

# Prospects for the G5 Sahel countries to 2040

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The G5 Sahel countries – Burkina Faso, Chad, Mali, Mauritania and Niger – are confronted with multiple challenges. This report uses the International Futures forecasting system to analyse the likely development trajectory of these five countries to 2040 in agriculture, demographics, infrastructure, governance and education. It compares these prospects with the combined impact of a positive Desert Flower scenario and a dystopian Sahelistan scenario and presents recommendations for the future.

## Key findings

- ▶ The majority of the population depends on farming and pastoralism.
- ▶ The Sahel will remain one of the regions most seriously affected by climate change globally.
- ▶ The G5 Sahel countries, particularly Chad and Niger, perform worse on most human development indicators than any other region in the world.
- ▶ The population of the region is expected to nearly double by 2040.
- ▶ Violent extremism and insecurity in the region hamper efforts to improve living conditions and security.
- ▶ Remittances and aid will continue to play an important role into the future.

## Recommendations

To the G5 Sahel governments:

- ▶ Improve efficiency in the agricultural sector, as it is vital in reducing poverty in the region. This requires an integrated approach that boosts capacity, efficiency and resilience.
- ▶ Implement a more robust and decentralised model of urban governance to ensure that urbanisation serves as an enabler for the roll-out of services and for improvements in the well-being of large sections of the population.

To the G5 Sahel permanent secretariat:

- ▶ Undertake ongoing research to understand and respond to the evolving dynamics in herder and pastoral communities.
- ▶ Promote, deepen and enforce policies of good governance and humanitarian principles in the G5 Sahel member states as key to combating violent extremism.

To ECOWAS, the AU and other regional and continental actors:

- ▶ Increase cooperation with the G5 Sahel with a view to help strengthen institutions, norms and global recognition as a legitimate entity for the promotion of economic development, peace and security in the Sahel.
- ▶ Support regional integration to unlock larger markets.

To the UN:

- ▶ Fully operationalise the UN Support Plan for the Sahel, giving priority focus to areas aimed at achieving SDGs.
- ▶ Promote international support for the G5 Sahel and its member states by raising awareness of the critical human security issues confronting the region.
- ▶ Help mobilise financial and in-kind resources for addressing the challenges of the region and ensuring the effective implementation of programmes.

To international development partners:

- ▶ Where possible, ensure that aid invigorates and diversifies the economies of the five countries and improves appropriate education while creating and improving infrastructure to provide greater access to markets, financial services and job opportunities.
- ▶ Support a cash grants programme using modern technology.
- ▶ Help to protect resources such as the marine ecosystem.
- ▶ Reduce the costs of sending remittances to Sahel countries by diaspora populations, and reverse the current trend through which commercial banks are 'de-risking'.
- ▶ Resist the temptation to impose Western-style democracy and allow political liberalisation to unfold in its own distinct way in the region.

## Introduction

For several decades, Burkina Faso, Chad, Mali, Mauritania and Niger, collectively known as the Group of Five (G5) Sahel countries, have endured the turmoil born of post-independence coups, counter-coups and weak and ineffective institutions.

Instability in neighbouring countries such as Algeria, Libya, Nigeria and the Central African Republic (CAR) has facilitated the spread of violent extremist groups, conflicts and transnational organised crime in the region.

The fallout from the Arab Spring and the international military intervention in Libya has amplified the existing challenges of underdevelopment, fragility and localised conflicts.

Today, the region faces crises across multiple fronts, including the accelerated impact of climate change, rapid growth in population, abject poverty and underdevelopment.

As these challenges grow in importance, the G5 Sahel countries have attracted considerable international attention largely owing to increased activities related to the spread of violent extremist organisations (VEOs) and use of the region as a transit route for migrants to Europe. This has led to the deployment of security forces under bi- and multilateral mandates to promote and maintain peace and security, as well as pledges

for increased funding in the areas of development and humanitarian intervention.

Against this background, this report uses the International Futures (IFs) modelling platform (see Box 1) to explore key structural drivers that will shape the long-term future of the G5 Sahel countries to 2040.

### Burkina Faso, Chad, Mali, Mauritania and Niger are known as the G5 Sahel countries

The sections that follow first summarise the current key characteristics of the G5 Sahel countries and how they are expected to evolve to 2040. To support our analysis, we rely on an augmented Current Path forecast from IFs (see Box 2 and Annex). Subsequent sections review the extent of underdevelopment in the region using a framework of physical, human, social and knowledge capital.

The second part of the report complements the analysis of the Current Path forecast with the development of a set of positive interventions in agriculture, demographics, education, governance, foreign aid/investment and infrastructure that we call the **Desert Flower** scenario. The use of the term here

### Box 1: IFs modelling platform

The IFs modelling platform is a global, long-term forecasting tool that helps frame uncertainty around future development. IFs integrates data across 12 major global systems: agriculture, demography, economy, education, energy, environment, finance, governance, infrastructure, international politics, health and technology. All systems are interconnected in IFs, so that a change in one system affects change across other systems. IFs is a hybrid system that draws from many traditional modelling techniques to form a series of algorithms that endogenises relationships in key global systems. The model is developed and hosted by the Frederick S Pardee Center for International Futures at the Josef Korbel School of International Studies, University of

Denver. It is open source and can be downloaded for free at [www.pardee.du.edu](http://www.pardee.du.edu).

IFs has over 4 500 data series for 186 countries and forecasts more than 600 variables out to 2100. The model holds historical data from a host of international organisations, such as the International Monetary Fund, the World Bank, the World Health Organization, and the United Nations and others. These organisations all invest in ensuring comparability and quality of their data. Where available, the data dates back to 1960 and IFs forecasts from 2015 (the current base year). The tool produces policy relevant information that helps to shape how we think and frame future uncertainty based on desired development objectives and goals.



## Box 2: IFs Current Path scenario

The IFs Current Path is an integrated scenario that represents a ‘most likely’ development pathway based on our best understanding of the systems formalised within the model. The Current Path provides a reliable expectation of how major development systems are likely to unfold, and is a useful starting point from which to design alternative future scenarios.

The African Futures and Innovation (AFI) team at the Institute for Security Studies (ISS) hosted a consultative workshop in Dakar from 1–5 October 2018 to present the Current Path forecast to issue-area experts and stakeholders in the region. The workshop also set out the framework for the development of the scenarios that are presented in this report.

emphasises how the Sahel can achieve economic development given current constraints.

We also present a pessimistic outlook for the future, which we call the **Sahelistan scenario**,<sup>1</sup> which simulates the impact of a drought and a general deterioration in security and development prospects of the region.

We present and discuss the summary impact of these scenarios using key indicators such as levels of poverty and income before concluding with a set of recommendations.

All currency values in this report have been converted to constant 2017 euro values and where comparisons are made with other low- and lower-middle-income groups, the G5 Sahel countries have been removed from those groupings.

### The G5 Sahel countries in context

The definition of the Sahel varies from author to author, and it is often defined in climatic and territorial terms. In this report the G5 is the group of five Sahelian countries that came together to create the G5 Sahel Force in February 2014 (see map), with its secretariat in Nouakchott, Mauritania. The Convention on the Establishment of the G5, adopted by the heads of state of the five countries on 19 December 2014, set out the main objectives of the G5 Sahel:

- To guarantee conditions for development and security
- To offer a strategic framework for interventions to improve people’s living conditions
- To align development with security, supported by democracy
- To promote inclusive and durable development.<sup>2</sup>

The Sahel region has historically been highly porous. Ancient trans-Saharan trade routes facilitated cross-

border trade and a transhumance lifestyle for hundreds of years, predating the French colonial period.

Nominally, the five countries are all members of the Community of Sahel-Saharan States (CEN-SAD), established on 4 February 1998.<sup>3</sup> But with the turmoil in Libya, where its secretariat is based, CEN-SAD is effectively dormant. Apart from CEN-SAD, each of the five countries also belong to other regional economic communities (RECs) that straddle this region, underlining the fragmented nature of economic and political relations in the greater Sahel.

The five countries belong to other regional economic communities that straddle this region

Burkina Faso, Mali and Niger are members of the Economic Community of West African States (ECOWAS), founded in 1975 by the Treaty of Lagos,<sup>4</sup> which Mauritania left in 2000 (though it continues to maintain an observer status), and the West African Economic and Monetary Union (WAEMU [UEMOA in French]). Mauritania belongs to the Arab Maghreb Union (AMU), established in 1989 in Marrakech, Morocco,<sup>5</sup> which has been moribund for several decades, largely owing to the impasse over the future of Western Sahara. Finally, Chad is the only G5 Sahel member that belongs to the Economic Community of Central African States (ECCAS), established on 18 October 1983,<sup>6</sup> and the Economic and Monetary Community of Central Africa (CEMAC), created on 6 March 1994.<sup>7</sup> Chad also borders a number of countries in turmoil, including Libya, Sudan, the CAR, Nigeria and Cameroon, and has been drawn deeply into those conflicts.

Map 1: G5 Sahel countries



Currently, countries in the region produce cowpea, millet and sorghum as staple crops, while cotton and groundnuts are the most popular cash crops. Pastoralists generally rely on cattle, goats and sheep, but fisheries are also an important source of livelihood under threat from climate change and demographic pressure.

Mauritania is home to one of the richest marine ecosystems on the planet, which constitutes more than 25% of the country's export earnings.<sup>8</sup> However, its fisheries are being exploited at rates 30–40% higher than the maximum sustainable yield.<sup>9</sup> Moreover, rising sea level temperatures and ocean acidification, as identified by the Intergovernmental Panel on Climate Change (IPCC) and the National Oceanic and Atmospheric Administration (NOAA) of the United States (US), further threaten the long-term sustainability of this ecological system.

Inland fisheries are also under tremendous pressure, with the Lake Chad Basin the quintessential example. Between 1963 and 2001 Lake Chad shrunk in total size from about 22 000 km<sup>2</sup> to about 1 300 km<sup>2</sup> – a reduction of more than 90%.<sup>10</sup> The director-general of

the Food and Agriculture Organization (FAO) has called the situation in the Lake Chad Basin area 'not only a humanitarian crisis, but an ecological one'.<sup>11</sup>

Mauritania is home to one of the richest marine ecosystems on the planet

Lake Chad sits at the intersection of the borders of Chad, Cameroon, Nigeria and Niger and is a source of livelihood for around 30 million people as far away as Sudan to the east and Algeria to the north-west.<sup>12</sup> The United Nations (UN) Office for the Coordination of Humanitarian Affairs (OCHA) estimates that by July 2018 there were about 5 million severely food-insecure people in the Lake Chad region, nearly 11 million in need of humanitarian assistance and almost 500 000 children suffering from severe acute malnutrition.<sup>13</sup>

With the exception of Mauritania, which is categorised as lower middle income, the G5 Sahel countries are all classified as low income by the World Bank, and their

development indicators are often found at the bottom of international rankings.<sup>14</sup> In the past few decades, gross domestic product (GDP) and per capita income have stagnated or even dropped. Today, GDP per capita in Niger is one-third of what it was in 1960, in both real terms and when adjusted for purchasing power parity.

Chad's GDP per capita levels were also below 1960 levels until the early 2000s, while Mauritania saw GDP per capita decline in 1970, only recovering to that level again in 2013. Burkina Faso and Mali have managed to modestly improve GDP per capita since independence, but in 2016 were ranked at 168th and 161st of 186 countries in the IFs database.<sup>15</sup>

Figure 1 shows the expected GDP per capita in the G5 Sahel countries in 2018 and the IFs Current Path forecast for 2040, along with averages for income peer groups in Africa. Generally, these five countries have grown slightly more rapidly than their peers in recent years, with an average GDP growth rate of 4.6% (against 4% for other low-income African countries) between 1990 and 2017.

In 2018 Niger was the only country in the G5 group where GDP per capita was below the average for other low-income African countries. However, by 2040 only Burkina Faso is projected to remain ahead of the continental average for low-income countries.

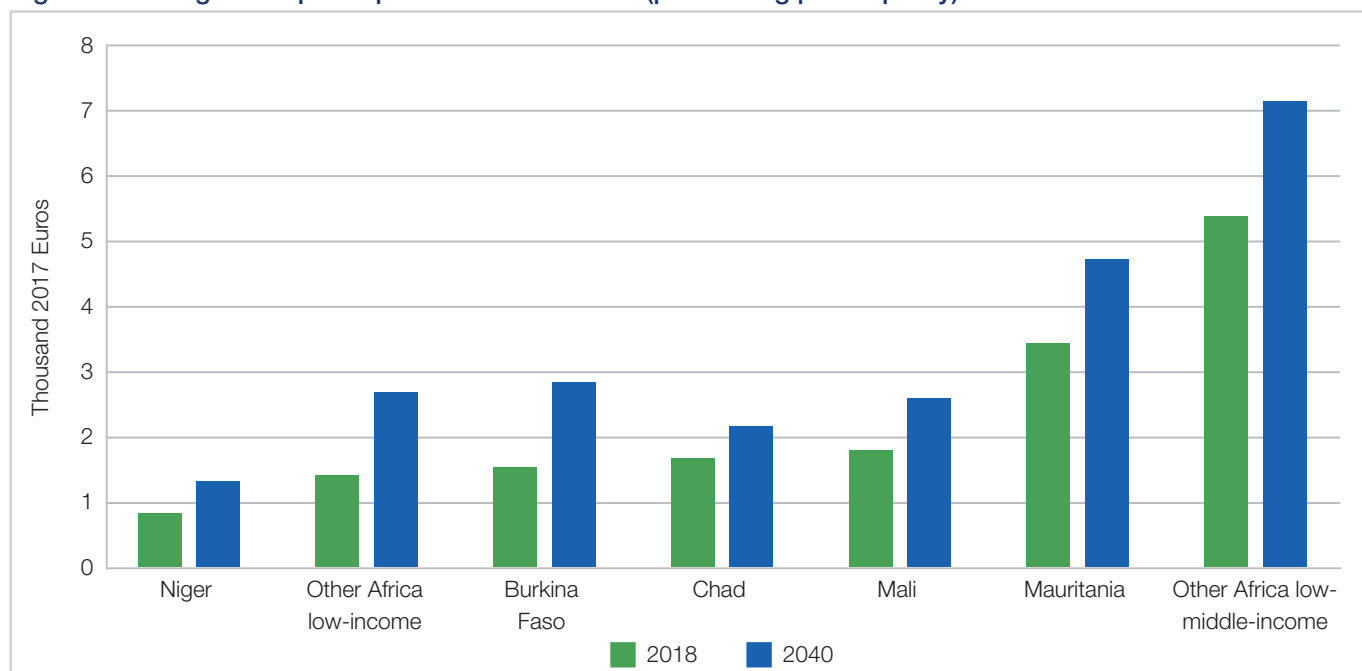
Despite projected annual GDP growth of 4.9% for the region (with no country averaging lower than 3.9% per year over the next 22 years), their GDP per capita will not keep pace with that of other low-income African countries. Mauritania currently lags behind the average for other lower-middle-income countries in Africa and will fall further behind by 2040.

Generally, these five countries have grown slightly more rapidly than their peers in recent years

A major driver of stagnating GDP per capita is the region's rapidly growing population (Figure 2), which increased to 81 million people in 2018 from about 33 million in 1990. By 2040 the region is expected to have 152 million people. To place this in context, in 1990 South Africa had about 4 million more people than the combined population of the G5 Sahel countries, while by 2040 it will have about 84 million fewer people than the G5 Sahel group.

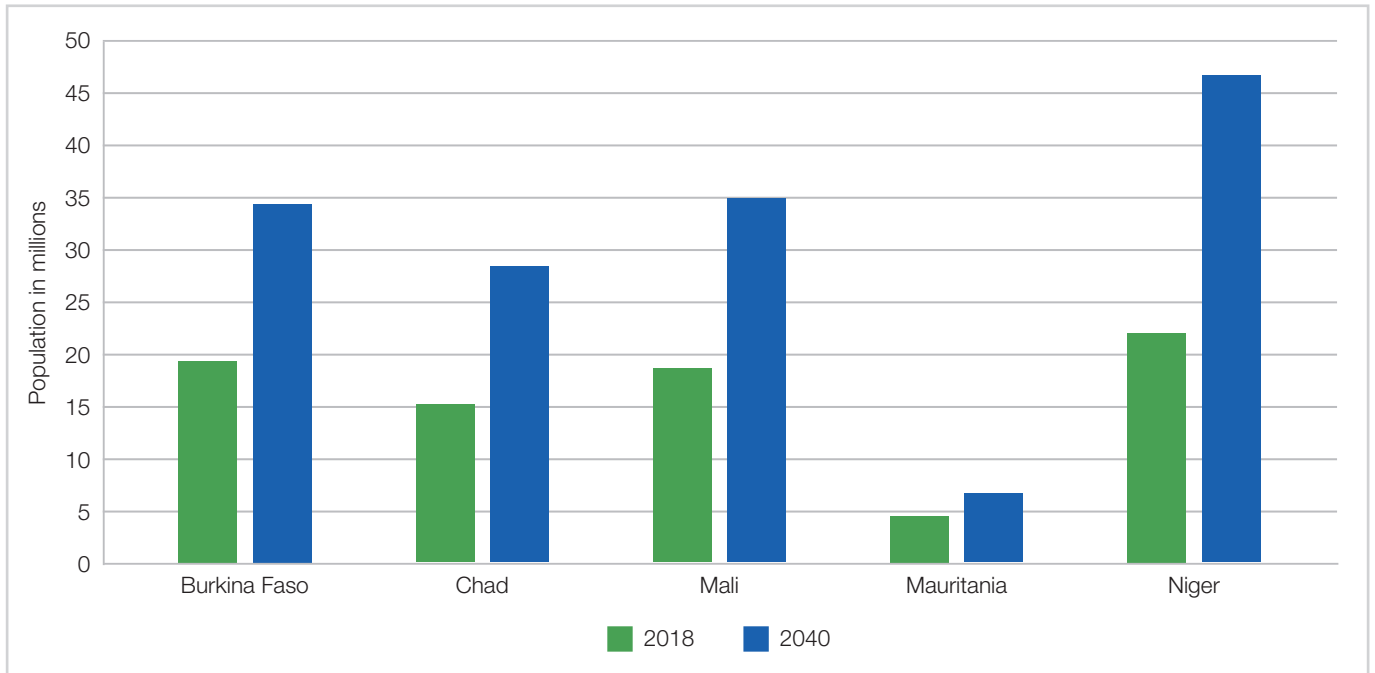
Over 40% (about 33 million) of the 81 million people in these five countries live in extreme poverty (i.e. below average daily incomes of US\$1.90 per person in 2011 constant dollars). More than 30% have no access

**Figure 1: Average GDP per capita in 2018 and 2040 (purchasing power parity)**



Source: IFs version 7.36, historical data from World Development Indicators

**Figure 2: Population size in 2018 and 2040**



Source: IFs version 7.36 historical data from the UN Population Division (UNPD)

to clean water and nearly 80% go without access to improved sanitation facilities.

Additionally, the continental average for years of education among adults aged 15 and over is about double that of the G5 Sahel countries, while the global average is triple. Agricultural yields are low, at about 1.2 tonnes per hectare, comparable to the averages for the Middle East and North Africa (MENA) region in the 1970s.

**Violent conflict has displaced millions of people and will worsen the environmental crisis in the area**

Climate change is having a devastating impact on the G5 Sahel countries. The IPCC notes that the Sahel has ‘experienced the most substantial and sustained decline in rainfall recorded anywhere in the world within the period of instrumental measurements during the 1980s’.<sup>16</sup> Environmental degradation and violent conflict have displaced millions of people and will continue to worsen the environmental crisis in the area.<sup>17</sup>

Furthermore, these five countries are projected to experience some of the most severe climate change impacts globally as early as 2030. These impacts range

from increasingly variable rainfall, rising temperatures and more frequent droughts to prolonged heat waves.<sup>18</sup>

The NOAA expects that future drying will ‘exceed that experienced in the 1980s by the mid-21<sup>st</sup> century’.<sup>19</sup> This drying will harm the ability of soil to absorb moisture, so that the rain that does fall is likely to result in flooding and landslides, and further harm agricultural productivity. In a region heavily dependent upon rain-fed agriculture and grazing, rapid population growth will place increasing pressure on land use.<sup>20</sup>

Moreover, successive decades of poor governance and neglect have provided a fertile breeding ground for radicalisation and violent resistance against central governments generally seen as indifferent, corrupt, oppressive and exploitative.<sup>21</sup>

In Mali, for example, organised crime is contributing to the erosion of traditional hierarchies in the north, where businesses and other elites are increasingly implicated as colluding with corrupt security services to share profits with politicians in the south.<sup>22</sup>

In Niger, organised crime is eroding the rule of law and governance by infiltrating state structures, promoting corruption, deepening social divisions and keeping grievances alive. Organised crime is often intertwined with violent extremism and the two feed off other governance challenges in the region.

The result is that the concept of ‘ungoverned’ or ‘alternatively governed’ spaces<sup>23</sup> in northern Mali and elsewhere pervades security discussions about stability, as does the evident collapse of formal state structures in parts of the region. However, it is important to recognise that large parts of these territories have never been formally governed.

In response to the worsening security situation, the G5 Sahel countries have sought to develop a coordinated response by establishing a Permanent Secretariat and the G5 Sahel Joint Force (FC-G5S) in 2014. The secretariat is tasked with coordinating sustainable development efforts and elaborated, among others, a Priority Investment Programme (PIP) that emphasises governance, security, infrastructure and economic resilience as integral priorities of its mandate.

The FC-G5S faces many hurdles and is under-resourced in every aspect, partly because the G5 Sahel countries have themselves not yet fully met their stated troop contributions. It also lacks training and equipment, while bases are in a poor condition. In addition, there are command issues, as well as a lack of clarity on the common enemy and inadequate cooperation with other regional security initiatives.<sup>24</sup> Lastly, it has had to rely on a range of different funding mechanisms with pledged funds being disbursed too slowly.

These security challenges expose the poor state of governance that has characterised the region for

decades. This is clear from the number of multinational and regional actors active in the G5 Sahel countries (see Box 3).

The region lies astride one of the two major migration transit routes in the world, with South Sudan, the CAR and the Democratic Republic of Congo comprising some of the largest refugee and migration source countries globally. In addition, the deteriorating security situation in Nigeria owing to Boko Haram’s activities has seen mass forced displacement.

Migration within and across the region is economically important and goes back many generations

About a quarter of the migrants name Europe as their final destination. In recent years larger numbers of West African migrants appear to be seeking opportunities in emerging economies on the continent.

Migrants move because of lack of rights, violence, general insecurity, insufficient economic opportunities and social services in their countries. They move to where living standards are better, there is a chance of a job and they will not be oppressed. To a large extent migration within and across the region is economically important and goes back in history over many generations.<sup>27</sup>

### Box 3: Multinational and regional actors active in Sahel

Other forces in the region include the UN Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), which was established in 2013 and is headquartered in Bamako. The UN Security Council (UNSC) Resolution 2391 of December 2017 mandated MINUSMA to support the FC-G5S in Mali (since MINUSMA’s peacekeeping mandate is restricted to Mali) on a reimbursable basis. However, implementation has been constrained owing to a lack of resources, as well as a preference for voluntary rather than assessed contributions from key UN member states. An important consideration here is how to insulate the UN from engagement in counter-terrorism operations.<sup>25</sup>

The 3 000-strong French anti-terrorist operation, Operation Barkhane,<sup>26</sup> is based in N’Djamena, Chad and operates in all the G5 Sahel countries.

Also based in N’Djamena is the Multinational Joint Task Force (MNJTF) formed within the framework of the Lake Chad Basin Commission (LCBC) and between ECOWAS countries (Benin, Niger and Nigeria) and ECCAS states (Chad and Cameroon). The MNJTF is mandated by the African Union’s Peace and Security Council to eliminate Boko Haram and stabilise the affected countries. Niger and Chad are the two G5 Sahel countries most affected by Boko Haram and are both member states of the MNJTF.



**Table 1: Priority Investment Programme**

| Strategic focus                  | Number of projects | Total cost        | Acquired financing |                                 | Financing sought  | Gap        |
|----------------------------------|--------------------|-------------------|--------------------|---------------------------------|-------------------|------------|
|                                  |                    |                   | States             | Technical and financial partner |                   |            |
| Defence and security             | 3                  | €454.60m          | €40.90m            | €17.5m                          | €396.20m          | 87%        |
| Governance                       | 4                  | €90.00m           | €9.00m             | –                               | €81.00m           | 90%        |
| Resilience and human development | 6                  | €228.02m          | €23.13m            | €0.25m                          | €204.64m          | 90%        |
| Infrastructure                   | 27                 | €1 223.69m        | €176.85m           | €0.24m                          | €1 046.61m        | 85%        |
| <b>Total</b>                     | <b>40</b>          | <b>€1 996.31m</b> | <b>€249.88m</b>    | <b>€18m</b>                     | <b>€1 728.45m</b> | <b>87%</b> |

Source: 2019–2021 Priority Investment Programme, October 2018

In recognition of these risks, the members of the Sahel Alliance (France, Germany, the European Union, the World Bank, the African Development Bank [AfDB], the UN Development Programme, Italy, Spain and the United Kingdom) have announced the implementation of over 500 projects at a cost of €6 billion to transform the Sahel region (including additional countries beyond the G5). But when spread across the vast region, these amounts could, however, only have a limited impact on current migration trends.<sup>28</sup>

The region has the potential to expand electricity access through its massive endowment of renewable energy

While there are challenges, there is also reason to be cautiously optimistic. Following recent discoveries in the Tortue area, Mauritania and Senegal now share deep-water gas discoveries across their maritime border. British Petroleum (BP) estimates a potential of up to 1 415 km<sup>3</sup>, which is equivalent to seven years of Africa's total current gas production. Currently, 25 km<sup>3</sup> (about 2% of the estimated total) of 'high quality' reserves are confirmed in this area and gas production is expected to come online by 2021.<sup>29</sup>

Revenues from the windfall could boost Mauritania across various development indicators, but would require proper management and deliberate investment in pro-poor and growth-oriented initiatives. For example, Chad

and Niger have seen little developmental benefits from their natural resource endowments.

The economic, social and political risks associated with large finds of oil, gas and minerals (i.e. the 'resource curse') are well known and researched and need to be taken into careful consideration in mapping out future benefits from these discoveries.<sup>30</sup>

The Sahel region also has great potential to expand electricity access through its massive endowment of renewable energy – primarily solar – that could be combined with off- and mini-grid solutions to rapidly electrify many homes in the region. To that end the AfDB committed to spending €10.2 billion over four years (2016–2020) to improve energy development in the G5 Sahel countries and Djibouti, Eritrea, Ethiopia, Nigeria, Senegal and Sudan in the 'Transform the desert into energy' programme.<sup>31</sup>

In May 2018 the Green Climate Fund and Africa50 investment fund joined the AfDB in the Desert to Power programme aimed at developing solar power throughout the Sahel.<sup>32</sup>

### Framework and analysis

Within IFs and many other formal economic models, economic growth is broken down into labour, capital and multifactor productivity (MFP), which consists of human, social, physical and knowledge capital.

For the purposes of this report each serves as a proxy for the levels of health and education (human capital), quality of governance (social capital) and sophistication

of infrastructure (physical capital). Knowledge capital, the final component of MFP, measures connectedness to the global economy.<sup>33</sup> Each of these four components of MFP can be positive or negative when compared to other countries at similar levels of development depending on whether it adds or detracts from economic growth.<sup>34</sup>

In the IFs analysis for the G5 Sahel countries as a group, all four components of MFP are negative. Physical capital (i.e. poor infrastructure) is the largest drag on growth, followed by human, social and knowledge capital. Poor physical capital is the largest drag on many African countries, and reflects the conclusions of the UN Economic Commission for Africa (UNECA), AfDB and others that Africa has a huge infrastructure deficit.<sup>35</sup> Although the infrastructure deficit in the G5 Sahel group is extraordinarily large compared to both low- and lower-middle-income African countries, the G5 Sahel countries also have a significant human capital deficit.

We recognise that the immediate security challenge must be addressed in order to allow improvements in other dimensions. We comment on this issue as part of social capital, which also responds to the central issue of poor and bad governance.

Currently the majority of the workforce in the G5 Sahel is engaged in subsistence agriculture with little connectivity to the rest of the economy, although services already represent a larger share of total economic activity. Moving forward, IFs projects that the structural composition of the economy will gradually become more services-oriented, exceeding 50% of total GDP in 2040. In contrast, agriculture, currently the second largest sector, is set to decline quite steeply from an estimated 34% in 2018 to 15% in 2040, in part as a result of the impact of climate change on agricultural yields.

However, a regional picture can mask large differences between countries. According to IFs, Burkina Faso is projected to experience a dramatic rise in services, increasing from 50% in 2018 to 62% by 2040. As a share of the total economy, agriculture plays the largest role in Chad but is least important in Mauritania, where the sector is forecast to decline to about 10% of total economic activity in 2040.

In the following sections we examine the challenges to physical, human and social capital and relate these to the changes in the contribution that services, agriculture,

manufacturing, energy, materials and information technology make at a country level.

## The physical capital challenge

Economic growth in all the G5 Sahel countries is constrained by poor infrastructure, including inadequate roads, limited access to improved water, sanitation and hygiene (WASH) facilities, low rates of electrification and a lack of basic information/communications technology. Chad scores significantly worse than any other country in the group, with more than 90% of its population lacking access to electricity or an improved sanitation facility.

IFs estimates that in 2018 only about 21% of the population in the G5 Sahel countries had access to improved sanitation – with access rates lowest in Niger and Chad. Moreover, only about 69% of the population in the region had access to safe water in 2018. Mauritania particularly suffered during the 2014 water crisis, which disproportionately impacted the more destitute segment of its population living in informal settlements.<sup>36</sup>

Currently the majority of the workforce in the G5 Sahel is engaged in subsistence agriculture

Conflict in the region, especially in Mali, has led to the flight of government services as well as a withdrawal by international aid agencies from some areas such as northern/central Mali. The subsequent looting and abandonment in the north of the country have thus worsened the existing challenges people face in accessing these basic resources.

A lack of access to safe water and improved sanitation facilities (see Figure 3) is directly correlated with a high prevalence of communicable diseases.<sup>37</sup> It is therefore unsurprising that diarrhoeal diseases and other communicable diseases<sup>38</sup> are the leading causes of mortality, particularly among children under five years of age.

Along with placing a significant burden on local health systems, high rates of communicable diseases also hinder education and long-term economic productivity.<sup>39</sup> The rate of stunting – a physiological condition characterised by a specific height-to-weight ratio that also has serious cognitive implications – in the region

(30%) is roughly 5 percentage points higher than the average for other low-income African countries.

Additionally, electricity access among the five countries only stood at 22% in 2018 and by 2040 IFs estimates it will still be below 50%. Mauritania is projected to have the highest access rate by 2040, at 75%, and Chad the lowest, at just 22%. This contributes to a heavy reliance on traditional cook stoves, which at above 80% is roughly on par with the average for other low-income African countries but also nearly four times the global average of 23%.

Service delivery is hampered by large land areas, low population densities and low levels of urbanisation, which complicate the provision of basic infrastructure such as water and sanitation. However, national data on the levels of urbanisation can be hugely misleading: more than 85% of Niger’s population lives in a narrow band along the Niger River and the border with Nigeria. In Mali only 10% of the population lives in the north of the country, which has faced continuous depopulation fuelled by desertification, instability and the attraction of urban life in the south.<sup>40</sup>

Properly planned urbanisation could help to improve service delivery and amplify efforts to alleviate poverty. There is a strong positive relationship<sup>41</sup> between urbanisation, education and health benefits given the

cost–benefit ratio of the provision of services to larger concentrations of people.

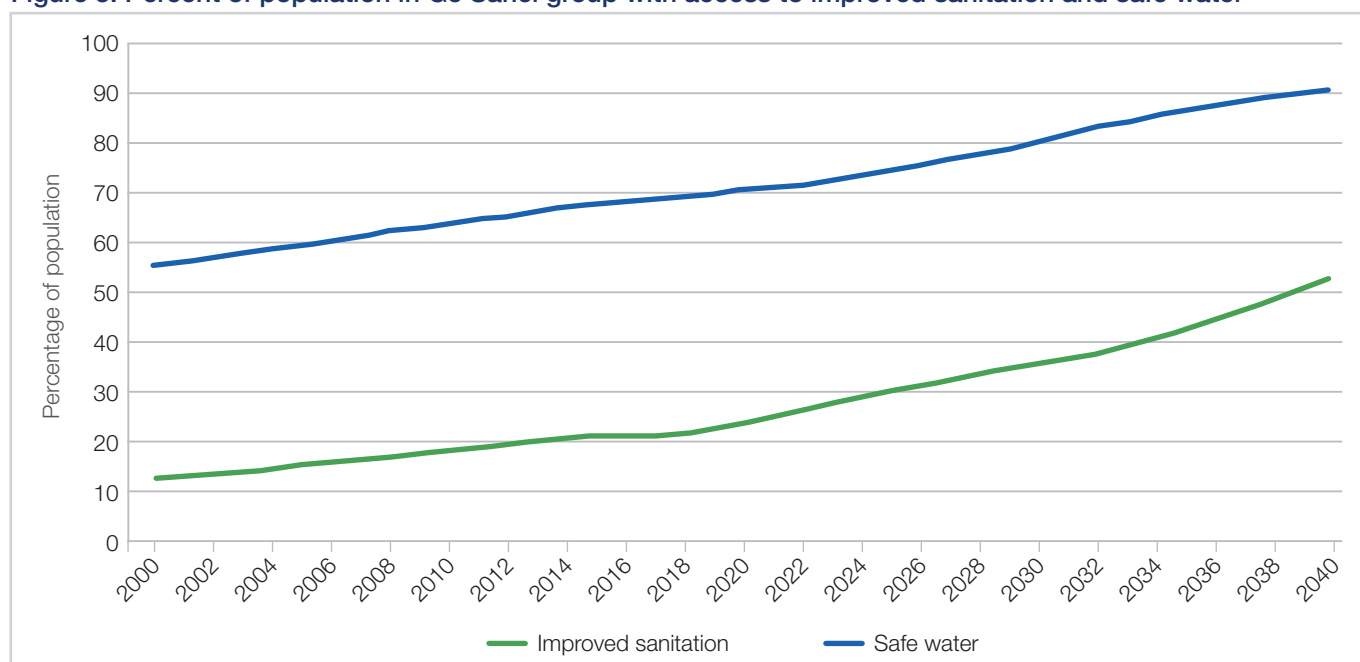
Urban areas generally have greater primary and secondary enrolment and a smaller gender gap in educational attainment. The effects on health are a bit more mixed, but the benefits include significantly lower rates of infant and under-five mortality, lower rates of child malnutrition and generally longer life expectancies.<sup>42</sup>

Service delivery is hampered by large land areas, low population densities and low levels of urbanisation

Additionally, people in urban areas will inevitably have greater access to medicine and technology, such as access to the Internet, than elsewhere.<sup>43</sup> However, there are also dangers, such as deteriorating air and water quality, traffic fatalities and the risk of overcrowded urban spaces becoming hotbeds of disease.

Finally, groups such as al-Qaeda in the Islamic Maghreb (AQIM) and the Islamic State West Africa Province (ISWAP) faction that split from Boko Haram in August 2016 have sabotaged infrastructure and wrecked the local economy, disrupted education and teaching

**Figure 3: Percent of population in G5 Sahel group with access to improved sanitation and safe water**



Source: IFs version 7.36, historical data from JMP

services and destroyed or looted ancient treasures in places such as Mali.<sup>44</sup> Most recently, Boko Haram has been co-opting economic activities such as trade routes and commercialising pepper and fish as a means to sustain its activities.<sup>45</sup>

In recent years groups have split and multiplied and new alliances have been formed. VEOs have perpetrated numerous attacks against increasingly ambitious targets and extended their geographical presence, particularly to the Liptako-Gourma border area between Burkina Faso, Mali and Niger.<sup>46</sup>

### The human capital challenge

Demographic systems are slow moving but powerful and will shape the future of the G5 Sahel countries in a fundamental manner. In a previous section we noted that the total population of the five countries is projected to almost double by 2040 (see Figure 2). However, with the exception of Mauritania, the G5 Sahel countries are at a very early stage in the demographic transition, meaning that they have high death and fertility rates. Almost half (47%) of the population is under the age of 15, amounting to almost 38 million people in 2018.

Although the G5 Sahel countries have improved average life expectancy at birth – from about 47 years in 1990 to nearly 60 in 2018 – the global average is about 73 years. Chad had the lowest life expectancy in the world in 2018, at 52 years. By 2040 the group's average life expectancy is forecast to improve to only 68 years, compared to the global average of 76.

Today, Niger has the highest fertility rate in the world at seven births per woman, followed closely by Mali and Chad (fourth and fifth) at 5.9 and 5.8 children respectively. By 2040 Chad, Niger and Mali will remain among the countries with the highest fertility rates in the world.

Some factors associated with high fertility rates are inadequate access to contraception, poor basic infrastructure and low levels of education. Access to contraception among the G5 Sahel countries ranges from 17% in Chad to 32% in Burkina Faso, whereas the average of other low-income countries on the continent is about 34%. The UN estimates that the unmet need for modern contraception in the region ranges from 21% (in Niger) to 33% (in Mauritania).<sup>47</sup>

There is also a large gender gap in education, even within the context of a region with very low levels of overall educational attainment.

Just over 28% of girls and women aged 15+ have completed primary education and less than 9% have completed secondary education. The perception of women as second-class citizens is also manifested in high rates of gender-based violence such as female genital mutilation (FGM) and child marriages.<sup>48</sup>

Initiatives such as the Ouagadougou Partnership, which aims to combat maternal mortality and promote family planning by emphasising modern contraception methods, therefore need greater support.<sup>49</sup> Low levels of educational attainment confirm the picture of a region that struggles with low levels of human capital.

The rapidly growing and large youthful population will challenge governments' ability to roll out services fast enough

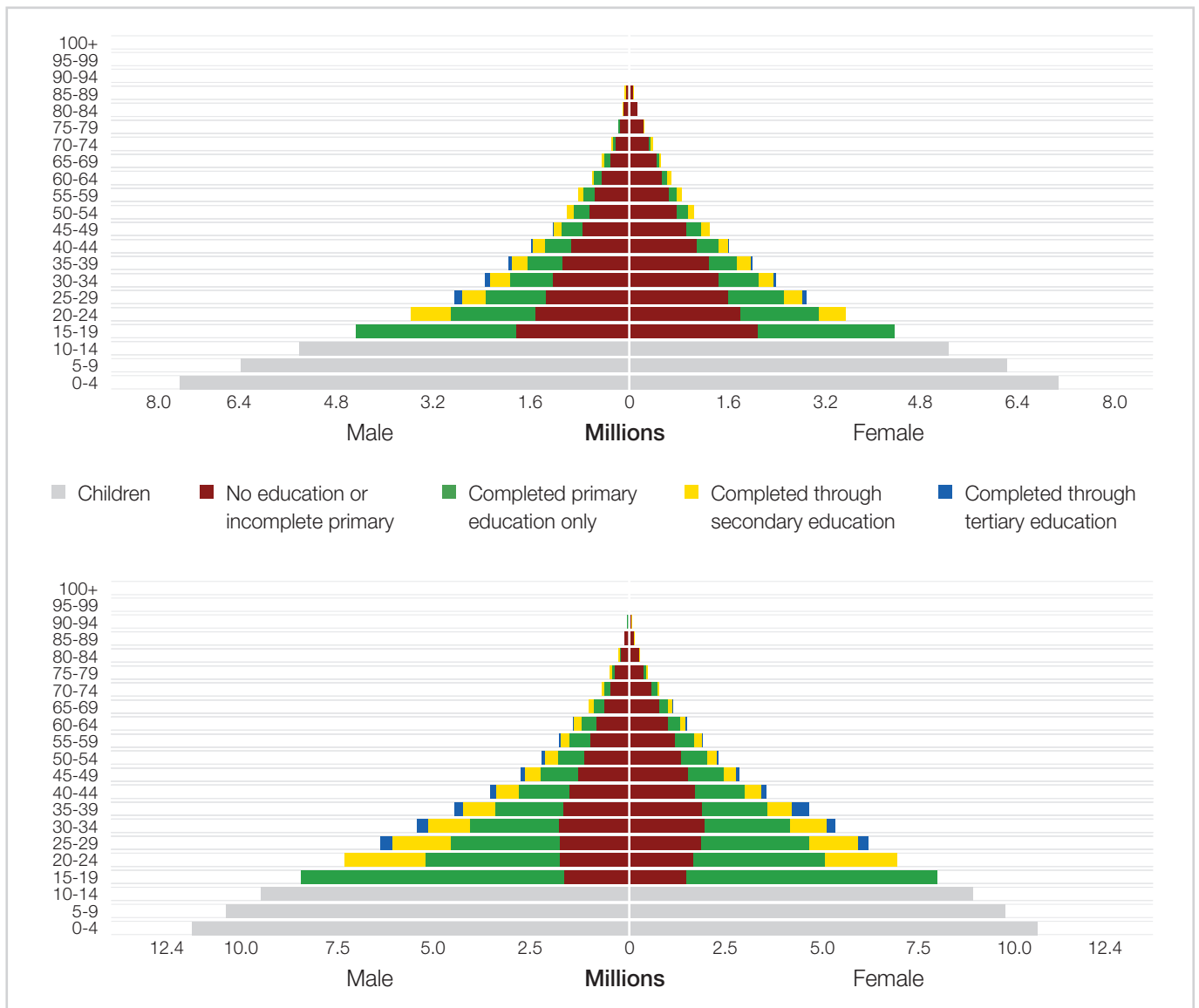
Figure 4 compares educational attainment for the G5 Sahel countries in 2018 and 2040, using a common scale to show the increase in population size and colours to indicate level of educational attainment. In 2018 the pyramid is dominated by red (no or incomplete primary education), particularly at the top (older generations) and on the right (females).

Nearly 23.8 million adults (aged 15 years and over) in the G5 Sahel countries either have not completed primary education or have no formal schooling. By 2040 the number is expected to rise to 32.5 million. Roughly 34% (or 14.5 million) of adults had completed primary school in 2018; by 2040, that number improves to about 47% (or 42.7 million). Additionally, in 2018 nearly 10% (or 4.2 million) of adults had completed secondary school – by 2040 that number inches up to 15% (or 13.9 million). Lastly, only about 1% (467 000) of adults completed tertiary education in 2018; by 2040 roughly 2.5% (2.3 million) of adults are expected to attain a tertiary qualification.

Overall, educational attainment levels are extremely low. Niger and Mali have some of the worst educational attainment levels globally, ranking lowest among countries that report data in average years of education in the adult population (over the age of 15).<sup>50</sup> Gross



Figure 4: Population pyramid and educational attainment in 2018 (above) and 2040 (below)



Source: IFS version 7.36, historical data from Barro-Lee

primary enrolment rates (i.e. including over-age students) improved from approximately 33% in 1990 to 89% in 2018, although net primary rates (per cent of age-appropriate children) are almost 20 percentage points lower. Lower and upper secondary completion rates in the region also trail significantly behind those of peer groups used in this report. Although it will take time to develop, a healthy and well-educated workforce is a prerequisite for rapid economic growth and sustained poverty reduction.

Countries also tend to experience accelerated income growth when demographic characteristics are favourable, particularly when the ratio of working-

age persons (15 to 64 years of age) to dependants (i.e. children and the elderly) is around 1.7 and above. The higher the ratio the more rapid economic growth becomes, all things being equal.<sup>51</sup>

However, for the next three to four decades the rapidly growing and large youthful population of the G5 Sahel countries will challenge governments' ability to roll out services fast enough.<sup>52</sup> Mauritania gets to a more favourable population structure first, at around 2044; Burkina Faso and Mali get there a decade later, followed by Niger several years later and then Chad at around 2080. In addition, since the ratio of working-age persons to dependants in the G5 Sahel countries

will peak at relatively low levels, generally below a ratio of 2.2 working-age persons to every dependant, economic growth is likely to remain relatively modest. Demographics will serve as a significant drag on the potential to improve livelihoods.

Although the ratio of working-age persons to dependants has started to improve in all five countries, as reflected in Figure 5, Niger, Chad and Mali will still have the lowest ratios globally.

This population growth will combine with climate change and other environmental stressors to place enormous pressure on agricultural systems in the region. This can undermine food security and impede the ability of people to lead full and healthy lives. On a Current Path forecast (see Figure 6), the average agricultural yields of Niger, Mauritania and Chad are expected to remain stagnant at current low levels and may even decline.

While climatic conditions are far from ideal, the agricultural sector in G5 Sahel countries also suffers from other, more straightforward problems. For instance, these countries have difficulty accessing markets, modern farming inputs and credit.

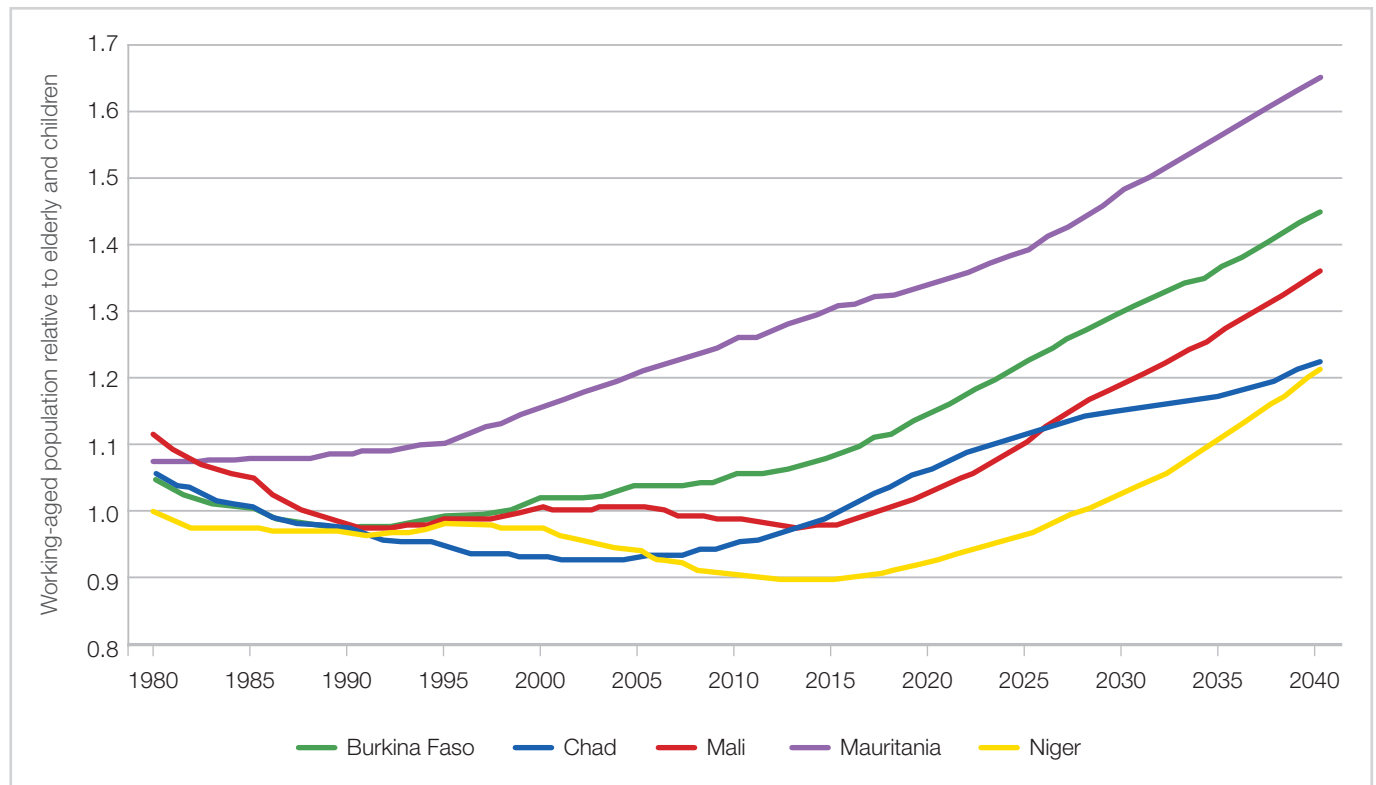
Poor infrastructure contributes to high levels of post-harvest, pre-consumption losses and exacerbates the political and structural barriers to markets. In response, several donors fund programmes to strengthen the necessary infrastructure and create support services in the agriculture sector in Niger and elsewhere.<sup>53</sup>

On a Current Path forecast, the average agricultural yields of Niger, Mauritania and Chad are expected to remain stagnant

Improving agricultural productivity in the Sahel is a gargantuan task. A temperature increase of 2°C over pre-industrial levels – a virtual certainty in the region – could reduce millet and sorghum yields (two of the most important crops for local food security) by up to 25% by 2080.

The UN Environment Programme and the World Agroforestry Center estimate that Mali could see cereal yields decrease by 30%, while in Chad and Niger rain-fed agriculture could be unviable by 2100.<sup>54</sup> Noting that higher temperatures reduce the caloric intake of

**Figure 5: Demographic dividend**



Source: IFS version 7.36, historical data from UNPD

livestock and can lead to energy deficits and decreased milk production, USAID estimates that this could reduce calving rates by 50%, meaning far fewer heads of livestock in future.<sup>55</sup>

Nonetheless, agriculture is critical to both livelihoods and the economy, and recent droughts have been significantly exacerbated by the Boko Haram insurgency, as border restrictions have caused ‘disruptions in traditional transhumance flows and livestock markets affecting food security and livelihoods, and straining water resources and grazing areas’.<sup>56</sup> This is having extremely negative effects on agricultural markets in the region. In Niger and Mali the prices of locally produced cereal have soared, while livestock prices have dropped in Chad owing to a decline in demand.<sup>57</sup>

Meanwhile, rising insecurity and uncertainty along the Nigerian border – which serves as the gateway to the largest market in the region – restricts trade and drives down the price of exports while driving up the price of imports. The Sahel has long been characterised by chronic food crises and if yields and commodity prices do not improve, drought-related conflicts and the

scramble for limited and diminishing resources will only exacerbate violence and insecurity in the region.<sup>58</sup>

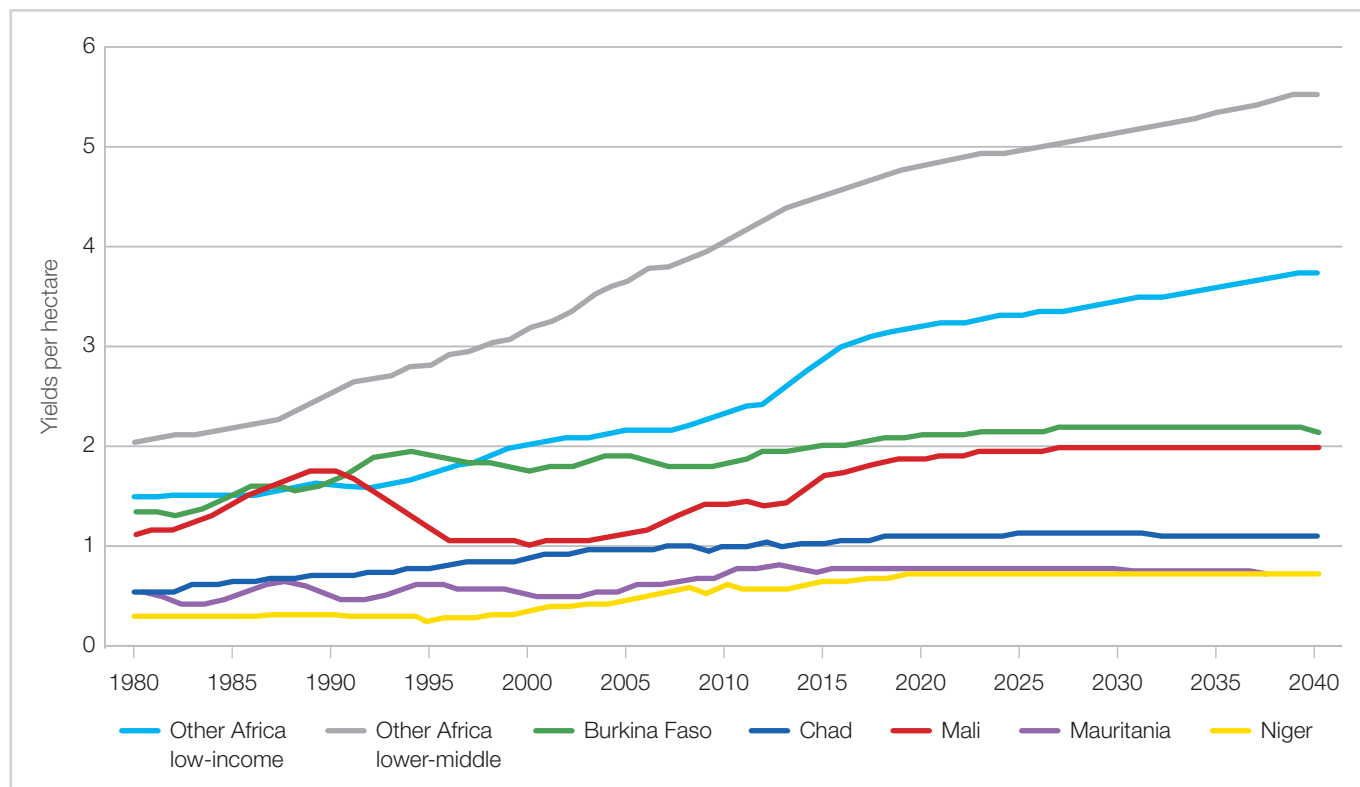
Agriculture accounts for more than 75% of total employment in Chad, Mali and Niger and more than 50% in Mauritania, according to estimates from the International Labour Organization.<sup>59</sup> Improving the productivity of agriculture will therefore help enable a healthier and better-educated workforce and support more rapid economic growth. That, in turn, requires finding solutions to the intensifying herder-farmer conflicts.

### The social capital challenge

Social capital is a particularly large drag on growth in Chad, but less so in Mauritania and Mali. In the context of the G5 Sahel countries, social capital speaks to the quality of governance, including the ability to deliver improved security.

The Ibrahim Index of African Governance defines governance as ‘the provision of the political, social and economic public goods and services that every citizen has the right to expect from their state, and that a state has the responsibility to deliver to its citizens’.<sup>60</sup>

Figure 6: Yields per hectare (pre-loss)



Source: IFs version 7.36, historical data from FAO

According to the index, Burkina Faso has a significantly better overall governance performance than the other four countries in the group, followed by Niger, Mali, Mauritania and Chad.<sup>61</sup>

These findings broadly concur with results from various other datasets such as the World Bank's Worldwide Governance Indicators<sup>62</sup> and Transparency International's<sup>63</sup> Corruption Perception Index. Burkina Faso is consistently ranked as the most capable and best governed of the G5 Sahel countries. With the ousting of president Blaise Compaoré after 27 years of uninterrupted, semi-authoritarian rule, it held its most recent peaceful elections in November 2015. Parliament subsequently introduced a two-term presidential limit.

Improving governance is difficult. It requires adequate government revenue, which is primarily obtained through taxes, appropriate allocation and effective use of such revenue for development purposes, and, in the absence of a benevolent dictator or developmentally oriented governing elite, an effective, democratically accountable state.

Burkina Faso is consistently ranked as the most capable and best governed of the G5 Sahel countries

As income levels increase so does government capacity, often presented as the proportion of government revenue as a share of total GDP.<sup>64</sup> Whereas, for example, the average government revenue as a share of total GDP (minus development assistance/aid) in low-income countries was around 11% in 2015, it was about 20% for lower-middle-income countries and almost 34% for upper-middle-income countries, reflecting the tendency whereby greater government capacity goes hand in hand with economic development. Through aid, the international community boosts these ratios, and thus government capacity, by several percentage points (as set out in Table 2).<sup>65</sup>

Table 2 indicates that Burkina Faso, Chad, Mali and Niger received significantly less aid and Mauritania received more-than-average aid as a share of GDP compared with their income peer grouping. Aid therefore already provides a big chunk of revenue in the G5 Sahel countries, accounting for more than 55% in Niger in

**Table 2: Government revenues from aid as a per cent of GDP estimate for 2015**

| Country/region                               | Government revenue from aid as % of GDP |
|--|---|
| Burkina Faso                                 | 11%                                     |
| Chad   | 6%                                      |
| Mali   | 11%                                     |
| Niger  | 14%                                     |
| Average for other low-income Africa          | 10%                                     |
| Mauritania                                   | 7%                                      |
| Average for other lower-middle-income Africa | 1%                                      |

Note: this is a calculation within IFs and could not be validated

2015, followed by Mali (52%) and Burkina Faso (50%). Chad and Mauritania respectively received 32% and 25% of their government revenue from aid.

Along the Current Path, IFs projects that government revenue without aid will increase fivefold in Burkina Faso, more than fourfold in Niger and threefold in Chad and Mali by 2040. Mauritania is projected to achieve less than a doubling of its government revenue by 2040. Hence, as the economies of these countries expand, aid will decline as a portion of GDP (by 2.5 percentage points on average by 2040) and as a portion of government revenue (by 16 percentage points).

The international community might be able to increase government capacity by providing more aid, but the provision of external support should complement national efforts at revenue collection and the effective provision of services. However, since aid tends to amplify the nature of the regime (i.e. it makes authoritarian governments more authoritarian and vice versa), donors must also be cautious.<sup>66</sup> Aid partners are also at risk of being associated with the counter-insurgency actions of national governments, which may prove counterproductive in building partnerships with local actors. Some of these impacts can be managed by better coordination and working in harmony, as set out in the 2018 UN Support Plan for the Sahel.<sup>67</sup>

Generally, remittance flows to low- and middle-income countries are often larger than aid and more



stable than private capital inflows. After declining for two consecutive years, remittance flows to low- and middle-income countries have resumed their previous upwards trajectory. Mali is one of the largest remittance recipients in sub-Saharan Africa (receiving approximately €835 million in 2017, equivalent to 6.9% of its GDP).<sup>68</sup>

Democracy is not a precondition for development and the relationship between democracy and growth at low levels of development is contested. Yet substantive democracy and good governance may be the only feasible alternative political and development vision that can counter an Islamic piety that is readily understood in rural villages and used as an effective politicisation tool by extremist groupings.

Currently, Niger, Burkina Faso and Mali are substantially more democratic than their international peers at similar levels of development, while Chad and Mauritania are significantly less democratic.<sup>69</sup> There is, therefore, a degree of mismatch in these countries in terms of level of democracy when compared with other countries at roughly similar levels of income and education.

In addition, Chad and Mauritania have 'mixed-regime' characteristics (meaning that they have a combination of autocratic and democratic institutions and practices). Mixed regimes are inherently more unstable than either democracies or autocracies, and it is quite likely that the process of democratisation in these countries will be volatile and even violent.

**Insecurity will remain a challenge if purposeful action is not taken to address the root causes**

Every effort should be made to strengthen and build institutions, governance capacity, transparency and accountability in these countries. But there must also be recognition that the foundations are fragile and that efforts to build a 'Western' democracy could likely undermine progress. Democracy is an evolutionary process that must unfold in its own distinct way in different places and times and cannot be imposed from the outside.

Moving forward, insecurity will remain a challenge if purposeful action is not taken to address the root causes and recalibrate the nature of responses from the G5

Sahel governments and their international supporters. Delivering on rights-based approaches – even as part of counter-terrorism responses – is fundamental to effective long-term outcomes.

Aid could amplify peacebuilding and development initiatives even as military expenditures grow, but great care needs to be taken to ensure that aid strengthens government and not substitute for it. Development should aim at invigorating and diversifying the economies of the five countries and improving appropriate education while creating and improving infrastructure to provide greater access to markets, financial services and job opportunities.

### **Knowledge capital**

At relatively low levels of development, the expectation is that knowledge capital makes a relatively modest contribution to growth. It is therefore unsurprising that the contribution of the G5 Sahel countries is relatively neutral, although there is certainly room for improvement.

### **Analysis**

At the current level of development in the G5 Sahel countries, agriculture has the most potential to reduce poverty. Given agriculture's predominance in the economy, improving productivity could have significant regional benefits. But the sector is struggling to ensure food security and faces enormous barriers to improvement going forward.<sup>70</sup>

According to the latest (2013) FAO data, yields in the G5 Sahel countries are less than half the average yields in other low-income African countries, and saw significant stagnation during the 1990s and early 2000s. This is not unexpected, owing to the highly arid climate in the Sahel region, but, given the predominance of agriculture in economic life, improving the productivity of the sector is crucial.

Eventually the G5 Sahel countries need to change the productive structures of their economies, which, after improvements in agriculture, traditionally need a focus on low-end manufacturing and then steadily go up the manufacturing value chain. That is likely only possible once these countries reach middle-income status and is therefore still several decades into the future.

The impact of such interventions is initially small in terms of changes to the relative contribution of the various

sectors to the economy, but has a considerable effect on growth rates and hence employment in the longer term. Because of the small markets in this region such an option also eventually depends on regional integration to create a sufficiently large market, as well as on purposeful action by governments.

The recent experience of Côte d'Ivoire gives an inkling of the short-term pain required if the G5 Sahel countries are to attract foreign direct investment as part of low-end manufacturing, for example, in exchange for longer-term gain. Since 2012 its economy has grown on average at 8% per year, but only on the back of a range of tax, customs duties and profit exemptions for foreign investors.<sup>71</sup>

Yet apart from Mauritania, it is unlikely that the other members of the G5 Sahel group will be able to attract significant investment flows. Poor countries struggle to attract foreign direct investment, due to their insecurity and poor governance.

Sub-Saharan Africa has the highest average remittance transfer costs compared to a global average

For these and other reasons, remittances and aid will continue to play an important role into the future. Of particular note here is that sub-Saharan Africa has the highest average remittance transfer costs, at 9.4%, compared to a global average of 7.1%, i.e. more than three times the Sustainable Development Goal (SDG) target of 3%.<sup>72</sup>

Along with fragile political institutions, the region also has fragile economic institutions. Reliance on an overvalued currency – the CFA franc – in four of the G5 Sahel countries allows urban elites to buy imported goods and comes at the expense of farmers and rural communities who cannot export agricultural products – the mainstay of the economy. The region also has two central banks, which complicates monetary policy.

An objective appraisal of the contribution and role of a monetary union and the CFA could be an important building block in the revival of the agricultural sector in francophone Sahel, as well as eventual growth in the manufacturing sector.<sup>73</sup>

Services are growing everywhere, in all economies and at all income levels. Previous work by the ISS has, however, pointed out that this growth largely consists of more people moving from subsistence agriculture in rural areas to low-end services in the informal urban economy.<sup>74</sup>

Since these types of services are only slightly more productive than agriculture, the 'servicification' of the economies of the G5 Sahel countries, while inevitable, will do little to increase productivity or output in the broader economy. Here modern technology could assist in formalising the urban low-end services sector – and would increase government revenues. Ghana, for example, is rolling out an ambitious programme to digitise government by providing identification, location, registration and education opportunities.<sup>75</sup>

## Scenarios

### Positive intervention clusters

The analysis of the Current Path confirms that the G5 Sahel countries face daunting challenges. The region is battling multiple conflict systems – from the Lake Chad Basin to northern Mali – alongside extreme environmental degradation as a result of climate change. This is occurring within a context of exceptionally low levels of human development, high rates of poverty and rapid population growth that will strain the capacity of regional governments already struggling to deliver basic services. However, the current trajectory is not destiny and there are some concrete ways to improve development outcomes going forward.

In this section we first compare the individual impact of five intervention clusters, namely increased agricultural productivity (**agriculture**); investments in **demographics**; advancing **education** outcomes; improvements in the quality of **governance**; and improvements in basic **infrastructure**. Building trust in government through improved delivery of basic services should eventually also contribute to better security. A focus on human development is intended to relieve the structural pressures driving the region toward violence, and can therefore also be seen as part of a comprehensive conflict prevention strategy.

Most interventions represent a coordinated five-year policy push to 2024 with the improvements subsequently maintained out to 2040. A complete list of the interventions used in IFs can be found in the

annex. In some instances, such as in demographics and education, the interventions only gain momentum over several decades and their impact therefore accelerates towards the end of the forecast horizon. Thereafter the agriculture intervention, which has a powerful impact during the forecast period to 2040, is overtaken by the impact of governance and infrastructure.

The **agriculture** cluster represents a policy aimed at improving the overall efficiency of the agricultural system by boosting crop yields, reducing losses and making calories easier to access.<sup>76</sup> Agriculture is a bedrock component of economic and cultural life in the Sahel, so improvements here affect various elements of human and economic development in the region.

Agriculture is a bedrock component of economic and cultural life in the Sahel

The **demographic** cluster improves access to family planning services particularly to modern contraceptives, improved maternal care and reduced mortality in children under five. This intervention lessens the pressure on service delivery and health systems by easing the pace of population growth.<sup>77</sup> Since it improves the ratio of working-age persons to dependents the intervention will eventually accelerate economic growth.

The **education** cluster is designed to target the key bottlenecks that exist in the early stages of the education

system, i.e. at primary and lower secondary level, and without which subsequent educational attainment and outcomes are unlikely to materialise.<sup>78</sup> The more students the educational system can move through lower levels, the greater the number of students eligible to proceed to secondary and tertiary levels. Therefore, improved primary enrolment and completion rates significantly boost transition to higher levels and overall educational attainment levels in these countries.

The **governance** cluster envisages improvements in government effectiveness and transparency, as well as increased economic freedom.<sup>79</sup> The governance intervention also modestly increases aid, includes the roll-out of a social grant programme and illustrates the extent to which a more stable region eventually attracts more foreign direct investment.<sup>80</sup>

The **infrastructure** cluster addresses the large infrastructure deficit in the region. The intervention in this cluster increases access to WASH facilities and accelerates the rate of electrification and access to information and communications technology.<sup>81</sup>

### Regional impact

A first level of analysis compares the summary impact on the region (i.e. collectively for all five countries) for each of the five intervention clusters. In all instances the difference is between the Current Path forecast and the impact of the intervention in 2040. The percentage difference in 2040 is presented in Table 3, with the absolute values included in parenthesis for illustrative purposes.

**Table 3: Change in selected indicators from the Current Path in 2040**

| Intervention cluster                              | Change in poverty (million people) | Change in HDI* | Change in GDP (MER) | Change in GDP per capita |
|---|------------------------------------|----------------|---------------------|--------------------------|
| Agriculture                                       | -36.7% (-19m)                      | 1.7% (0.009)   | 12.5% (€20.3bn)     | 8.7% (€200.2)            |
| Demographics                                      | -12.0% (-6.2m)                     | 0.9% (0.005)   | -0.2% (-€368m)**    | 3.1% (€71.6)             |
| Infrastructure                                    | -5.1% (-2.7m)                      | 0.6% (0.003)   | 4.0% (€6.4bn)       | 2.6% (€61.6)             |
| Governance (including more aid and social grants) | -15.9% (-8.3m)                     | 1.3% (0.007)   | 9.8% (€15.3bn)      | 6.6% (€146.7)            |
| Education   | -5.1% (-2.6m)                      | 3.2% (0.017)   | 1.5% (€2.4 bn)      | 1.4% (€33.5)             |

Source: IFs version 7.36 initialised from various sources

Note: \* Human Development Index

\*\* All things being equal, a smaller population inevitably implies a smaller economy

The **agriculture** cluster of interventions clearly has the largest impact on extreme poverty in the region to 2040. It lowers the number of people surviving on less than US\$1.90 per day by about 19 million people (more than 35%) in 2040, relative to the Current Path. This intervention also drives the largest boost to overall economic growth (measured by the increase in GDP). While the boost to GDP from the agriculture cluster is just 25% higher than from the governance scenario in 2040, the cumulative increase in GDP from the agriculture cluster (€246.4 billion) is more than double that from the governance cluster (€109.6 billion). This means that the short-term payoff of agriculture is larger. The effects begin to taper off over time, however. Along with its powerful economic effects, it drives the second largest increase in the HDI and the second largest reduction in infant mortality in the region.

From a food security perspective, the agriculture cluster of interventions enables the region to meet demand in the short term, as shown in Figure 7, but does little to reduce hunger in the long term as the gains in production are quickly outstripped by population growth. This means that, unless domestic food production is prioritised, these

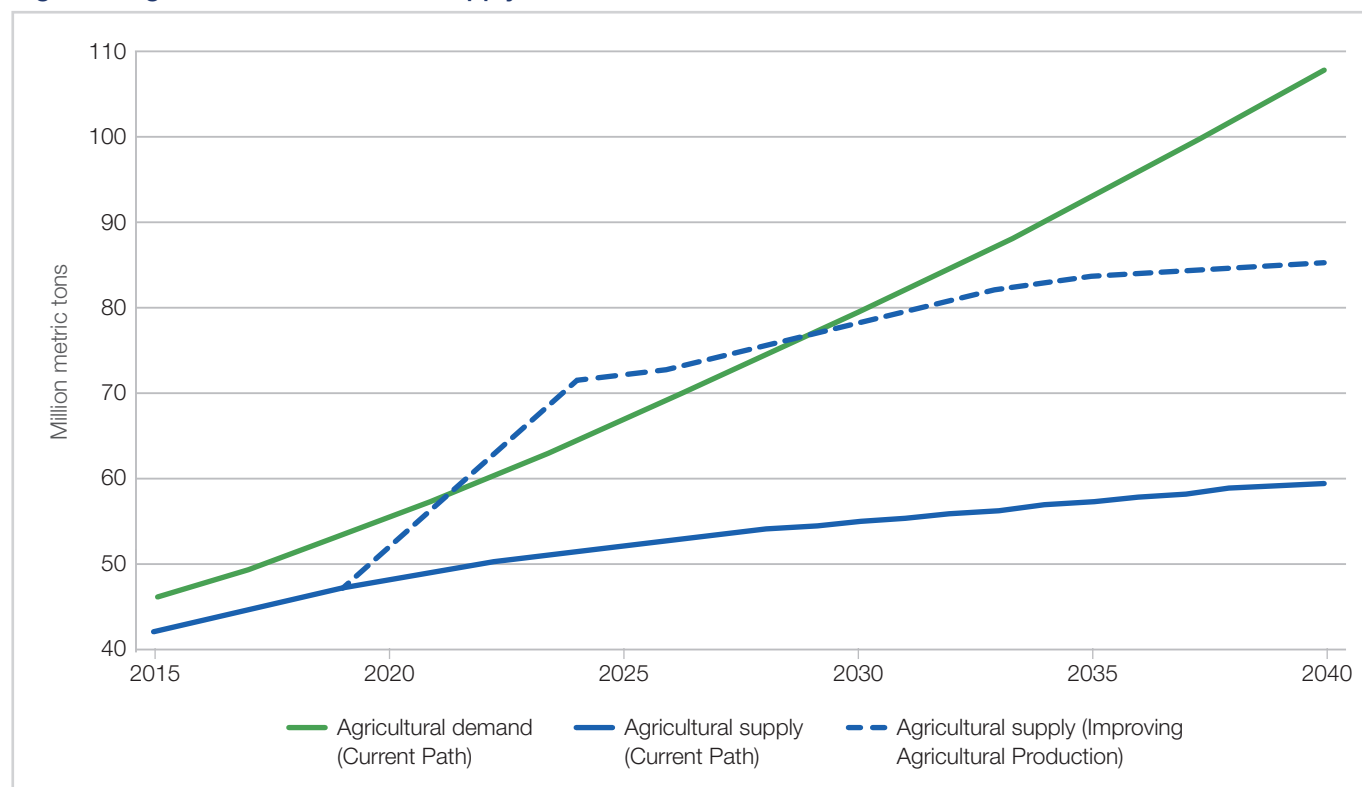
countries run the risk of increased import dependence and remain exposed to volatile international commodity prices and related shocks.

Improved **governance**, more aid and grants effectively serve as a slow-moving but powerful force multiplier, as this eventually translate into better and more education for the same amount of expenditure, more infrastructure and improved service delivery across all dimensions.

Unless domestic food production is prioritised, these countries run the risk of increased import dependence

The impact on poverty reduction is enhanced by the inclusion of a social grants programme (€647 million in 2030 and €2.05 billion by 2040) and more aid (from €5.24 billion in 2017 to €12.4 billion in 2040, which is €589 million above the Current Path forecast). At the regional level the governance cluster of interventions is the second most impactful after agriculture in terms of poverty reduction, impact on the economy and therefore increase in GDP per capita.

**Figure 7: Agricultural demand and supply**



Source: IFS version 7.36, historical data from FAO



The **education** cluster of interventions has the most significant impact on the HDI, but its impacts along other dimensions such as GDP and poverty are relatively minor. This is in part owing to the low levels of educational attainment in the region, but is also a function of the HDI's being weighted toward education. Like demographics, interventions in the education cluster take a long time to materialise, a phenomenon unpacked in more detail later in this section.

Despite improving electricity access by about 50% and an ambitious push on WASH infrastructure, the **infrastructure** cluster does little compared to other interventions.

The **demographic** cluster of interventions shows a modest increase in the provision of modern contraceptives (the UN estimates that average unmet demand in the G5 Sahel countries was at 27% in 2018)<sup>82</sup> and reductions in mortality rates from communicable diseases for children under five and women aged 15–49.

As with education, the impact of the demographic cluster of interventions is slow moving but hugely powerful. It advances the point at which the G5 Sahel countries enter the demographic dividend by 10 years to about 2050, whereafter the region is likely to experience more rapid income growth. It also increases the peak ratio to 2.2 working-age persons to dependents at around 2070 instead of a ratio of 2.1 at around 2085. A higher peak means a better ratio of working-age persons to dependents and, other things being equal, will increase the rate of economic growth.

### Country-level impact

Figure 8 presents the intervention cluster results by country according to three different metrics. The percentage increase in the HDI is shown on the vertical axis and the percentage reduction in extreme poverty on the horizontal axis. The bubble size indicates the percentage change in GDP at market exchange rates and the colour indicates the sector that was targeted (i.e., green represents agriculture, orange represents education, etc.). All values represent the percentage difference between the outcome of the intervention and the IFs Current Path forecast in 2040.

The agriculture cluster has the largest impact on extreme poverty reduction compared to the Current Path in 2040 – particularly in Niger (47%), Mali (38%) and Burkina Faso

(37%). The agricultural sector in Mauritania benefits less from this intervention since it is dominated by marine activities and the intervention employed here is strictly on crop yields.

Although the results of the agriculture intervention are broadly positive, the effects are also highly variable by country. For instance, the agriculture intervention reduces poverty more significantly in Burkina Faso, Mali and Niger than it does in Chad, although all four countries had 40–50% of their populations living in extreme poverty in 2017. However, the agriculture intervention provides a more significant boost in the HDI in Chad than in the other G5 Sahel countries. In Mauritania the agriculture intervention only drives the third-steepest reduction in poverty, after demographics and governance respectively.

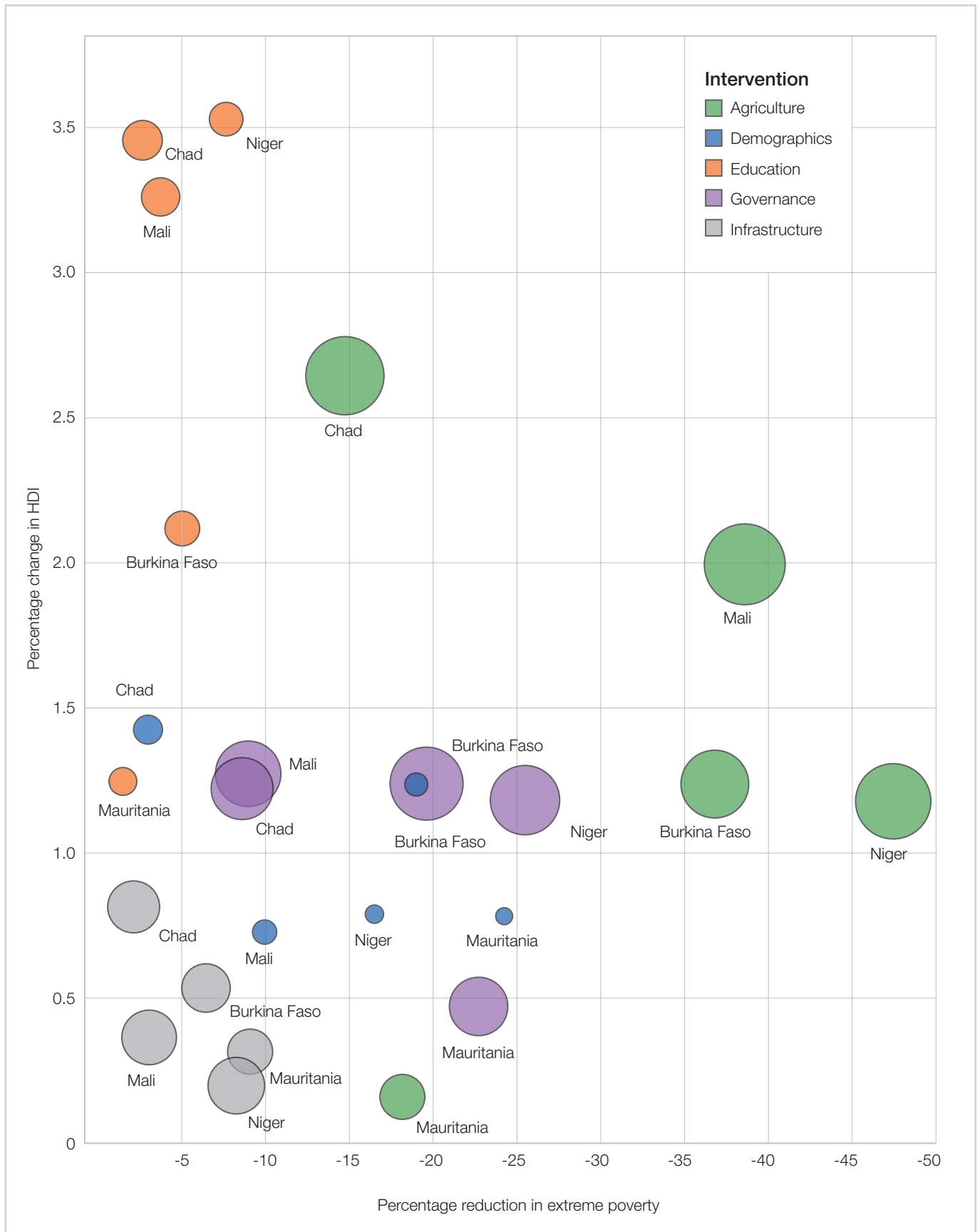
The governance cluster performs strongly across the various categories, consistently ranking second – although sometimes only marginally so. For example, when measuring poverty reduction, the governance and demographics clusters are neck and neck in Burkina Faso and Mali. In terms of improvement in the HDI score, agriculture and governance compete for second place in Niger, while in Burkina Faso all three clusters – agriculture, demographics and governance – improve the country's ranking by about 1.25%.

The agriculture cluster has the largest impact on extreme poverty reduction compared to the Current Path in 2040

The education cluster creates strong improvements in the HDI but, as with the region, the effect on other indicators takes time to manifest. Investment in a child only pay off as he/she accumulates education and enters the workforce 15 or 20 years from now, and therefore the impacts in 2040 are still gathering momentum.

Along with driving the largest improvement in the HDI, this intervention cluster improves the average years of education among adults aged 15 and over from 5.3 years in the Current Path to 5.8 years by 2040. It means that an adult in a G5 Sahel country will be just about 0.2 years short of primary educational attainment, compared to 0.7 years in the Current Path, by 2040.<sup>83</sup>

Figure 8: Change in selected indicators from the Current Path forecast in 2040 (bubble size represents GDP)



Source: IFs version 7.36, historical data from various sources

While demographics do not perform spectacularly according to any dimension in Figure 8, it is important to remember that the nature of the intervention is to shrink the overall population over time compared with the Current Path forecast. Other things being equal, that will translate into higher average incomes.

Depending on the metrics for success and the time horizon identified by particular governments and development partners, the results of Figure 8 could, of course, look quite different. Improving governance gathers momentum throughout the forecast. By 2075 the governance cluster increases absolute economic growth by more than the other four scenarios combined in that year. Enhancing agricultural productivity delivers immediate improvements to human well-being, although even those vary by country, but its impact declines over time. Finally, the demographics intervention drives a steep reduction in infant mortality and improves average incomes.

## Comparing scenarios

In this section we compare the **Current Path** forecast with the impact of the **Sahelistan scenario** and the combined impact of the five positive intervention clusters named **Desert Flower**. Because IFs is an integrated forecasting platform the combined impact is often different from merely adding the impact from each of the intervention clusters together.

In the Sahelistan scenario, incomes in G5 Sahel countries are less than €2 174 in 2040, a figure lower than that in Senegal in 2017

**Sahelistan** is a scenario that simulates a regional drought in 2021 and 2022 with the associated impacts on agricultural yields, hunger and reductions in government revenues.<sup>84</sup> Such harsh conditions will inevitably increase tensions over land use between farmers and herders, while insurgency intensifies and outward migration increases. The government is forced to divert its attention to security matters, driving an increase in military spending that results in a deterioration in the quality of service delivery.

This is accompanied by an increase in corruption and a decline in economic freedom, as opportunists and criminals thrive in such a nebulous environment. Under these circumstances the G5 Sahel countries could come to represent a truly failed region without central authority – something akin to Afghanistan or Somalia in recent years.

If the effects of climate change combine with a sudden, cyclical drought that increases the probability of conflict and causes governance to deteriorate even further, then the Sahel region faces a bleak future. In the Sahelistan scenario, incomes in G5 Sahel countries are less than €2 174 in 2040, a figure lower than that in Senegal in 2017.

The Sahelistan scenario also drives an increase in the number of people living in extreme poverty of about 6 million relative to the Current Path in 2040 –



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an increase of more than 26 million from 2017 levels. This scenario also increases the number of malnourished children in the region by about 300 000 relative to the Current Path and increases infant mortality by about two deaths per 1 000 live births.

By contrast, the combined **Desert Flower** scenario sees significant improvements relative to the Current Path. Along with driving a cumulative increase in absolute economic growth of more than €416 billion (US\$460 billion) over the duration of the forecast, this scenario also reduces the number of people living in extreme poverty by more than 29 million in 2040.

In addition, it results in a sharp decline in agricultural import dependency, although the trend does again reverse before 2030. By 2040 the region is projected to import 29% of its agricultural requirements by volume, compared to 45% in the Current Path forecast.<sup>85</sup>

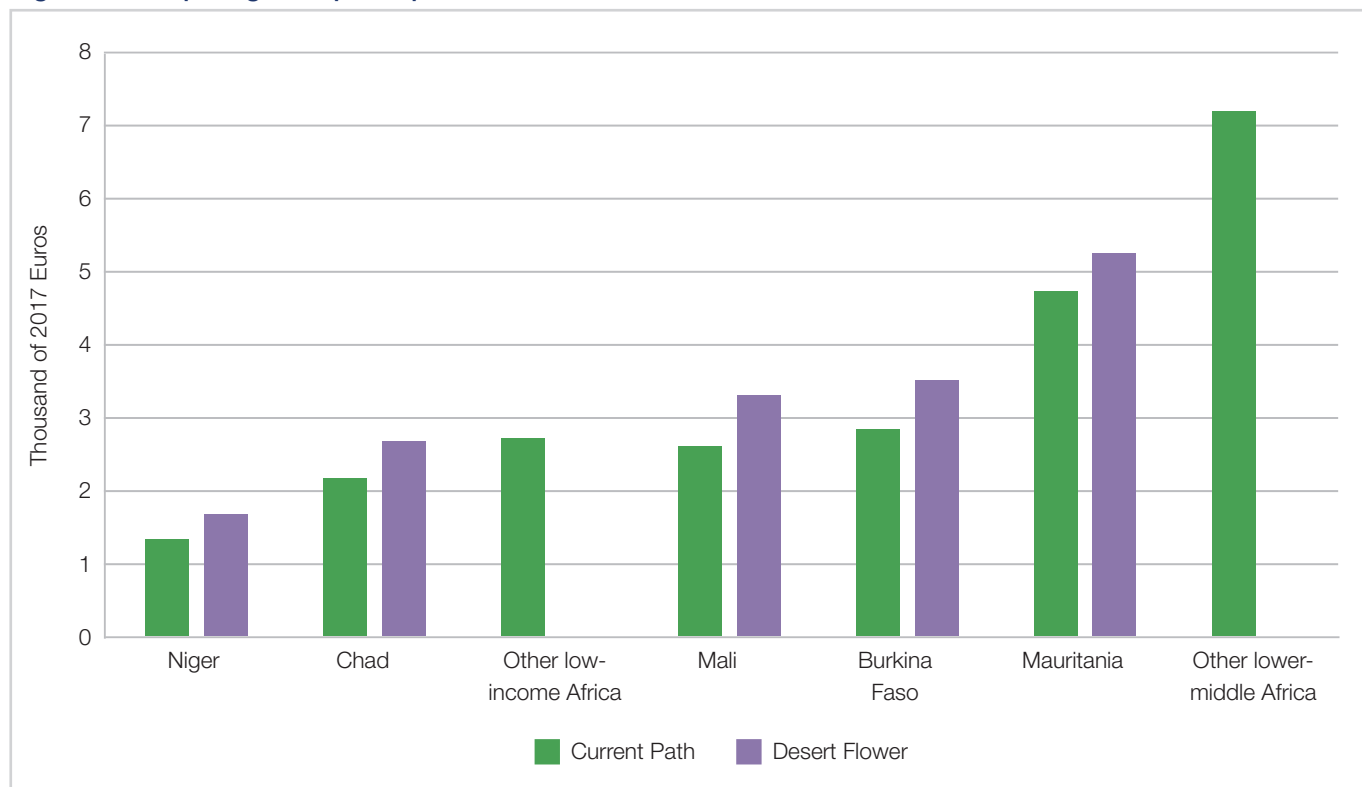
The Desert Flower scenario also increases the average number of years of education by more than half a year (from 5.3 years to 5.9 years), and there are nine fewer deaths per 1 000 live births than in the Current Path forecast in 2040.

The demographic dividend is slightly more favourable (about 150 workers per 100 dependants against 130 in the Current Path) and people can expect to live nearly a year and a half longer. As with the demographic, governance and education interventions, the combined scenario also builds momentum over time as those scenarios begin to outweigh the slowdown in agriculture.

More than 35 million fewer people will live in extreme poverty in the Desert Flower scenario relative to the Sahelistan scenario

In the Desert Flower scenario, average GDP per capita in the region remains slightly above that in other low-income African countries. To be clear, only in a scenario where the region takes fairly aggressive measures in all five positive intervention clusters does average GDP per capita track the average for low-income Africa – even after accounting for additional gas production in Mauritania. Clearly these interventions are sorely needed.

Figure 9: Comparing GDP per capita for Desert Flower and Current Path in 2040



Source: IFS version 7.36, historical data from WDI

As stark as the contrast with other low-income African countries' trajectory is, the difference between the two scenarios is even more sobering. In the Desert Flower scenario average GDP per capita is more than 30% higher, there are nearly 1.3 million fewer children suffering from malnourishment, and life expectancy is almost two years longer than in the Sahelistan scenario.

The average GDP per capita in 2040 for each of the G5 Sahel countries in the Desert Flower scenario is presented in Figure 9, together with the Current Path forecast for other low- and lower-middle-income countries in Africa, and can be compared with Figure 1 (which presented the Current Path forecast).

Perhaps most importantly, there are more than 35 million fewer people living in extreme poverty in the Desert Flower scenario relative to the Sahelistan scenario, as shown in Figure 10. Desert Flower includes the roll-out of a comprehensive system of cash or social grants using modern technology to an amount of €2 billion in 2030 and €5.7 billion in

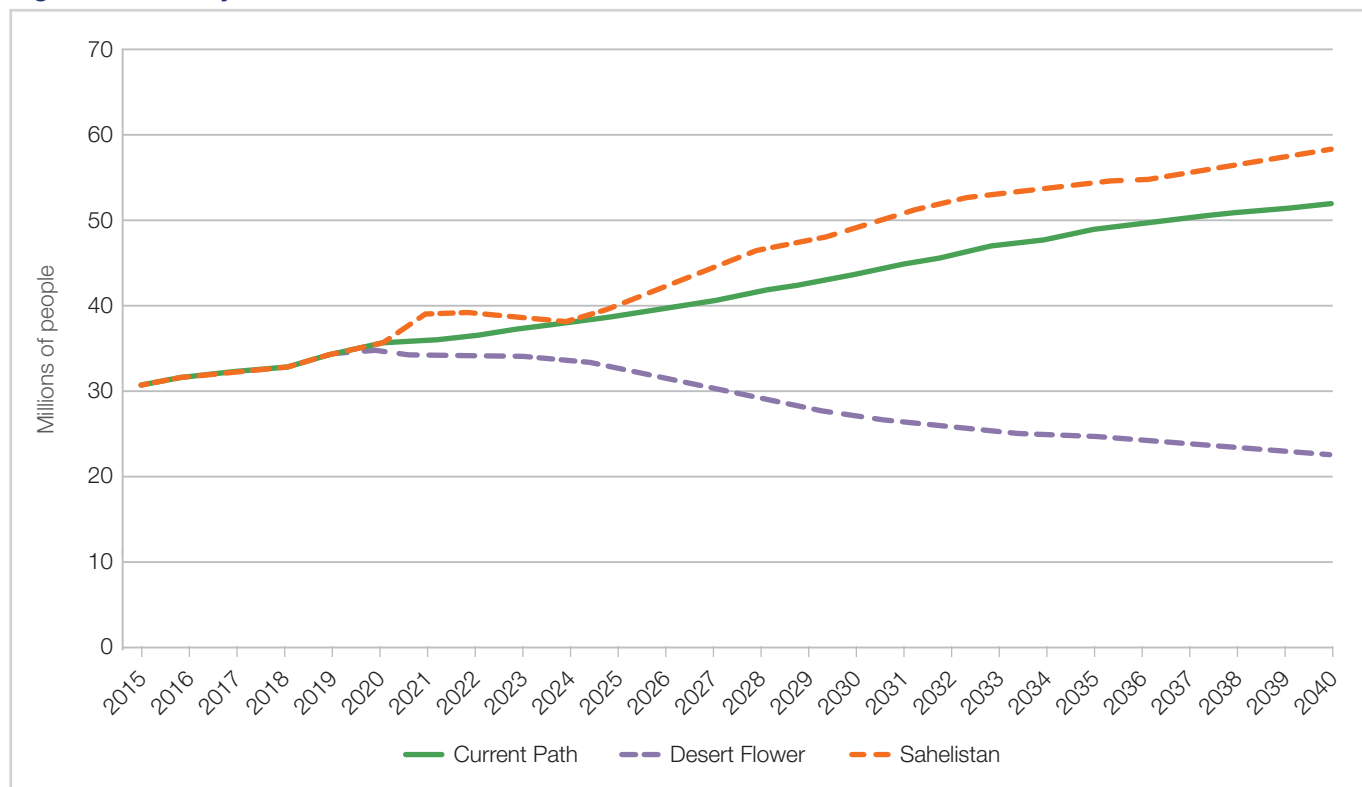
2040. By way of comparison, extending a cash grant of €9 per month to every adult of 20 years or older in the region would cost about €6.2 billion in 2030 and €8.3 billion in 2040 – a calculation that includes €840 million in administrative costs.<sup>86</sup>

In the Desert Flower scenario average GDP per capita is more than 30% higher than in the Sahelistan scenario

Elsewhere, such as in Brazil, South Africa and India, cash grants have proven successful as a short- to medium-term scheme to alleviate deep-seated poverty and are the major driver of poverty reduction in the Desert Flower scenario.

There are certainly tough choices to be made in the G5 Sahel countries over the coming years. The Desert Flower scenario illustrates that meaningful improvements and a better future for the region are possible, but also that its future is dependent on extraordinary leadership and foresight.

Figure 10: Poverty forecast in G5 Sahel countries



Source: IFS version 7.36, historical data from World Bank



## Conclusion

Violent extremism and insecurity in the G5 Sahel countries are a severe impediment to development. It is difficult to envision a better future for the G5 Sahel countries without the successful provision of improved security in the short and medium term.

The challenge is stark, as the inherent complexity and multiple risks facing countries in the region require that states adopt a forward-looking, integrated approach, particularly in the agricultural sector, that focuses on long-term structural solutions to improve resilience. A comprehensive agricultural risk management system that includes mitigation, transfer and coping solutions should be part of this strategy, since this is the sector with the largest impact upon current and future livelihoods.

The region needs to adopt climate-smart agricultural systems that prioritise sustainability and productivity. By mainstreaming an approach that effectively manages competing demands for water, land and other natural resources for all the communities whose lives are intertwined in this reality, countries in the region can address an urgent humanitarian issue and begin to restore trust among communities that only tacitly recognise the legitimacy of the state.

Coordinated efforts and investments in the following areas could have a sustainable and transformative impact on the region:

- Adopting sustainable land and water management practices in rain-fed agriculture with a focus on regenerating tree cover, conserving soil and harvesting water
- Accelerating the adoption of resilient agricultural technologies such as drought-resistant seeds and crops
- Scaling up irrigation investments by encouraging public–private partnerships and improving existing public irrigation schemes
- Improving pastoralist and livestock management that involves better management of natural rangelands and animal capital to unlock the economic potential of the livestock value chain<sup>87</sup>

Improving early warning and promoting sound national and regional emergency preparedness plans for strengthened responses during disasters

such as droughts and floods can also help build capacity and trust in government among local communities. These efforts all bolster immediate conflict prevention efforts as well and are in line with sustainable development practices.

However, challenges and opportunities in the region are not limited to agriculture. Urbanisation can serve as an important enabler to allow for the roll-out of services and improvements in the well-being of large sections of the population. Rapid population growth, instability and climate change will accelerate urban growth, which can be used as an opportunity to facilitate greater access to basic infrastructure, services and education.

Urbanisation can also drive innovation and productivity – but only if G5 Sahel governments plan and prepare accordingly. Although urbanisation is often associated with economic and income growth, improved levels of education and lower fertility rates, it can also result in concentrations of poverty in the absence of planning and foresight.<sup>88</sup> It is, however, likely that only a shift towards a more decentralised model of urban governance will be able to unlock sustainable and affordable development.

Urban growth can facilitate greater access to basic infrastructure, services and education

More efficient agricultural systems and improved planning and infrastructure in urban areas need to be combined with efforts to improve access to family planning and reduce maternal and child mortality in the region. However, increased access does not automatically translate to actual use, and therefore the promotion and repositioning of such family-planning methods need to be accompanied by appropriate education and awareness campaigns.

The targeted provision of better healthcare for these groups will also improve the ability of women and girls to access educational opportunities in the region.

Outside actors must coordinate their efforts with local agents to define roles and promote a common understanding of the drivers of change if they hope to harmonise a conflicting set of priorities. Achieving a better future in the region requires concerted efforts

from all relevant agents. These range from the extensive networks of pastoral and farming communities to collectively manage changing resources and amicably resolve conflicts to engagement with influential international actors.

The governments of the G5 Sahel countries must cultivate better governance through effective systems and institutions while striving to improve service delivery and ensure transparency and accountability to build state–citizen confidence and better social cohesion.

The international community's focus on the Sahel has predominantly been to curb migrants crossing the region towards Europe and to counter violent extremism while responding to vulnerabilities caused by food insecurity and climate change.<sup>89</sup> The potential for a significant worsening of this situation is real, as explored in the Sahelistan scenario.

Inevitably, local solutions will be the most durable, but some, such as new thinking on the future of a monetary union and the current arrangement with the CFA franc, would benefit from objective evaluation and analysis. At the moment the CFA arrangement appears to constrain the revival of the agricultural sector, as well as potential growth in the manufacturing sector. Both need to be accompanied by regional integration to unlock larger markets.

In addition, efforts to reduce the high cost of remittances in sub-Saharan Africa could help to improve livelihoods,

particularly if the current volume of informal flows can be formalised through the introduction and use of new technologies and a competitive market environment.

The international community needs to help find ways to reverse the current trend where commercial banks are 'de-risking' by closing the bank accounts of customers in countries or sectors deemed to pose a high risk of money laundering or terrorist financing. For example, the use of Internet and mobile phone technologies could allow remittance market players to consider the use of cryptocurrency and blockchain technologies for value transfers and customer ID verification.<sup>90</sup>

### The Sahel has a rich cultural heritage with significant tourism potential

The G5 Sahel region has abundant opportunities in natural resources, in particular renewable energy, that can help to improve economic diversification and human development. The population can also benefit from the roll-out of solar electrification schemes that can bring electricity to far-flung territories at reasonable cost.

Additionally, the Sahel has a rich cultural heritage with significant tourism potential that could eventually serve as a source of income and development. However, none of these endowments can be exploited without sufficient security, policy predictability and a concerted investment in rural and urban livelihoods.

## Annex

### Interventions in IFs

The adjustments in Table A-1 were made to the IFs Current Path scenario relating to estimated gas production prospects in Mauritania, the impact of climate change in the region and forecast levels of sanitation access.

In summary, there is optimism around the direct and indirect benefits that gas fortunes might bring to Mauritania, but the timelines are uncertain. BP estimates that gas will come online by 2021 and approximately 2 671.6 billion barrels of oil equivalent (BBOE) of recoverable gas is available in the Tortue

region with a production potential of 30 years. In addition to the adjustments in Table A-1, the IFsHistSeries was also adjusted through a project file that adjusted the initial value for enprodnatgasIEA - Mauritania to 0.0385 in 2015.

The second set of adjustment in Table A-1 relate to the effects of climate change and its link to agricultural yields. The Sahel region is one of the most affected areas globally and the adjustments simulate annual change in agricultural yields in light of current estimates on the severity and magnitude of climate change by the IPCC.

Lastly, the level of sanitation access was aggressive in the Current Path and was therefore calibrated downward to reflect a more realistic projection.

**Table A-1: Current Path adjustments**

| Parameter in IFs                            | Definition  | Intervention   |
|---|---|--|
| enpm (gas) - Mauritania                     | Energy production multiplier  | Interpolate from 1 in 2015 to 3 in 2020 and 5 in 2021, interpolate to 1.25 by 2040                 |
| reserves of fossil fuels (gas) – Mauritania | Known and exploitable reserves-billion barrels of oil equivalent (BBOE) | Initial condition set at 9   |
| prodtf (gas) - Mauritania                   | Minimum reserve ratio   | Initial condition set at 10  |
| resor (gas) – Mauritania                    | Resources of fossil fuels (BBOE) – ultimate                             | Interpolate from 3.4848 in 2019 to 250 in 2040 and hold  |
| enelecshrendemm – Mauritania                | Electricity as a share of energy demand multiplier                      | Interpolate from 1 in 2020 to 2 by 2026, hold  |
| envylchgm – Africa-Sahel                    | Annual yield change from environmental model multiplier                 | Interpolate from 1 in 2020 to 2.75 by 2040   |
| co2prein – Global                           | Atmospheric parts per million (CO <sub>2</sub> )                        | Interpolate to 250 by 2100   |
| sanitationm - Africa-Sahel                  | Access to improved sanitation facilities multiplier                     | Interpolate from 1 in 2015 to 0.9 by 2018, hold to 2033 then interpolate to 0.975 by 2040 and hold |

The interventions for the components of Desert Flower and the Sahelistan scenarios are set out in tables A-2 and A-3. The interventions were done at the G5 Sahel group level, relying on IFs to allocate and interpret the results at country level through its algorithms.

**Table A-2: Desert Flower interventions**

| Intervention cluster | Parameter in IFs        | Definition                                   | Intervention  |
|----------------------|-------------------------|--|---|
| Agriculture          | ylm                     | Agricultural yield multiplier                | Interpolate from 1 in 2019 to 1.5 by 2024, hold   |
|                      | clpcm                   | Calories per capita multiplier               | Interpolate from 1 in 2019 to 1.1 by 2024, hold   |
|                      | aglosstransm            | Post-harvest, pre-consumption losses (crops) | Interpolate from 1 in 2019 to 0.85 by 2024, hold  |
| Demographics         | contrusm                | Use of modern contraceptives multiplier      | Interpolate from 1 in 2019 to 1.5 by 2024, hold   |
|                      | hlmortchdchldm          | Under-5 mortality multiplier                 | Interpolate from 1 in 2019 to 0.85 by 2024, hold  |
|                      | hlmorcdadtm             | Maternal mortality multiplier                | Interpolate from 1 in 2019 to 0.85 in 2024, hold  |
| Infrastructure       | ensolfuelm              | Solid fuel use multiplier                    | Interpolate from 1 in 2019 to 0.85 in 2024, hold  |
|                      | infraelecaccm           | Electricity access multiplier                | Interpolate from 1 in 2019 to 1.4 by 2024, hold   |
|                      | watsafem (unimproved)   | Water access multiplier                      | Interpolate from 1 in 2019 to 0.675 by 2024, hold   |
|                      | sanitationm             | Sanitation access multiplier                 | Interpolate from 1 in 2015 to 0.9 in 2018 then interpolate to 1.25 by 2024, hold until 2029 then interpolate to 1 by 2034, hold |
|                      | ictbroadmobilm          | Mobile broadband access multiplier           | Interpolate from 1 in 2019 to 1.15 by 2024, hold  |
| Governance           | govhhrnwelm (unskilled) | Household transfers multiplier               | Interpolate from 1 in 2019 to 1.15 by 2024, hold  |
|                      | aidrecm                 | Foreign aid receipts multiplier              | Interpolate from 1 in 2019 to 1.1 by 2024, interpolate to 1 by 2040   |
|                      | xfdistockm              | FDI stock multiplier                         | Interpolate from 1 in 2024 to 1.015 by 2029, hold   |
|                      | goveffectm              | Government effectiveness multiplier          | Interpolate from 1 in 2019 to 1.125 by 2024, hold   |
|                      | govcorruptm             | Corruption multiplier                        | Interpolate from 1 in 2019 to 1.2 by 2024, hold   |
|                      | econfreem               | Economic freedom multiplier                  | Interpolate from 1 in 2019 to 1.075 by 2024, hold   |
|                      | gemm                    | Gender empowerment multiplier                | Interpolate from 1 in 2020 to 1.15 by 2024, hold  |
| Education            | edpriintnm              | Primary intake rate multiplier               | Interpolate from 1 in 2019 to 1.4 by 2024, hold   |
|                      | edprisum                | Primary survival multiplier                  | Interpolate from 1 in 2019 to 1.2 by 2024, hold   |
|                      | edseclowtranm           | Lower secondary transition rate multiplier   | Interpolate from 1 in 2019 to 1.2 in 2024, hold   |
|                      | edseclowgram            | Lower secondary graduation rate multiplier   | Interpolate from 1 in 2019 to 1.2 by 2024, hold   |

**Table A-3: Sahelistan interventions**

| Parameter in IFs | Definition                                    | Intervention  |
|------------------|---|---|
| ylm              | Agricultural yield multiplier                 | Interpolate from 1 in 2020 to 0.6 in 2022 hold for 1 year, then change/repeat to 0.75 hold for 1 year, interpolate to 0.9 over 2 years, then interpolate back to 1 by 2030 and hold |
| gdsm (military)  | Government spending by destination multiplier | In 2021 change/repeat to 2 for 6 years, then in 2027 change/repeat to 1 and hold  |
| govcorruptm      | Corruption multiplier                         | Interpolate from 1 in 2020 to 0.9 by 2024 and hold  |
| goveffectm       | Government effectiveness multiplier           | Interpolate from 1 in 2020 to 0.9 by 2024 and hold  |
| econfreem        | Economic freedom multiplier                   | Interpolate from 1 in 2020 to 0.9 by 2024 and hold  |
| SFINTLWARALL     | Probability of state failure                  | 1   |
| SFINTWARMAG      | Magnitude of civil war                        | 2.675   |
| govriskm         | Government risk multiplier                    | In 2022 change/repeat to 2 for 3 years, then change/repeat to 1.1 and hold  |

**Table A-4: Intervention outcomes and justification/benchmarks for Desert Flower**

|                            | Outcome   | Justification  |
|----------------------------|---|--|
| <b>Education:</b>          |   |  |
| Net primary intake         | Net primary intake increases by 39.6% from 67% to 93.6% between 2020 and 2024   | African low-income countries improved net enrolment rate between 2000 and 2005 from 64.4% to 98.9% (this represents 34.5 percentage points and 53.5%)  |
| Primary survival (total)   | Primary survival improves by 24.5% from 68.9% to 85.8% between 2020 and 2024  | The G5 Sahel countries improved survival rates from 44% to 66.3% between 1995 and 2000 (this represents 22.3 percentage points and 50.7%)  |
| Lower secondary transition | Primary to lower secondary transition improves by 21.7% from 77.1% to 93.8% between 2020 and 2024                             | African low-income countries improved primary transition rate between 1985 and 1990 from 64.9% to 90.2% (this represents 25.3 percentage points and 38.9%)   |
| Lower secondary graduation | Lower secondary graduation improves by 36.3% from 29.2% to 24.3% between 2020 and 2024  | Average lower secondary graduation rate only stands at 28% in 2018 (this can easily be doubled from such a low base)   |
| <b>Infrastructure:</b>     |   |  |
| Solid fuel use             | Use of traditional cook stoves declines by 7.5% from 9.3 million people to 8.6 million between 2020 and 2024                  | World Bank upper-middle-income countries reduced use of traditional cook stoves by 3.4% between 1970 and 1975 and World Bank high-income countries reduced traditional cook stove use by 17.3% between 2005 and 2010 |
| Unimproved water           | Access to unsafe water reduces by 9.7 percentage points, i.e. 32% from 30.2% to 20.5% between 2020 and 2024                   | African low-income countries reduced the per cent of population with unsafe drinking water between 1990 and 1995 from 0.021% to 0.017% (this represents 0.04 percentage points and 19%)                              |
| Electricity access         | Electricity access increases by 15.24 percentage points from 22.9% to 38.1% between 2020 and 2024                             | Kenya improved electricity access by 60%. The region also has massive potential for off-grid electricity connections that could rapidly increase electricity uptake  |
| Mobile broadband           | Mobile broadband access increases by 230% from 13.1 subscriptions per 100 people to 43.3 per 100 people between 2020 and 2024 | African low-income countries improved mobile broadband access by over 100% between 2008 and 2013 from 0.44% to 5%  |



|                                 | Outcome  | Justification   |
|---------------------------------|--|---|
| <b>Family planning:</b>         |  |   |
| Modern contraception            | Access to contraception increases by 14.21 percentage points from 17.6% in 2020 to 31.8% in 2024   | Contraception access in the G5 Sahel (17%) is over 15 percentage points lower than in African low-income countries, at 32% in 2018. This push, although aggressive, is achievable as it is coming off a low base  |
| Maternal mortality              | Maternal mortality ratio reduces by 9.6% from 558.1 per 100 000 live births to 504.6 between 2020 to 2024                                | MENA countries reduced maternal deaths ratio between 1993 and 1988 from 188 to 137 (this represents 26.8%)  |
| Infant mortality                | Infant mortality reduces by 37.4% from 61 deaths per 1 000 children to 44.4 deaths between 2020 and 2024                                 | Between 1962 and 1967, African low-income countries reduced infant deaths by nearly 32% from 220 per 1 000 to 150   |
| <b>Agriculture:</b>             |  |   |
| Agricultural yields             | Yields increase by 49.6% from 1.23 in 2020 to 1.84 in 2024   | The region's current agricultural yield is far below the average of even African low-income countries, only comparable to the MENA region in the 1970s. Coming from a low base (1.2), it is possible to have an aggressive push on yields to at least get closer to the current African low-income average (3.04) |
| Calorie uptake                  | Calorie intake increases by 11% from 2 701 in 2020 to 2 999 in 2024  | South Asia increased caloric demand from 1,894.7 to 2,168.8 between 1984 to 1989 (This represents 274 calories and about a 14.5% increase)  |
| Agricultural loss               | Agricultural loss during transmission reduces by 6.4% relative to the Current Path in 2024 from 4.8 million metric tons (MMT) to 4.5 MMT |   |
| <b>Governance:</b>              |  |   |
| Corruption perception           | Government corruption improves by 24.9% from 2.54 to 3.18 between 2020 and 2024  | The MENA region reduced perceived government corruption by nearly 17% between 1960 and 1965 from 4.1 to 4.8   |
| Government effectiveness        | Government effectiveness improves by 16.8% from 1.55 to 1.81 between 2020 and 2024   | The Maghreb region improved government effectiveness by 13.6% between 1997 and 2002 from 1.7863 to 2.0297   |
| Household transfers (unskilled) | Government to household transfers improves by 52.4% from 2.1 billion to 3.2 billion between 2020 and 2024                                |   |
| Foreign aid                     | ODA improves by 32.9% from 6.2 billion to 8.2 billion between 2020 and 2024  | Benchmarked by looking at the funding of development projects in the region and potential for additional funding to continue in the short-term future   |
| Economic freedom                | Economic freedom improves by 8.4% from 5.7 to 6.2 between 2020 and 2024  |   |
| Foreign direct investment       | Foreign direct investment (FDI) stock improves by 28.8% from 47.8 billion to 61.6 billion between 2024 and 2029                          | The 5 countries are endowed with natural resources that can attract FDI   |
| Gender empowerment              | Gender empowerment improves by 14.3% from 0.265 to 0.3029 between 2020 and 2024  | South-East Asia improved gender empowerment by 25.6% from 0.3 to 0.41 between 1985 to 1990  |

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- 80** In 2014 the G5 countries received €3.51 billion in aid, and the IFs Current Path forecasts an increase to €8.47 billion by 2030 and €12.01 billion by 2040. In the Desert Flower scenario these amounts increase to €9.79 billion by 2030 and €13.2 billion by 2040. As a portion of GDP these transfers would still be significantly below the average for other low-income African countries.
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