}) / (1 - y - z),$$

in which main costing parameters include number of teachers, which is derived as the product of the teacher-to-student ratio (TSR), enrollment rates (ER), and school-age population (SAP); teacher salaries (AWAGE); share of noncompensatory current expenses (y); and share of capital expenses (z).

The methodology sets values for TSR, AWAGE, y , and z at the median values observed today in countries with high education outcomes, separately by income group.⁶ Next, for each country, education spending in 2030 is estimated using the corresponding benchmarked key inputs and unit costs and the country's projections for economic growth and school-age demographics. We assume in 2030 full enrollment for at least 2 years of preprimary and tertiary education and 12 years of primary and secondary education. Target enrollment rates are 50 percent for preprimary and tertiary and 100 percent for primary and secondary.

Health

Total spending for health can be expressed as:

$$\text{Total health spending} = (\text{DPR} * \text{pop} * (1 + \alpha/\rho) * \text{DAWAGE}) / (1 - x - y),$$

in which key costing inputs and unit costs include doctor salaries (DAWAGE); number of doctors and other medical personnel (derived using doctor density (DPR), total population (pop), and ratio of doctors to all other health staff (ρ)); the ratio of all non-doctor wages to doctor wages (α); the share of noncompensatory current expenses (y); and the share of capital expenses (z).⁷

The derivation of the benchmarks for DAWAGE, DPR, and ρ is done separately by income group, setting their values at the median observed today in countries with high health outcomes.⁸ Then, for each country, health spending in 2030 is estimated based on the benchmarked parameters, using country-specific projections for economic growth and demographics.

⁶ Benchmarks are set at the median for the parameters averaged from preprimary to tertiary levels. Countries' GDP per capita in 2030 is used for mapping to the income groups and benchmarked parameters. Three groups are considered by GDP per capita (less than US\$3,000; between US\$3,000 and US\$6,000; and between US\$6,000 and US\$18,000). High-performing countries are those with an SDG4 education index above 80 in the low-income group, above 82 in the middle-income group, and above 84 in the high-income group. The thresholds are chosen to allow for a representative sample size of high-performing countries in each group.

⁷ It is assumed that the ratio of all non-doctor wage to doctor wage to is 0.5. Shares of capital (x) and other current spending (y) in total spending are imputed using World Bank regional and income group averages.

⁸ Countries are grouped into three income groups using the same income ranges for education. High performing countries are those with an SDG3 health index above 70 in the lowest income group, above 78 in the median income group, and above 84 in the highest income group.