United Nations
Economic Commission for Africa

ICE 2021

37th session of the Intergovernmental Committee
of Senoir Officials and Experts of Central Africa

FOSTERING LEADERSHIP AND TRANSFORMATIONAL CHANGE FOR ECONOMIC DIVERSIFICATION IN CENTRAL AFRICA

06 - 10 DECEMBER 2021

CENTRAL REPORT

A trip to 2030: Fostering Leadership and Transformative Change for Economic Diversification in Central Africa

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List of Acronyms

ACBF	African Capacity Building Foundation
AESA	Accelerating Excellence in Science in Africa
AfCFTA	African Continental Free Trade Area
AI	Artificial intelligence
AIDA	Accelerated Industrial Development of Africa
AREI	African Renewable Energy Initiative
AUC	African Union Commission
BaU	Business as Usual
CAR	Central African Republic
CFT	Compagnie Forestiere et de Transformation
CO_2	Carbon dioxide
DISCO	Distribution companies
DBSA	Development Bank of Southern Africa
DFI	Development finance institutions
DoE	Department of Energy
DRC	Democratic Republic of Congo
ED	Economic development
EDP	Western Cape Economic Development Partnership
EITI	Extractive Industries Transparency Initiative
EnD	Enterprise development
ERA	Economic Report on Africa
EU	European Union
FiT	Feed-In Tariff
GDP	Gross domestic product
GEO	Global Environmental Outlook
GHG	Greenhouse gas
GTP	Growth and Transformation Plans
HIPC	Heavily Indebted Poor Countries
ICE	Intergovernmental Committee of Experts
ICT	Information and Communications Technology
ICU	Implementation and Coordination Unit
IDDA	Industrial Development Decade for Africa
IMF	International Monetary Fund
IPCC	International Panel on Climate Change
IPP	Independent Power Producers
IPPO	Independent Power Producers Office
ISI	Import-substitution industrialisation
IUCN	International Conservation Union
LDC REEEI	Least Developed Countries Renewable Energy and Energy Efficiency Initiative
MBA	Masters of Business Administration

MPI	Multidimensional Poverty Index
MVA	Manufacturing Value Add
NGO	Non-governmental organisation
NSE	New structural economics
NUP	National Urban Policy
PDIA	Problem-Driven Iterative Adaptation
PPA	Power Purchase Agreements
PPDU	Projects Preparation and Development Units
PRSP	Poverty Reduction Strategy Papers
REC	Regional Economic Communities
REIPPPP	Renewable Energy Independent Power Producers Programme
SAP	Structural adjustment programmes
SDG	Sustainable Development Goals
SDI	Shackdwellers International
SDI	Sustainable Development Index
SDSN	Sustainable Development Solutions Network
SED	Socio-economic development
TFP	Total Factor Productivity
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDESA	United Nations Economic and Social Affairs
UNECA	United Nations Economic Commission on Africa
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNIDO/GGGI	UNIDO - Global Green Growth Institute
UNU-INRA	United Nations University Institute for Natural Resources in Africa
WTO	World Trade Organisation

Executive Summary

Chapter 1: Introduction and Context

Over the past decade numerous reports, conferences and summits have taken place about the need for industrial development and economic diversification in Africa. The *Made in Central Africa* report in 2017 clearly reiterated this call by arguing that a strong strategic focus on industrial policy is required with the explicit goal of increasing the Manufacturing Value Add (MVA) as a percentage of GDP (ECA/SRO-CA, 2017). This report suggests that progress towards diversification and higher MVA in Central Africa, necessarily requires going beyond the market-oriented structural adjustment approach and the IMF-based poverty reduction programmes that under-emphasize the role of industrial policy; where industrial policy is understood to involve various forms of intervention or government policy to improve the business environment or to alter the structure of economic activity towards sectors, technologies or tasks that offer better prospects for economic growth and social welfare. The emphasis in the *Made in Central Africa* report is reinforced by the policy recommendations of the United Nations Industrial Development Organization (UNIDO) and the United Nations Conference on Trade and Development (UNCTAD) who have both proposed a strategic focus on industrial policy by African Governments (UNCTAD/UNIDO, 2013). Since 2013, the United Nations Economic Commission on Africa (ECA) and the African Union Commission (AUC) have been recommending that African Governments should focus on structural transformation of their economies and diversification through accelerated industrialization.[1]

The Central African region has common challenges, but the specificities of each country across this diverse region needs to be recognised. According to World Bank rankings that rely exclusively on the measurement of GDP levels, two Central African oil-dependent economies, namely Gabon and Equatorial Guinea have revenue levels that defined them as upper-middle-income countries despite extreme levels of inequality. Four economies, namely Angola, Cameroon, the Republic of Congo and Sao-Tomé and Principe are ranked as lower-middle-income. The five other economies - Burundi, Chad, the Central African Republic, the Democratic Republic of Congo and Rwanda – are ranked as low-income. This means it is not always possible to generalize for all Central African economies. The specific context of each one needs to be recognised. Nevertheless, what *is* very clear is that despite unevenly rising economic growth rates across the region, there is little evidence of structural transformation. The result is continued dependence on low value primary agriculture and enclaved export-oriented extractive industries (STEPS Reports)[2].

The Herfindahl-Hirschmann Export Diversification Index reveals whether a large share of a country's exports are generated by a small number of commodities (services are not counted). As such it provides a measure of economic concentration in export sectors, where numbers between 0.7 and 1 reveal an extreme lack of lack of diversity (UNCTAD, 2021). Various studies show that export diversity in particular is associated with reduced exposure to commodity price fluctuations, less economic volatility and sustained economic growth (Salinas, 2021).

[1] **United Nations** (ECA) and **African Union Commission** (AUC), Economic Report on Africa (ERA) 2013 "Making the most of Africa's commodities: *Industrializing for Growth, Jobs and Economic Transformation"*, 2014 "Dynamic Industrial Policy in Africa", 2015 "*Industrializing Through Trade"*, 2016 "Greening Africa's Industrialization" and 2017 "*Industrialization and Urbanization for Africa's Transformation"*.

[2] STEPS stands for "structural transformation, employment and productivity" and the reports are produced by UNECA for specific countries.

Table 1: Measures of export diversity in Central African Countries 2009 and 2020

Product diversification of exports (index and absolutes)			Absolute value	
	2009	2020	2009	2020
Angola	0.464	0.891	6	146
Burundi	0.771	0.825	31	41
Cameroon	0.742	0.781	170	191
Central African Republic	0.781	0.765	28	38
Chad	0.745	0.86	57	60
Congo	0.816	0.854	144	90
Democratic Republic of Congo	0.817	0.913	120	114
Equatorial Guinea	0.815	0.749	94	25
Gabon	0.831	0.819	111	140
Rwanda	0.774	0.811	67	156
Sao Tome Principe	0.591	0.678	13	27

(Source: UNCTAD, 2021)

Central African exports are shown in Table 1 to lack diversity in relative and absolute measures and, relative to the rest of the world, to have become less diverse over the past decade. Similarly, Central African countries tend to display high level of product concentration relative to the rest of the world. Only Cameroon (0.331), Rwanda (0.444) and Central African Republic (0.468) had values below 0.5 in 2020. Angola (0.869), Chad (0.891) and Equatorial Guinea (0.74) had extraordinarily high levels of export concentration.[1] By comparison China's Export Concentration Index was 0.1 and Malaysia's 0.242 in 2020.

A lack of export diversity is perceived as a particular problem in the context of climate change, with the most exposed states being those in which:

- "A significant percentage of their total exports is concentrated on only a few products or services;
- Demand for those few products or services is likely to drop as a result of climate change mitigation measures in other countries" (UNFCCC, 2016, p.8).

[1] Numbers close to zero suggest high levels of diversification, while number close to 1 point to dependence on a few commodities.

It is for the goal of economic diversity and resilience, with specific reference to the importance of the manufacturing sector, that industrial policy is increasingly being emphasised within the wider policy community.

The call for Central African Governments to focus on industrial policies is accepted as the point of departure for this report. The case for industrialisation has been well made in the Douala Consensus, as well as the *Made in Central Africa* and the *STEPS Central Africa* reports, as well as many African reports, and therefore need not be repeated here beyond summarizing what has already been said. What matters

now are no longer questions about *what* needs to be done, but *how* it should be done. It is time for the kind of leadership and partnering approach that results in concrete actions that deliver actual results. This means going beyond generalisations about what 'developmental states' *should do* into more granular details about the way ruling elites, business leaders, state bureaucrats and civil society *learn to work together* to implement programmes and projects. This will not happen simply because everyone thinks it *should* happen. It will only happen when actual partnering occurs in response to shared understandings of opportunities and longer-term impacts. For this to happen, as will be discussed later in this report, dedicated capacities for facilitating partnering will be required. Leadership for change must be consciously built; it does not organically emerge from the context out of necessity. Visioning, fostering partnerships and building capabilities for creating, maintaining and disrupting institutions are the three key ingredients of transformational leadership.

As the *Made in Africa* report concludes: "The very low share of MVA in GDP is stagnating or in decline. In 2013, it varied between 4% for Gabon and 16% for Cameroon, while that of Thailand was 34% and Malaysia 25%." The challenge is clear: shifting from low- to high-value productive activities is not going to happen by remaining dependent on the agricultural sector and/or export-oriented mining sector enclaves run by multi-nationals. It will happen when well-rooted manufacturing sectors with strong backward and forward linkages expand in response to industrial policies aimed at seizing regional and international opportunities. For this to happen, however, an appropriate institutional environment is required that enables entrepreneurs to open businesses that are not confined to informal sector trading or basic primary agriculture. However, to use just one indicator, the World Bank's *Ease of Doing Business* rankings consistently place Central African economies (except Rwanda) at the bottom of this list.

The *Made in Central Africa* report reviewed the vision papers, strategies and policies of Central African Governments and discovered that industrial policy is almost entirely neglected (UNECA 2017:22). The report reveals five trends: (a) all countries (except CAR) have a long-term national development plan and vision; however (b) only four out of eleven countries have formal industrial development policy papers (Rwanda, Cameroon, Gabon and Equatorial Guinea); (c) Rwanda is the only country in the region with a "Made in Rwanda" formal policy statement; (d) eight out of eleven countries are under IMF-funded programmes with conditional PRSPs which, in turn, de-emphasize industrial policy; and (e) although economic diversification and improving the business climate is always emphasized in economic policy documents, "[t]he industrialization theme is very rare or nonexistent" (ECA/SRO-CA, 2017)

It is clear from various reports that the Central African region has huge wealth generation potential. Three factors are most consistently referred to: natural resource endowments (especially agricultural land, water resources, forest products, minerals, and non-renewable and renewable energy resources), central location within the wider African regional economy, and entrepreneurship. However, these potentials remain un- or under-exploited. For the STEPS report, the status quo will prevail unless policies are adopted that promote "(i) diversification of economies to reduce heavy dependence on the exploitation and exportation of a very limited number of primary commodities; ii) accelerating regional integration; iii) improved governance and iv) increased investment in infrastructure". This report focusses, in particular, on the third category because the other three are entirely dependent on 'improved governance' in general, and the nitty gritty of leading, visioning and facilitating change.

It is now generally accepted that there have been four phases in the evolution of development policy since the 1960s. Although discussed in greater detail in Chapter 3, to contextualise this report's focus on transformational leadership through institutional work and capability building, it is worth briefly noting this evolution and the governance implications of the current phase development policy thinking. The four phases are as follows:

- *Phase 1:* import-substitution industrialisation (ISI) during the 1960s and 1970s, with a strong role for interventionist states.
- *Phase 2*: following the publication of the Berg Report in 1981, market-oriented structural adjustment programmes (SAPs) were imposed on African economies during the 1980s and 1990s – these limited structural transformations, weakened the states and reduced the diversification of economies.
- *Phase 3:* to qualify for participation in the IMF-World Bank sponsored Heavily Indebted Poor Countries (HIPC) initiative launched in the late 1990s, the Poverty Reduction Strategy Papers (PRSPs) were introduced from 2000 onwards to ensure a range of anti-poverty policies (but not industrial policies) were adopted by African Governments as conditions for dealing with debts accumulated during the SAP years. Eight Central African Governments participated in PRSPs.
- *Phase 4:* in light of the failures of SAPs and PRSPs to catalyse meaningful economic growth and improvements in wellbeing, a new mainstream approach has emerged that has come to be referred to as the 'new structural economics' (NSE). NSE aims to strike a balance between interventionist states and markets. In the words of one its primary architects and former Chief Economist of the World Bank Justin Yifu Lin, "the market should be the basic mechanism for resource allocation, but that government must play an active role in coordinating investments for industrial upgrading and diversification and in compensating for externalities generated by first movers in the dynamic growth process. …. The new structural economics argues that the best way to upgrade a country's endowment structure is to develop its industries at any specific time according to the comparative advantages determined by its given endowment structure at that time" (Lin, p.5). In short, do what is possible immediately given the prevailing context, but apply nationally crafted industrial policy to gradually transition from dependence on low value labour and natural resources with low returns on finite capital stocks, to high value labour, technological knowledge and higher returns on ever-expanding capital stocks.

The *Made in Central Africa* report justifies its support for the fourth approach be referring to four conditions of significance for Central African economies: (a) the impact of the Fourth Industrial Revolution, (b) the constraints created by restrictive trade agreements (especially WTO) and potential of regional trade opportunities, (c) the changing nature of global value chains due to the West-to-East shift in global economic gravity, and (d) the impact of climate change and the resultant need to shift to renewable energy. For UNECA and AUC, this fourth approach was captured in the 2011 Economic Report on Africa that urged African Governments, especially those in the Central African region to "adopt a *developmental state* approach using the market as an instrument rather than a sole mechanism for fostering long-term investment, rapid and sustained economic growth, equity and social development" (UNECA, 2017).

Bringing the 'developmental state' back into economic development immediately raises the question of capability and capacity within Central African states. In the words of the STEPS report: "Governance is the *primary obstacle* standing in the way of improved competitiveness and an improved business climate." (STEPS:7 – emphasis added) If it is the *primary* obstacle, what then is specifically required if states are to become fit-for-purpose. The *Made in Central Africa* report lists a crucially important set of characteristics, namely: (i) "competent leaders" who can articulate a developmental vision and ideology; (ii) "relative institutional autonomy of the state, especially to prepare and implement its policy"; (iii) a capable state, with a "strong and usable bureaucracy"; (iv) "efficient national development planning"; (v) "effective coordination of economic activities and resources"; (vi) "strong support for the emergence of a class of entrepreneurs or national capitalists"; (vii) a commitment to build human capabilities; and (viii) "peace, political stability, the rule of law and predictability in governmental affairs".

This remarkable visionary statement foregrounds a fundamental question: not whether these characteristics exist or not, but *how* they can be built in practice and sustained over time? This 'how' question has not been adequately addressed in any of the reports. This is because the answer to this question means going beyond the almost exclusive focus on structures that pervade development economics, including NSE. In order to bring into focus leadership, agency and capability building, it will be necessary to draw on literatures and lessons from practice that provide 'transformation knowledge' about change processes, i.e. knowledge about how to get from where things are now to a desired end-state.

Given the focus of this report on leadership for economic transformation:

- following the African Capacity Building Foundation (ACBF), leadership is understood to be "Less about the leader or chief executive and more about the leadership group, drawn from the political and management segments of the state, the private sector, and civil society who are capable of directing change toward desired outcomes" (ACBF, 2019). What matters is not who the actual leaders are, but what leading in complex conditions means in practice. The focus will be on visioning (as the act of imagining futures), facilitating change through partnering (in particular what will be referred to as 'political settlements') and capability building (specifically creating, maintaining and disrupting institutions). The key shift needed is from leading for short-term gains for your own group, to leading for long-term gains for the whole of society.

- There are many definitions of "transformation", but the Terms of Reference for this work cite Robert Grass' notion that transformation involves shifts in paradigms, beliefs and behaviour that enrols all of society including businesses, governments, civil society and individuals, into a shared long-term development pathway that balances out economic growth, improvements in human wellbeing and environmental protection.

- Following IPCC definitions, **transformative change** is understood to involve a system-wide change that requires more than technological change through consideration of social and economic factors that, with technology, can bring about rapid change at scale. **Transition** describes **the** process of changing from one state or condition to another in a given period of time. Transition can be in individuals, firms, cities, regions and nations, and can be based on incremental or transformative change (IPCC, 2018).

- "Economic transformation"/"structural transformation" is understood to be a key driver of improved incomes and standards of living. It is about more than economic growth rates. It is about shifting from low-value labour and knowledge to high-value knowledge-intensive productive activities within an increasingly diversified economy (Whitfield et al., 2015). In Central Africa, economic transformation is understood to be closely related to economic diversification that builds on extractive primary sector activities and commodities to support labour-intensive manufacturing, industrialisation and service sector enterprise, while mobilising domestic value chains and local demand (Ovadia and Wolf, 2018). However, economic transformation cannot be reduced to economic diversification, and instead involves shifts in paradigms, beliefs and behaviour that extend beyond markets and enrol all aspects of society including businesses, governments and individuals.

- **Institutions** are the organizational environments within which the large bulk of human actions in our everyday worlds occur. They take many forms, from nuclear families, to multi-national corporations, to cities. There is a growing awareness that they are not structures external to human agency. Institutions "are products of human action and reaction, motivated by both idiosyncratic and personal interests and agendas for institutional change or preservation." (Lawrence and Suddaby, 2006:10) **Institutional change** is the outcome of individuals and groups who actively seek to create, maintain and disrupt institutions. For the purposes of this report, most of the institutions that are referred to are public sector institutions in Central Africa, as well as to a lesser extent business organization, and civil society associations and movements.

Central to this document is the idea that the current set of international and local factors (described in **Chapter 2**) create an unprecedented opportunity for the emergence of the type of leadership (described in **Chapter 3**) that is required to avoid risk and seize the opportunities for the transformational change that will lead to economic diversification (described in **Chapter 4)**. More specifically, ecological, technological, demographic, climatological and economic factors are disrupting the primary sector, reorienting the allocation of finance and reconfiguring competitive advantage in ways that generate incentives for Central African leaders to break from their prevailing economic trajectory, complete with declining contributions of Manufacturing Value Add (MVA) to GDP, and pursue more diverse and socially inclusive development pathways. **Chapter 5** of this report concludes by drawing out the key policy implications of the report for the ICE meeting in November, focussing on the important policy question of "what to do next".

Chapter 2: Global drivers, Continental Processes and Regional Factors of Change

The twenty first century is characterized by a confluence of fundamental economic, social, environmental and political crises that are posing existential threats to countries and humanity at large. The Human Development Report of 2020 (UNDP) underlines that we are at an unprecedented moment in the history of humankind and our planet (2021). Warning lights are flashing red with respect to many key social and environmental life support systems. Such moments require transformational leadership that is able to look beyond the present with a long-term perspective. A break from the business-as-usual mindset will require the type of transformational leadership that deploys innovative and dynamic ways of policy making, planning and monitoring to respond to increasingly complex dynamics of transformation.

While the specific elements of a transformational leadership matrix may vary from one context to another, there are certain features that are emerging as common features of transformational leadership for sustainable development (refer to Table 2). First among these is to understand the complexity of the multiple challenges we are faced with from a system thinking perspective rather than attempting to look for simplified solutions based on linear thinking. Similarly, countries need to move away from largely siloed and fragmented policy orientations to more integrated and comprehensive policy making process.

Table 2: Major shifts for transformational change

	Key processes	Need to shift	
		From	To
1.	The thought process	Simplification through linear thinking	Understanding complexity through systems thinking
2.	The policy process	Siloed and fragmented policy	Integrated and comprehensive
3.	The planning process	Top down and centralized	Top-down strategic planning combined with bottom-up implementation planning
4.	The monitoring process	Primary focus on reporting and communication for the purpose of accountability	Balancing the intrinsic and extrinsic function for the purpose of learning

Source: Compiled from UNDP 2020 & Mebratu and Swilling 2019.

At the planning level, sustainability transformation would require shifting from centralized top-down planning to planning that effectively combines top-down indicative national planning with a bottom-up implementation plan which takes the role of human agency into account (Kebede 2019). Finally, indicators for monitoring need to strike a balance between the intrinsic dimension (balancing economic, social and environmental considerations) and the extrinsic function (fostering communication and policy learning) (Mebratu, 2019)

Understanding the dynamics of change at different levels that determine the scope and overall directionality of transformation processes is a key perquisite for effectively managing and steering the

transition. This includes understanding the major global drivers, continental processes and regional factors of change.

The way each country understands and manages these fundamental drivers and processes with their associated opportunities and challenges has major implications for how countries achieve transformational change and make progress towards the sustainable development goals as outlined in Agenda 2030. This chapter highlights the major global drivers, continental processes and regional factors which countries in the Central Africa region need to consider for promoting and realizing transformational development in their respective countries.

2.1 Global drivers

2.1.1 The global resource challenge

The dynamic relationship between society and its natural environment has been one of the fundamental drivers of social transformations, including the agricultural and industrial transformations (Fischer-Kowalski et al, 2007). For millennia, this interaction and relationship has been primarily governed by adherence to the limits and correcting conditions imposed by natural systems. This relationship changed fundamentally with the onset of the agricultural revolution some 13 000 years ago. Two hundred and fifty years ago, the industrial revolution resulted in another fundamental change in nature-society relations as technologies evolved that made modernity as we know it possible, in particular deriving energy from fossil fuels. Compared to previous centuries, the twentieth century was a period of unprecedented economic growth and development driven by industrialisation and globalisation. However, it was also a century that saw exponential growth in the volume of resources extracted from the natural environment and the related environmental degradation.

According to the International Resource Panel (2012), annual extraction of natural resources grew from 7 billion tons in 1900 to 60 billion tons in 2010 and, with the Business as Usual (BaU) scenario, this is projected to reach 140 billion tons by 2050. The International Resource Panel (IRP, 2019) reported that over the past five decades, our global population has doubled while the extraction of materials has tripled and the gross domestic product (GDP) has quadrupled. Attempting to industrialise the least developed economies using the conventional model of industrialisation is neither feasible nor sustainable since the available regenerative and assimilative capacity of the planetary ecosystem is already constrained. This would require decoupling economic development, which is necessary for improving human wellbeing, from disproportionate natural resource use and environmental impacts by deploying more resource efficient and renewable production technologies and techniques across all economic sectors.

UNEP's International Resource Panel (UNEP 2014) underscores that unsustainable production and consumption patterns of land-based products are exerting unprecedented pressure on land resources across the globe. About a quarter of the earth's land area is highly degraded (up from 15% in 1991) and 5.2 million hectares of forests are lost every year. Rivers and lakes are drying up, groundwater aquifers are getting depleted, oceans are becoming acidified, and more than 30% of global fisheries that are harvested are overfished. 27% of the world's 845 species of reef-building corals have been listed as threatened and an additional 20% are considered near threatened. Species and other forms of

biodiversity are vanishing at rates not seen since the last mass extinction 65 million years ago when the dinosaurs disappeared. All this calls for a fundamental rethinking and reorganization of the dominant production and consumption systems. As argued by UNCTAD, Africa cannot escape the implications of these challenges, in particular the need for decoupling economic development from rising levels of resource use (United Nations Conference on Trade and Development, 2012).

Looking specifically at Africa, the sixth Global Environmental Outlook (GEO 6) Report on Africa (UNEP, 2016) indicated that:

- land productivity remains low in the region - a result of mineral poor soils and land degradation caused by inappropriate farming practices, deforestation, mining activities, and desertification;
- Africa's expanding economies are resulting in greater demands for freshwater, but its quantity and quality are decreasing as a result of over-exploitation, climate change and pollution;
- the degradation of coastal wetlands and unsustainable use of natural resources are impacting on the functioning of these ecosystems thereby affecting the livelihoods of communities that directly and indirectly depend on them;
- many of Africa's fisheries, both inland and marine, face overexploitation from illegal, under-reported and unregulated fishing;
- Africa's rich biodiversity, which is the basis for various ecosystems services, faces significant threats from illegal trade in wildlife, mono-cropping, air and water pollution, forest loss, climate change, and increased prevalence of invasive alien species.

The report concluded that Africa's natural capital faces threats from a variety of development trends including the expansion of oil and gas fields, urbanization and climate change. Vulnerable hotspots with high biodiversity include the Congo Basin, the West African coast, sections of the East African coast, as well as the east coast of Madagascar. The continent thus faces a great challenge of sustaining rapid economic growth while reducing its ecological footprint and safeguarding the life-support system provided by a healthy environment.

2.1.2 Global carbon constraint

The most recent report released by the International Panel on Climate Change (2021) concluded that observed increases in greenhouse gas (GHG) concentrations since around 1750 are unequivocally caused by human activities and it reached annual averages of 410 ppm[3] for carbon dioxide (CO_2) in 2019. It further noted that each of the last four decades has been successively warmer than any decade that preceded it since 1850 and the global surface temperature in the first two decades of the 21st century (2001-2020) were 0.99 [0.84- 1.10] °C higher than 1850-1900. It also concluded with high confidence level that global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years.

[3] 450 ppm concentration of CO_2 in the atmosphere is recognized as the tipping point that may lead to an irreversible change in our planetary system.

The *IPCC Special Report on Global Warming of 1.5°C* (IPCC, 2018) noted that impacts on natural and human systems from global warming have already been observed and many land and ocean ecosystems and some of the services they provide have already changed due to global warming. According to UNEP's Emission Gap Report (2020), Global GHG emissions continued to grow in 2019, reaching a record high of 59.1 GtCO2e with 65 percent of the emissions coming from fossil carbon dioxide (CO2) and land use change. As a result of climate change, hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s, while cold extremes (including cold waves) have become less frequent and less severe; frequency and intensity of heavy precipitation events have increased since the 1950s over most land area; and the global proportion of major (Category 3–5) tropical cyclone occurrence has increased over the last four decades (IPCC, 2021).

It is projected that climate change will have significant impacts on Africa's future, with serious implications on the availability of arable land and freshwater. The region's vulnerability to the impacts of future climate change is worsened by its comparatively low adaptive capacity and the relatively strong climate change signals that are projected for the region (Niang et al. 2014, UNEP 2016). Climate change will have direct impacts on food provisioning services on the continent while increased temperatures and shifts in rainfall patterns will have an impact on the suitability of land for agriculture (UNEP 2016). Under a low-mitigation future, Africa will have to deal with the adverse impacts of rapidly rising temperatures and associated extreme events during a period considered particularly important for its development (2021–2065) (African Union Commission 2016).

The risks associated with climate change could be reduced by upscaling cross-sectoral climate mitigation and promoting both incremental and transformational adaptation. A high-mitigation climate future may hold significant advantages for Africa (UNEP 2016). While Africa's contribution to the global greenhouse gases emission is very small, it faces a great challenge of sustaining rapid economic growth that meets the needs of its population which is projected to double to approximately 2.5 billion by 2050 (AESA, 2020). However, African countries can achieve their developmental goals through the promotion of low carbon development pathways that are driven by the diverse and enormous renewable energy resources that exist across the region. The fact that renewable energy is now cheaper than fossil fuel-based energy makes this an economically attractive option for African countries. This is why many are already encouraging large-scale investments in renewables (e.g. Rwanda, Morocco, Ethiopia and South Africa).

2.1.3 Fourth industrial revolution

Rifkin (2011) argues that significant economic transformations in history occur when new communication technologies converge with new energy systems. The convergence of advanced digital technologies with recent developments in renewable energy technologies provides the foundation for the unfolding green industrial revolution. Emerging technologies that drive the green industrial revolution build upon the knowledge and systems of previous industrial revolutions, in particular the digital capabilities that first emerged in the 1970s (Swilling 2020). These emerging technologies include artificial intelligence (AI) and robotics, additive manufacturing, smart grids, new materials and energy technologies, biotechnologies, and virtual and augmented reality.

The traditional top-down organisation of society that characterised much of the economic, social and political life of the fossil-fuel-based industrial revolution is giving way to a distributed and collaborative relationship in the emerging green industrial era (Rifkin 2011, Swilling 2020). Even if there are potential threats associated with these technologies, they also provide unique opportunities for developing countries to leapfrog to more efficient and sustainable economic systems (Mebratu, 2019). African countries have been aspiring to industrialise their economies since their early years of liberation and industrialization is still a development imperative for all African countries. Given the complex socio-economic and socio-ecological challenges faced by African countries and the emerging trends of industrialisation, African countries will have to rethink what industrialisation means in a world in transition. If they adopt a long-term perspective, it will be obvious that they will have to pursue a new industrialisation pathway that creates jobs and livelihoods while at the same time restoring and maintaining the ecological foundation of the various national economies across the region.

2.2 Global and continental processes

Africa faces a great challenge of sustaining rapid economic growth while safeguarding the life-support system provided by its rich natural capital. This would underpin the realization of its long-term vision as captured in the African Union's 2063 Agenda. Africa's population is expected to double to approximately 2.5 billion by 2050. Cognizant of this challenge, African countries have been collectively developing and promoting strategic continental development frameworks that align with the global development agenda and which could guide and support African countries to overcome the demographic challenges and achieve sustainable development. This section highlights the major continental initiatives that could support transformational changes in the Central Africa region.

2.2.1 Agenda 2030 and the SDGs

2015 was a year during which a broader global consensus was reached across science, politics and morality on the need for transformational change. The adoption of Agenda 2030 on Sustainable Development Goals (SDGs) and the Paris Declaration on Climate Change together with the Laudato Si Encyclical issued by Pope Francis on climate change (which happened during the same year), were key turning points in global society's conception of the future. In essence, all these and other related declarations recognised the urgency of the transition to socially inclusive, low-carbon and resource-efficient economies at the global level. The declarations underline that such a transformation is critical if humanity wants to avoid an irreversible natural disaster on a global scale and make progress towards a more inclusive ecologically sustainable society.

Agenda 2030 - the Future We Want - as adopted by the United Nations in September 2015 provides a blueprint for realizing the collective global aspiration to transition to more inclusive and sustainable economies. It consists of 17 Sustainable Development Goals with 169 associated targets which are integrated and indivisible. The path to be followed by each country and region could be different from one to the other. This is because each path is dependent on the current level of development and the specific socio-economic and socio-ecological challenges faced by the respective countries and regions. Broadly categorised, countries with developed economies would be required to deconstruct and retrofit

their existing infrastructural base while countries that are at an early stage of development have the opportunity to build their infrastructures on a more socially inclusive, low-carbon and resource-efficient basis (Mebratu 2019). By doing so, they maximise their leapfrogging opportunity into a more sustainable development trajectory.

2.2.2 Agenda 2063

The Agenda 2063 Framework Document on the 'Africa we want' was adopted by the Summit of African Heads of States in January 2015 as the basis for Africa's long term socio-economic and integrative transformation. Building a prosperous Africa based on inclusive growth and sustainable development is the very first of the seven aspirations endorsed as a guiding directionality for the development and implementation of Agenda 2063. Goal 5 of Agenda 2063 specifically underlines the critical importance of achieving transformed economies and job creation. It further outlines that African countries would have to address the following priority areas to attain this goal (AU, 2016):

- Accelerated and inclusive economic growth and macroeconomic stability;
- Accelerated manufacturing as generator of decent jobs;
- Expansion of opportunities for transiting from unemployment, vulnerable and informal sector jobs to formal sector jobs;
- Expanded ownership, control and value addition (local content) in extractive industries;
- Diversified economy for increased resilience to external economic shocks; and
- Economic development driven by science, technology and innovation.

Furthermore, formulation of a commodities strategy that enables African countries to add value, extract higher rents from their commodities, further integrate into the Global Value chains, and promote vertical and horizontal diversification anchored in value addition and local content development is one of the flagship programs identified in Agenda 2063. The first 10 Year Implementation Plan for Agenda 2063 developed by the African Union further highlighted manufacturing-based industrialization as one of the priority areas for countries and Regional Economic Communities (RECs). This brings industrial policy into the very centre of African economic transformation strategies (United Nations Economic Commission for Africa & African Union, 2014).

2.2.3 Accelerated Industrial Development of Africa (AIDA)

The 18th Conference of the African Ministers of Industry (CAMI 18) that occurred in 2008 endorsed the Implementation Strategy for the African Union Action Plan for the Accelerated Industrial Development of Africa (AIDA). AIDA aims at fostering sustainable economic growth, wealth creation and global integration using manufacturing as a dynamic force. AIDA focuses on driving the integration of industrialisation in national development policies, especially in poverty alleviation strategies, development and implementation of industrial policy with priority accorded to maximising the use of local productive capacities, and inputs through value addition and local processing of natural resources in each country. The Strategy embodies 7 clusters, 21 Strategic Action Areas and 53 projects covering substantial aspects of industrial development, including upgrading and modernization; industrial policy

development and management; industrial innovation and technology systems; industrial skills development; renewable energy; and trade capacity building. However, as Chapter 3 argues, none of these industrial strategies can work without appropriate transformational leadership and enabling institutional capabilities.

A positive impact of the AIDA so far is that it has inspired and influenced Member States, RECs and other development partners to mainstream industrialisation in their development strategies. A key milestone in institutionalising industrialisation at the continental level has been the successful setting up of the Implementation and Coordination Unit (ICU) in May 2018 by the African Union Commission in collaboration with UNIDO as part of strategies to drive implementation of AIDA (UNIDO, 2021). This is a technical resource with responsibility to oversee and coordinate the implementation of AIDA and other pan-African industrialisation frameworks such as the Africa Mining Vision.

Mindful of Africa's vicious cycle of underdevelopment, poverty and economic vulnerability, the United Nations General Assembly unanimously adopted the Third Industrial Development Decade for Africa (IDDA III) on 25 July 2016. The IDDA III proclamation underscores the need for the continent to take urgent action to advance sustainable and inclusive industrialization as a key element for furthering value addition, economic diversification and job creation; thus reducing poverty and enhancing the continent's capacity to deliver on Agenda 2063 (UN 2016). In essence, IDDA III (2016 -2025) which builds on lessons from previous initiatives, is envisaged to be a catalyst towards the implementation of AIDA, as the continent sets on a course to deliver Agenda 2063, thus anchoring prospects for self-reliance and resilience in Africa. IDDA III is thus seen as a strategic framework in the continent's journey towards shaping a sustainable social, political and economic transformation process anchored on a broad-based and inclusive industrialization trajectory.

2.2.4 African Continental Free Trade Area (AfCFTA)

The African Continental Free Trade Area (AfCFTA) came into force on 30 May 2019, establishing the largest free trade area in the world since the creation of the World Trade Organization (WTO) in 1995. The AfCFTA ushers in a free trading regime for the continent that was foreseen to formally transact business with effect from 1 July 2020. The AfCFTA's scope goes beyond traditional free trade areas, since it will include free trade in services, investments, intellectual property rights, competition policies and even e-commerce. If successful, the agreement will create a single African market of over 1.2 billion consumers with a total GDP above $ 2.5 trillion (UNECA 2020). The World Bank estimates that the AfCFTA could lift an additional 30 million people form extreme poverty by 2035.

The AfCFTA will create bigger export volumes, higher value addition into manufacturing and services and a more diversified intra-African trade export basket for women, youth and SMEs. The AfCFTA aims to accelerate continental integration and increase intra-African trade. It is expected to increase intra-African trade by 15 to 25 per cent (or $36–43 billion) by 2040 (ECA, 2018). The cumulative effect could boost Africa's GDP by up to $44 billion. Thus, central to the success of the grand free trade regime is the need to move the continent's industrial production frontier outwards, in order to build internal capacity to supply the expanded marketplace and beyond.

2.2.5 Strategic continental initiatives

Over the last couple of years, Africa as a region has been active in developing and launching major strategic initiatives that are aimed at supporting African countries to make the transition to inclusive, low carbon and resource efficient economies. These include: the African Renewable Energy Initiative (AREI) as a transformative, Africa-owned and Africa-led inclusive effort to accelerate and scale up the harnessing of the continent's huge renewable energy potential; and the African Circular Economy Alliance (ACEA) as a government-led coalition of African nations with a mission to spur Africa's transformation to a circular economy that delivers economic growth, jobs, and positive environmental outcomes.

2.3 Regional factors

The Douala Consensus to accelerate economic diversification through industrialization which was adopted in September 2017 by the 33rd session of the Intergovernmental Committee of Experts (ICE) for Central Africa committed to speed up economic diversification through industrialization. Subsequent meetings of the ICE continued to advocate and promote economic diversification and transformational changes setting up different developmental goals for the region. Achieving these goals would require a holistic understanding of existing developmental challenges and full utilization of available opportunities. This section highlights the major regional development factors that could pose challenges and provide opportunities at the regional level.

2.3.1 Economic factors

The Central Africa Region experienced stagnating economic growth in the past decade as prices and demand for primary commodity exports has decreased. According to UNECA's 2020 Economic Report on Africa (2020), Central Africa's economic growth rose from 1.0 per cent in 2018 to 1.6 per cent in 2019 but contracted by -3.6 per cent in 2020. However, it is projected to grow by 2.8% in 2021. Growth was estimated to be negative in 2019 in Equatorial Guinea (−6.1 per cent) and the Republic of the Congo (−0.6 per cent). With GDP growth of 4.4 per cent in 2019, the Democratic Republic of the Congo is leading the region. Growth in Central Africa is supported by consumption and trade, which means the region is relatively exposed to external adverse shocks.

Building the productive capacity of an economy is key to achieving transformational change. UNECA (2020) notes that, with the current level of investment in the building of productive capacities, African economies could not guarantee sustainable growth in the long run and eradicate poverty or achieve the other Sustainable Development Goals (SDGs). For instance, total investment in the Central Africa region declined from 29.7% of GDP in 2015 to 22.4 % in 2021, with the lowest point being 20.2% in 2018 (UNECA 2020). In this context, Central African countries need to make maximum effort to enhance their investment in the building of the productive capacity of their respective countries. Countries in the region also need to give preference to transformational infrastructures that are more resource efficient and climate resilient if they wish to achieve socially inclusive, low carbon and resource efficient economies (Mebratu and Swilling, 2019).

The report on 'Economic Opportunities Along the Central African Road Corridor' prepared by UNECA (2021) proposes that the Central African Road Transport Corridor could serve as a vehicle for transformational change in the region. The report further identified agri-business, renewable energy, and mining as the high potential economic development sectors for countries in the region based on their potential contribution to economic and social development, environmental conservation, and regional integration. The report further highlights the opportunities in these sectors as follows (UNECA 2021):

- **Agri-business:** Central African countries have the potential for transforming their agricultural and livestock sectors by linking farmers to agricultural inputs from internal value chains that can improve productivity and enable them to meet consumer demand for agricultural products. Maize and rice are priority commodities poised to benefit from such intervention supported by increased regional trade. Furthermore, the agricultural sector's demand for a range of inputs could stimulate local manufacturing (e.g. fertilisers, low-tech equipment, etc). Global climate change and regional biodiversity changes will also require African farms to adapt to ensure long-term survival of the eco-systems they depend on. This includes farming practices that restore rather than degrade soil health, water systems, forests, pollination systems and other key agricultural-related ecosystem services.
- **Renewable energy:** The border area between the Extreme North region of Cameroon and Chad has among the highest potential for wind and solar energy on the African continent. Exploiting this potential here as well as in other sub-regions can improve the region's progress towards SDG 7 and stimulate demand for locally sourced metals that can be used in wind turbine construction and renewable energy storage regionally and globally.
- **Mining**: The global energy sector is undergoing a shift to renewable and sustainable energy sources which has impacted global demand for metals used in rechargeable batteries. Central Africa has abundant deposits of valuable metals used in the production of rechargeable batteries, renewable energy infrastructures and advanced electronics, but has limited capacity to process the metals for manufacturing the batteries and renewable energy infrastructures. The region is well suited to develop an integrated regional battery value chain, connecting mining at the base of the supply chain to end-user demand for renewable energy storage and smartphones. In short, global sustainability drivers requires the reinvention of mining as a primary sector of production. Strategic niche mining linked to manufacturing must replace large-scale mining of exported materials that have a limited future in a sustainable world (e.g. coal, oil and gas).

2.3.2 Social factors

Poverty reduction is one of the major socio-economic challenges faced by African countries. The poverty rate in Africa decreased from 54 per cent in 1990 to 41 per cent in 2015, but the number of African people living in poverty increased from 278 million to 413 million (Beegle and Christiaensen, 2019). Poor households may suffer from a lack of access to health services, education and a good standard of living. The global Multidimensional Poverty Index (MPI) was developed to include such dimensions in poverty analysis (Alkire, Kanagaratnam and Suppa 2019). The MPI has three main components: living standard, education and health. The living standard dimension is related to Sustainable Development Goals (SDGs)

6.1, 6.2 and 7.1. Education is related to SDG 4, focusing on access, and the health dimension is linked to SDG 2.

The proportion of the population regarded as multi-dimensionally poor in Africa varies from 0.5 per cent in Tunisia to 59 per cent in Niger. On average, 26.4 per cent of people are multi-dimensionally poor in Africa, compared with 14.2 per cent in Asia and 11.4 per cent in developing countries. As can be seen from the multi-dimensional poverty index (MPI) of Central African countries presented in table 3 below, Gabon and São Tomé and Príncipe have the lowest MPI with 6.6 and 9.2 percent respectively while Chad and the Central Africa Republic have the highest MPI with 53.3 and 46.5 percent respectively.

Table 3: Multidimensional Poverty index of Central African Countries

	Name of the country	MPI
1.	Angola	0.282
2.	Cameroun	0.248
3.	Central Africa Republic	0.465
4.	Chad	0.533
5.	Congo Republic	0.112
6.	Democratic Republic of Congo	0.389
7.	Gabon	0.066
8.	Rwanda	0.259
9.	São Tomé and Príncipe	0.092

(Source: UNECA, 2020)

In addition to poverty and poor performance related to the SDGs, inequality remains a particularly serious challenge across the African region. However, over the past five years, inequality in Africa slightly decreased. In 2017 the top 10 per cent of the population by income received 54.3 per cent of the national income, down from 55.3 per cent in 2013 (UNEP 2020). Addressing poverty and income inequality are fundamental challenges that require transformational change across Central African countries.

The Sustainable Development Index (SDI) is an index produced by the Sustainable Development Solutions Network (SDSN) to measure and rank progress made by countries towards meeting the sustainable development goals (SDGs). According to the report for 2019 (Sachs et al, 2019), Central African Republic and Chad have the lowest ranking with 39.08 and 42.79 respectively while São Tomé and Príncipe and Gabon rank as the highest performing countries in the region with 65.48 and 64.76 respectively (Table 4).

Table 4: SDG Index of Central African countries

Name of the country	Sustainable development index	Global SDI ranking
Angola	51.32	149
Cameroon	56.02	127
Central African Republic	39.08	162
Chad	42.79	161
Democratic Republic of Congo	44.95	160
Congo Republic	54.22	132
Gabon	64.76	99
São Tomé and Príncipe	65.48	95

(Source: Sachs et al, 2019)

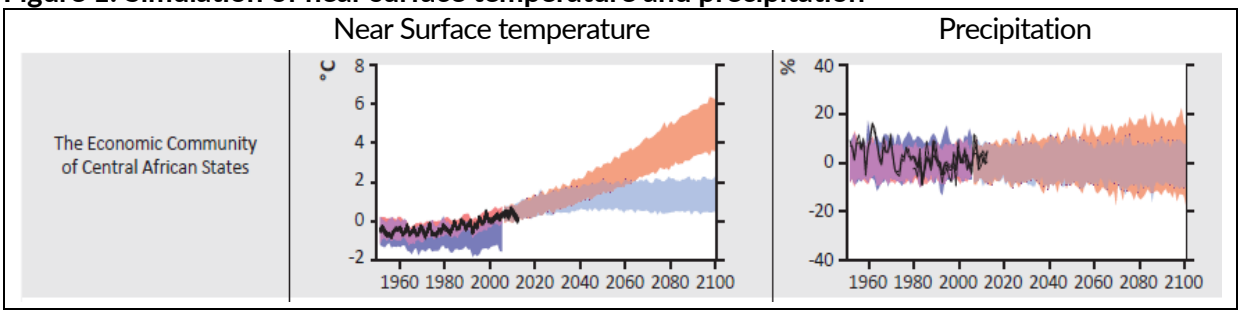
In addition to the above socio-economic factors, the region's demographic dynamics and urbanization trends present a mixed picture of challenges and opportunities. It is therefore necessary to factor in these social challenges into a structural transformation agenda for Africa.

2.3.3 Environmental factors

To build a prosperous, peaceful and sustainable region that is resilient in the face of future shocks will only be possible if the ecological foundation of national economies is restored and maintained as a fundamental dimension of transformation. The following are the key findings of the Sixth Global Environmental Outlook Report for Africa (UNEP 2016) which Central African countries need to take into account:

- indoor air pollution is a major problem across Africa, responsible for an estimated 600 000 deaths per annum while unsustainable growth in urbanization, industrialization, motorization and the emission of mineral dust from deserts have increased outdoor pollution in Africa.
- weather patterns in different parts of Africa are also expected to impact countries in the Central African region in the coming decades as all simulation models indicate a consistent rise in near surface temperatures together with significant climate variability for countries in the Economic Community of Central African States.

Figure 1: Simulation of near surface temperature and precipitation



(Source: UNEP 2016)

- In terms of biodiversity loss, all regions in Africa present negative weighted annual change in the Red List for mammals (range between -0.18 and -0.38), birds (range between -0.08 and - 0.48) and amphibians (range between -0.40 and -0.99), therefore contributing negatively and significantly to the overall annual change in the global Red List Index between 1980 and 2008 (IUCN and BirdLife International 2015).
- The continuous disruption and destruction of natural habitats and ecosystems at various levels combined with adverse effects of climate change have increasingly become drivers for major zoonotic diseases and pandemics, such as avian influenza, Rift Valley fever and Ebola[4].

The assessment concludes that low-carbon, climate-resilient choices in infrastructure, energy and food production coupled with effective and sustainable natural resource governance supported by integrated holistic adaptation and mitigation strategies are key to protecting the continent's ecological assets that underpin a sustainable society.

2.3.4 Spatial factors

Urbanization is one of the major megatrends presenting profound implications for transformational development in Africa. According to UNECA (2017), about half of Africa's population will be living in urban areas by 2050. This will create massive demands for employment, services and infrastructures while at the same creating new opportunities for economic transformation and sustainable development. History and experience has shown that urbanization is closely linked with transformations of economies towards more productive sectors, namely industry and services. If new urban markets are creatively connected via new value chains to rural economies, both can benefit - rural economies have larger markets, and urban economies have access to affordable food and outlets for urban-based manufacture of agricultural inputs.

In terms of the structure of their space-economies, many African countries have a high degree of urban primacy where the largest city is too large while the smallest cities are too small with few mid-sized cities in between (UNECA 2017).

Africa's urban populations have been growing since the 1950s. By 2014 40 per cent of the continent's total population was urbanized and projected to reach 56% by 2050 (UNDESA 2014). This effectively means the urban population is expected to grow from around 400 million in 2010 to 1.2 billion by 2050. It also means that there are more Africans already living in cities than the number of Europeans who live in European cities.

Unsurprisingly African subregions and countries are urbanizing at different speeds. Excluding the Northern Africa region, East Africa is the least urbanized and urbanizing the fastest while Southern Africa is the most urbanized and moving more slowly. The Central Africa region is somewhere in the middle both in terms of the current level of urbanization and the pace of urbanization (UNECA 2017). Today's policy decisions for urban design and infrastructure will have a long-term lock-in effect, thus shaping the

[4] COVID19 which is currently causing havoc across the world is argued to be linked with the continued destruction an encroachment of natural habitats of wild animals.

development path of tomorrow's cities in Africa (Kebede 2019). This is why the increased productivity, efficiency and liveability of African cities and urban systems holds the key to industrial development and future economic transformation.

UNECA's report on *Urbanization and Industrialization for Africa's Transformation* (2017) underlines the critical importance of reconnecting urban and industrial development in Africa through deliberate policies, strategies and investment priorities for ensuring the sustainability of both cities and industries. The key steps in this regard are to: recognize urbanization as an inevitable megatrend of considerable scale and speed that impacts directly on the potential for economic transformation; factor in the ways urban functionality can support or hinder the productivity of firms in industrial policies; ensure spatial targeting that strategically directs and prioritizes investments and interventions that leverage the advantages of urbanization; effectively integrate industrialization into urban and regional policies.

Chapter 3: Understanding leadership for transformational change in Central Africa

3.1 Introduction

The emergence of effective leadership for transformation holds the key to economic diversification and industrial policies that work. But calling for effective leadership will only deliver results if this is coupled to an understanding of the complex granular dynamics of leadership within specific institutional settings, and what leading actually means in everyday practice. This chapter provides a framework for strategic thinking about this challenge. This is contextualised within an understanding of economic diversification that foregrounds Total Factor Productivity (TFP) and the institutional context for enabling significant improvements in TFP over time. The last section connects the threads of the discussion via a case study of urban infrastructure planning.

The Doula Consensus (2017) clearly expressed Central Africa's shared strategic goal:

> "It is important to prioritize industrial policy in national development visions and strategies, while ensuring consistency with the rest of macroeconomic and sector policies, notably trade and urbanization policies. Accordingly, there is need to promote an appropriate macroeconomic framework underpinned by active and contra-cyclic public policies, fostering the entrepreneurial spirit, innovation and competitiveness."

To realize this vision, the *Made in Central Africa* recommended an indicative framework of seven priority actions (see Chapter 4 for details). This chapter focusses, in particular, on priority action (ii), namely the building of **strong leadership and appropriate institutions**. All the other priority actions depend on the emergence of strong leadership and appropriate institutional arrangements. Priority actions i) and (iii) are about the adoption of **guidelines, planning frameworks and policies**; priority actions (iv), (vi) and (vii) are about **investing** in infrastructure, human capital and businesses; and priority action (v) is about **project management** capacity for implementation. However, what 'strong leadership and appropriate institutions' is not self-evident. No-one would disagree that this is what is needed, but few can satisfactorily describe what this actually means in practice.

The *Made in Central Africa* report refers specifically to the role of political leadership in creating institutional space for transformative action:

> "Proactive political leadership should lead to setting up, managing and coordinating a flexible institutional organization which guarantees the planning, implementation, evaluation and adaptation of the transformative industrial policy." (2017:60)

The STEPS Report echoed this perspective by reiterating the characteristics of a developmental state and then concluded:

> "Governance is the primary obstacle standing in the way of improved competitiveness and an improved business climate." (UNECA, 2019:7 – emphasis added)

Chapter 2 describes changing global and regional conditions and Chapter 4 frames these changes as creating new opportunities for innovations and economic diversification. As argued in the STEPS Report,

these opportunities will not be fully realized for the benefit of all the people of Central Africa without changing the way political, business and civil society leaders choose to lead, and without changing the way bureaucrats plan and manage. The challenge is to re-imagine what leading means across these sectors, with special reference to relationships and partnering across institutional boundaries.

Following the STEPS Report (UNECA, 2019), the following has been clearly established: that competent leaders need to emerge that create space for effective bureaucratic capacity to implement efficiently; effective coordination and support for entrepreneurs means learning how to manage relationships and partnerships to build mutual respect and policy certainty; and building human capabilities and creating peace is about making sure that there is an environment of trust where conflicts can be resolved. None of this just happens organically – these conditions are the outcome of intentions implemented through careful facilitation of constructive processes of social engagement (Jaglin, 2013). This Chapter addresses this challenge, referring where appropriate to the specific Central African challenges.

Text Box 3.1: Central African Challenges

It is worth noting that there is very little research on leadership within an African context to draw on. In the first systematic review of the subject in 2011, Nkomo concludes: "An overall impression is the general scarcity of texts, materials and references to Africa in organization studies—it is largely invisible." (Nkomo, 2011:371) The literature that exists is impressionistic and anecdotal, rather than being rooted in actual empirical research. The large bulk of the literature on African leadership is by western academics who generally portray African leadership as irremediably corrupt, incompetent and chaotic. This is what justifies imposing western conceptions of leadership and management onto African contexts. The alternative to this is by African writers. As Nkomo observes, they reject Western management thought and practice in Africa and advocate the adoption and incorporation of African philosophy into leadership and management theory. She concludes: "Ironically, the discourse of renaissance and the discourse of failure share the same episteme." (Nkomo, 2011:366) By this she means that both focus on a few idealised generalisations about 'African culture' that are presented as common to all Africans. Neither, in her view, are satisfactory given the challenges. The alternative is to focus less on cultural norms and more on institutional dynamics, and in particular what it takes to lead and build effective institutions and partnerships.

To address the twin challenge of leading for transformation and institution building in the Central African context, leaders in government, the bureaucracy, business and civil society will need to realise the following:

- that there are a set of global and regional changes that are creating new leadership and institutional challenges and opportunities for Central African nations (3.1);
- that there are six conditions for the emergence and consolidation of transformational leadership in Central Africa (3.2);
- that there are opportunities for capability building and institutional work within the Central African context (3.3); and
- that facilitating of planning processes for infrastructure, in particular urban infrastructure, creates major opportunities for localising value chains and enlarging internal markets (3.4).

3.2 Global and regional changes are creating new leadership and institutional challenges and opportunities for Central African nations (further elaborated in greater detail in Chapter 4)

This section establishes the link between economic performance, institutional capabilities and leadership. Like the rest of the African region and as Chapter 2 of this report confirms, the eleven countries in the Central African region must face the challenge of economic diversification in general, and manufacturing-led industrialisation as envisaged by numerous Central African reports. This will mean responding appropriately to the new global and regional drivers of change discussed in Chapter 2 and the challenges expressed in the Douala Consensus, the *Made in Central Africa* report, the STEPS report and the various country reports commissioned by UNECA's Central Africa Office.

The widespread optimism about African economic development since the late 1990s has been premised on the shift from low growth rates since the 1970s to relatively high (and fairly consistent) economic growth rates in Central Africa and regionally up until the pre-pandemic period. This is particularly true for the oil and gas boom years between 2004 and 2014. Central African growth rates averaged 5% per annum between 2000 and 2014, without a corresponding increase in industrial production, contribution to regional trade and improvements in the wellbeing of citizens. There is little evidence of significant economic transformation underway across the African region (Oppong et al., 2020; Whitfield et al., 2015), and the same is true for Central Africa. By 2015 the industrial sector (which includes the extractive industries that boomed between 2004 and 2014) accounted for 42.6% of GDP in Angola with barely 5.4% accounted for by manufacturing, 57% in Congo compared to 6.5%, 52.8% in Gabon compared to 6.9%, 88.6% in Equatorial Guinea compared to 0.3% and 45.1% in DRC compared to 18.5% for the manufacturing industry.

Table 5: Trend of the value added of industry and the manufacturing sector in Central Africa (in % of GDP) from 1990 to 2015

Country	1990		2000		2005		2010		2015	
	Industry	Manufacture	Industry	Manufacture	Industry	Manufacture	Industry	Manufacture	Industry	Manufacture
Angola	40.7	5	62	3.7	56.5	3.9	52.7	4.6	42.6	5.4
Burundi	19	11.7	18.8	13.1	18.4	12.9	17	11.3	14.9	10.2
Cameroon	29.5	14.5	36	20.8	30.6	29.9	29.9	16.2	28.5	14
Congo	42	8.6	73.9	3.6	73.4	4.1	78.1	3.6	57	6.5
Gabon	51.4	6.4	60.4	4.4	63.4	4.8	60.3	4.9	52.8	6.9
Equatorial Guinea	10.6	1.6	87.7	0.2	95.2	0.1	95.1	0.2	88.6	0.3
CAR	19.7	11.3	14.6	6.2	14.1	6.1	13.8	6.7	15.1	7.8
DRC	29	11.2	30.8	20.3	33	17	40.9	17.1	45.1	18.5
Rwanda	24.6	18.3	13.4	7	12.5	6	13.8	5.8	15	5.1
São Tomé and Príncipe										
Chad										

(Source: ***AfDB, OECD, UNDP*** (2017), African Economic Outlook (AEO) quoted in UNECA 2017, p.18)

Driven primarily by resource extraction for export (and lately fossil fuel rents in particular) coupled to persistent low productivity in the agricultural, manufacturing and informal sectors, Central African economies are heading in a direction that is not aligned with a world becoming increasingly knowledge intensive, decarbonised and resource efficient. Just when Africa is benefitting from the global fossil fuel industry, funding for investments in fossil fuel infrastructures is drying up (Buckley, 2019). There is, therefore, a very real threat of stranded assets, in particular in Central African economies (United Nations University Institute for Natural Resources in Africa, 2019).

However, as the *Made in Central Africa* report makes clear, the real core of Central Africa's challenge is low levels of Total Factor Productivity (TFP). Table 6 shows Central Africa's productivity indicators from 1960 to 2008 with reference to two studies on sources of economic growth in Sub-Saharan Africa.

Table 6: Sources of economic growth in Central Africa, 1960 – 2000[5] and 1975 - 2008[6]

Country/ Region	Period from 1960 - 2000				Period from 1975 - 2008			
	Real GDP growth rate (%)	Contribution of (%):			Real GDP growth rate (%)	Contribution of (%):		
		Physical Capital	Human Capital	Total Factors of Productivity (TFP)		Physical Capital	Human Capital	Total Factors of Productivity (TFP)
Angola	2.3	2.1	1.6	-1.4				
Burundi	2.7	1.7	1.2	-0.2	3.1	3.1	1.3	-1.3
Cameroon	3.8	1.9	1.3	0.6	3.6	2.4	1	0.2
Congo	4	2.1	1.6	0.3	3.7	3.5	1.1	-0.9
Gabon	2.7	1.9	1.1	-0.2	2.3	2.5	0.8	-1
Equatorial Guinea	11.6	5	2	4.6				
CAR	2.2	0.9	1	0.3	1.2	-0.4	1	0.2
DRC	0.2	1.1	1.6	-2.4	-0.4	0.2	1.1	-1.7
Rwanda	2.5	1.1	1.8	-0.4	4.9	3.8	1.2	-0.1
São Tomé and Príncipe	0.4	2	1.5	-3				
Chad	4.1	2	1.5	0.6				
Sub-Saharan Africa	**3.2**	**1.8**	**1.5**	**0**	**3**	**2.2**	**1.1**	**0**

(Source: (i) IMF Working Paper N° WP/04/176, September 2004; (ii) International Journal of Economics and Finance; Vol. 5, No. 10; 2013.)

Although TFP is traditionally used to indicate the contribution made by technology to overall productivity, technology is not a fixed quantum of material goods – it is, in fact, the product of learning

[5]

[6] Tahari et al (2004)

curves over time as knowledge, know how and practices are embedded in the ways things are done within institutionalised settings. Without an appropriate institutional holding space for these learning curves, TFP plateaus or declines. Table 6 should be read as confirmation of the absence of these institutional holding spaces. Whereas TFP contributes 30-40% to global growth[7], in Central Africa TFP contributions to growth are neutral or negative. As the *Made in Central Africa* report concludes:

> "The Central African growth model is therefore essentially determined by the capital and labour factors. **There is therefore a technological or productive efficiency deficit which is a structural handicap for the economic growth of countries of the region**. It would therefore appear that the main factor which directly feeds the vicious circle of weak growth is the structural weakness of the technological factor. This structural shortcoming of the TFP thus reduces the rhythm and level of economic growth. The technological deficit in economic growth models is consistent with the observed de-industrialization trend or structural weakness of the manufacturing industry. These productivity performances thus suggest that *technology and the technology policy which are vital links in the rapid industrialization policy are almost absent or inefficient*." (Made in Central Africa, p. 20 – bold and italics in original)

If the inappropriate institutional context for technological learning is accepted as the root cause of the problem, then the importance of the linkages between leadership, institution building, technological learning and economic growth becomes clear.

In light of the challenges, the following statements integrate and summarize the trends that emerge from a wide range of UNECA reports on Central Africa:

- economic diversification is required to reduce dependence on a few high value enclaves within a sea of low-productivity economic activities;
- traditional forms of primary production (such as basic-level agricultural systems, extractive forestry and the enclaved extractive industries) are becoming increasingly less viable in light of changing global conditions with respect to ICTs, biodiversity conservation and climate change;
- building the 'hard' and 'soft' technological capabilities of firms and farms across the rural-urban spectrum has become an absolute necessity;
- industrial upgrading must be prioritized in order to shift production away from highly competitive low value exports into higher value economic activities for both export and internal markets that employ more people with higher incomes; and
- industrial deepening is also required to create backward and forward linkages into national and localised economies.

Without deeper underlying economic transformation, economic growth rates cannot be sustained, and the fruits of economic growth will not disburse across society in ways that ensure long-term well-being for all. While it is widely recognised that economic transformation is about transitioning from low- to high-value economic activities that generate the surpluses required to fund more inclusive and

[7] Zelleke et al (2013)

sustainable development, in the words of Whitfield et. al. there is a lack of appreciation of the complexities of "moving the economy away from being a set of assets based on primary products exploited by unskilled labour towards an economy built on knowledge-based assets exploited by skilled labour" (Whitfield et al., 2015).

Knowledge-based assets (otherwise known as *technological capabilities*) include the capabilities of firms and farms to access, master and effectively deploy both 'hard' and 'soft' technologies. The 'hard' technologies include the full range of general ICTs as well as the sector-specific technological innovations that emerge from science and innovation that respond to new conditions (in particular the sustainability challenges); while the 'soft' technologies are those that make possible the building of effective, agile, responsive and well-run organizations that spot and exploit profitable opportunities across sectors.

Traditionally, it was the manufacturing sector that was regarded as the locus of the transition from low- to high-value productivity, funded by the rents extracted from renewable and non-renewable natural resource exploitation in the primary sectors (agriculture, mining). This is no longer entirely true. The primary sectors are being transformed by the changing global ecological context – examples include regenerative agriculture to restore the biodiversity of soils and forests to sustain agricultural eco-systems; or coal closure and the rise of renewables as new primary energy sources trigger demand for a wide range of specialised metals and minerals (including cement) to manufacture renewable energy infrastructures (Hertwich et al., 2015).

Chad provides a perfect example. According to the Report on *Economic Opportunities Along The Central African Road Corridor* by Fraym (Fraym 2021), Chad is unique because it has very high potential wind and solar resources. For a poor country dependent on subsistence agriculture and uranium exports to France, this is a tremendous opportunity for building a core set of highly productive economic assets that can also impact directly on the lives of the poor majority.

At the same time Central Africa needs to recognise that the manufacturing sector has been globalized with competitive manufacturing sectors spread out across nearly all the sub-regions of the developed and developing world, thus lowering the barriers to entry and subverting niche advantages. This, coupled to constraints on trade imposed by global and bilaterial trade treaties referred to in a number of UNECA reports, suggests that Central Africa's competitive advantages lie within the African regional market in general, and the Central African regional market in particular. Competition for global markets is now less about technological advantage, and more about cutting the costs of labour (Whitfield et al., 2015). The positive view of SEZs that exists within the Central African region may be aimed at exploiting certain gaps in the international market by offering a low wage environment. This, however, might need to be weighed up against the minimal contribution this will make to increasing domestic purchasing power to drive regional value chains. As a result, SEZs aimed at exploiting regional market opportunities may be less risky and potentially better embedded in local value chains.

In the era of globalisation, wealth creation on a national basis has come to be about generating surpluses that arise from doing what others find hard to do ('high barriers to entry'), exploiting unique advantages (such as cheap labour or materials, or highly skilled labour) to out-compete others ('imperfect competition'), and increasing returns due to productivity gains from continuous learning. The result has seen specialisation for global niche markets, often initially protected behind high import tariff barriers.

While still applicable in certain cases (e.g. micro-chips from Taiwan), the future lies not in identifying a niche specialisation[8] dependent on a single global value chain, but rather in identifying those processes that result in broad-based economic transformation. These are processes that start with what firms and farms can do now, and then asking what more they could do (within or beyond their respective sub-sectors) in better ways if they receive the support they needed (Bhorat et al., 2019).

Instead of specialisation to cater for high-risk niche markets, the *Made in Central Africa* report proposes: "(i) activity sectors with huge resources and latent comparative advantages; (ii) the great potential of local entrepreneurs and enterprises; and (iii) the potential market provided by sub-regional integration and the Continental Free Trade Agreement." (Made in Central Africa, p.36) (see also Ovadia & Wolf, 2018). The rise of localised sustainable 'bio-economies' is a good example, especially with respect to food. If properly planned and appropriately serviced with sustainable infrastructures, Africa's fast-growing cities are the ideal spatial context for this kind of inward-oriented economic transformation (African Development Bank OECD & UNDP, 2016). The upshot would be rising wage levels and general improvements in the standard of living. To reinforce this, it is worth considering the case of Angola's potentially large agro-processing sector (see Text Box 3.2).

Text Box 3.2: Angola's large agro-processing sector

Angola presents favorable agro-climatic conditions for agriculture production. Demand for food products is quickly rising followed by a small but growing agribusiness sector. A formal food distribution sector has also developed, primarily to serve the Luanda market. However, 70% of food distribution in Angola is still through informal commercial channels. In the words of one diagnostic report: "One key characteristic of successful commercial operators (and private sector in general in Angola) is their capacity to internalize some of the most serious constraints to conducting business. In general, agribusiness value chains in Angola present coordination failures, and commercialization is largely based on informal, ad-hoc arrangements. There are few examples of contractual agreements between off-takers and small and medium producers, exceptions being Aldeia Nova subcontracting egg production to small farmers; Fazenda Maxi; People in Need; and the Terra do Futuro projects, as well as the coffee value chain. The emergence of small and medium agribusinesses faces severe constraints. These include lack of capital and access to credit, limited technical skills, and lack of access to markets due partly to high cost and/or lack of own transportation" (REF). Challenges to commercialisation of agricultural products include a lack of reliable road infrastructure (of the large road network of over 76,000 kilometers only 20% are paved, and some secondary or tertiary roads are impassable during the rainy season), access to electricity for the emergence of processing and irrigated agriculture (most large agribusinesses operate on diesel generators, for irrigation, cold-storage, and processing). The reach of the electricity network in rural areas is limited.

This does not mean ignoring exports into international markets. On the contrary: it means reducing dependence on export-oriented (invariably enclave) development as economies diversify, while also ensuring that exporters depend on local or regional inputs and labour forces. This is what will ensure that

[8] Specialisation is also not regarded as the best strategy for least developed countries to catch up with middle income developing or developed economies.

revenues get distributed within national economies rather than extracted out from tax exempt export processing zones into international financial circuits.

In short, facilitating the capabilities for knowledge-intensive economic transformation is what will enable African economies to transition from low- to high-value productive activities. Who, then, does this kind of facilitating of 'hard' and 'soft' capabilities building for knowledge-intensive economic transformation?

3.3 Conditions for the emergence and consolidation of transformational leadership in Central Africa

If economic transformation depends on the successful formulation and implementation of industrial policies, it follows that the question this raises is who develops these policies and implements them? If the pattern of accepting solutions formulated by those based outside Africa is to be broken, then a multi-layered leadership will have to emerge from within Central African nations (and the African region as a whole) that has the authority and capabilities to effectively lead. Effective leading will be crucial for ensuring that the necessary conditions and political settlements are in place that enable this. Leadership for economic transformation will be drawn from effective relationships between four societal sectors: the ruling political elites, state bureaucrats, businesses (firms/farms) and civil society. The key conditions for successful industrial policies are a function of the relationships between these four clusters of societal actors. These relationships need to be constructed; they do not exist simply because these sectors of society co-exist within a given national context.

In increasingly complex societies, what matters most is directionality (Swilling 2020: Chapter 2; Andersson et. al. 2021). Is the society moving along a pathway that could culminate in a better life and well-being for all citizens? What does this desired shared future look like? Who is involved in imagining this shared future? Who formulates the narrative? What does the pathway to this shared future look like? Who makes the key decisions that affects whether the society is really moving along the best possible pathway? This is what *directionality* is all about. But in increasingly complex societies, numerous powerful and less powerful interests compete to shape this directionality to suit what are often a narrow set of political and economic interests.

The analysis that follows avoids many myths that are commonly found in the literature on leadership in Africa. These include the assumption that African leadership is inherently incompetent, thus justifying the imposition of western models (Nkomo 2011). Many of those who share this assumption but not the western solution tend to refer to bottom up action by social movements and civil society to transform society *from below*. For others, it is institutions that really matter and therefore a focus only on leaders and leading is misleading – what matters is institutional change or 'good governance' (without clarifying who must bring this about). By contrast, there is the 'great leader' theory of change, that attributes qualities to the leader as if the leader is autonomous from his/her institutional context – in this view, it is not bottom-up action that matters, but top-down visionary authoritative leadership by 'the leader'.

The alternative perspective accepts that Western leadership models will not work across the many diverse sub-regional African contexts (Nkomo 2011). These contexts are shaped by both bottom-up and top-down dynamics that are unique to each context (Chapter 2). The latter without the former gets too

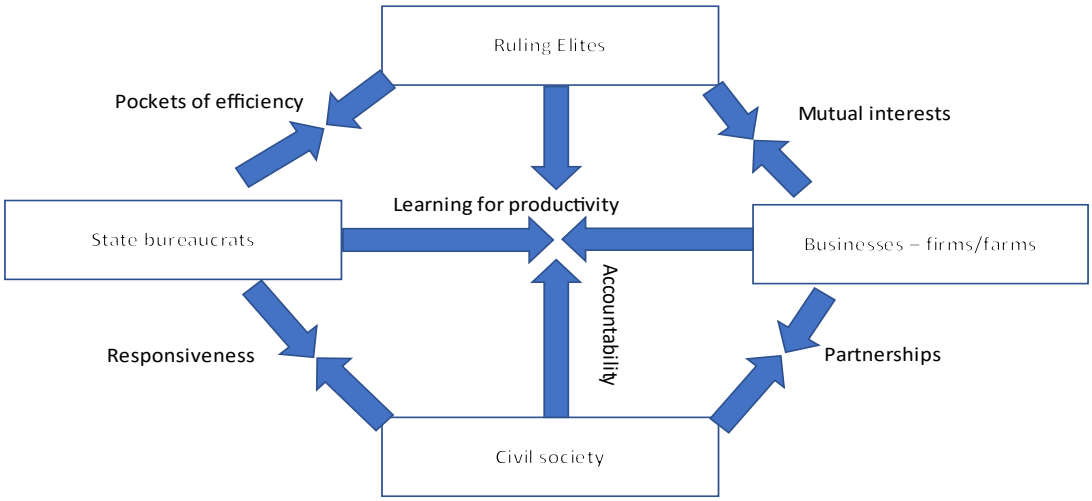
comfortable; while the former without the latter can be directionless. What matters is how this balance is managed by leaders from many different sectors as they find ways to interact to co-create pathways towards a shared desired outcome – in, short, by leading. None of them can act autonomously from their institutional context; nor is there sufficient evidence that institutions are so overwhelmingly constraining that leadership for change is effectively impossible (Lawrence and Sudaby, 2006). As discussed further below, the new literature on 'institutional work' demonstrates that in reality how leaders choose to lead really matters, but their choices are still constrained by institutional norms and boundaries but not in a way that inflexibly determines the outcome.

This balanced approach between institutional contexts and leading is applied to the discussion that follows about six key conditions for transformational leadership, namely the emergence of:

- *mutual interests* between ruling elites and businesses;
- *pockets of efficiency* staffed by competent bureaucrats backed by ruling elites;
- sustained *learning processes for continuous productivity* improvements enabled by collaborations between state bureaucrats and businesses;
- *partnerships* between businesses and civil society;
- *accountability* of ruling elites to broader civil society constituencies; and
- state bureaucrats who are *responsive* to rather than dismissive of civil society.

When some or all of these conditions exist in various combinations, the outcome is trust-based relationships that are a precondition for the certainty and long-termism required for substantive economic transformation. This is identical to what the economist Mariana Mazzucato has popularized in her work on mission-led governance, with programme implementation via partnerships rather than by rebuilding large bureaucracies (Mazzucato and Dibb, 2019). However, without an appropriate and robust political settlement between competing factions and interests within the ruling elite premised on a shared interest in a more prosperous long-term future, these conditions are hard to maintain over time and the result is continuous disruptions, uncertainty and short-termist opportunism as power shifts from one faction to the next without much changing for the society as a whole (Whitfield et al., 2015).

Figure 2: Six key conditions for transformational leadership



(Source: adapted from Whitfield et al., 2015 - Note: Whitfield et. al. exclude civil society from their framework.)

The first three conditions described below are primarily about the core economic relationships that matter when it comes to economic transformation (drawn from Whitfield et al., 2015), while the second three are primarily about the core socio-political-economic relationships that legitimate or not the primarily economic relationships (drawn from Swilling, 2016b).

3.3.1 Economic conditions

Mutual interests (ruling elite-business relations): For investment-led growth to succeed, firms and farms need to conclude that the uncertainty about returns on their investment are low enough to justify the (relatively high) longer-term risk of investing in Central African economies. To reduce uncertainties to unlock investment flows, ruling elites have an array of state interventions at their disposal (sometimes funded by external donors) to provide, by way of example, enabling infrastructures, access to low-cost capital, subsidies of labour costs (e.g. via skills training), subsidized R&D, access to land and resources, and negotiated preferential trade agreements.

For this *mutuality of interests* to work, personal relations between businesses and elites can be helpful under certain circumstances. However, if a power imbalance favours one or the other, industrial strategies can fail: if ruling elites become too dominant, they can instigate predatory extraction of rents which has the effect of disincentivise future investing; or if a powerful business faction gains the upper hand (e.g. exporters or foreign capital-linked local businesses), local value chains can suffer thus undermining the real economic potential of the country. If ruling elites and business leaders use each other in mutually beneficial ways, the most conducive conditions for long-term investing in industrialisation can follow. If ruling elites gain a reputation for making good on their promises without

extracting too much rent, and if businesses agree to just making ordinary profits rather than super-profits by accepting their place in the market, then this will be because healthy mutually beneficial relationships between ruling elites and businesses will have been created.

To illustrate this point, it is worth learning from the experiences of Rwanda and Mozambique.

ICT progress in Rwanda: Rwanda's ambition is to become a regional hub for top-tier capacity building in ICT. The government took the initiative by investing in ICT infrastructure in order to draw in private sector co-investors. Both government and business have a mutual interest in Rwanda's current ICT competitive advantage which includes 4500 Km+ of fibre-optic broadband cabling connecting all 30 districts, with nine regional links to neighboring countries; mobile penetration of 76.2%, with over 8.5 million subscribers, and progress towards more internet users (Visit Rwanda, 2021). The next phase includes speeding up the introduction of services to exploit the new technology, including strengthening skills-training centres and developing a "ICT culture" in schools as a means of creating "a critical mass of IT professionals." In transport, this has spurred the introduction of the bus smart-card ticketing system in Kigali, known as *twende*. The three mobile phone operators, Rwandatel, MTN and Tigo, are already exploiting the fibre-optic network to extend their reach. In response to the demand for more and faster Internet access, a network of telecentres connected to the fibre-optic cable is springing up in all the country's 30 districts (Tafirenyika, 2011).

Another example of mutual interests is Mozambique's sugar industry. While the sugar sector has always been vulnerable, sugar became part of the ruling coalition's post-civil war strategy for building support in rural areas and earning foreign exchange. Contestation was also overcome as key opponents were incorporated into the ruling coalition. There was significant political influence by foreign firms investing in privatized sugar estates, but this was tempered by mutual dependence between foreign firms and the ruling faction. Foreign firms also possessed good technological capabilities. The initiative was a pocket of efficiency and learning for productivity took place because mutual interests existed between foreign firms and the ruling elite. Outcomes were favourable with large-scale job creation, service provision, and infrastructure in and around the sugar estates. The creation of both an internal sugar market and sugar exports led to increased foreign exchange earnings and the expansion of sugar cane production. Unfortunately, there were no substantial linkage programs to support the development of downstream products.

Pockets of efficiency (ruling elite-bureaucracy relations): Breaking from the 'developmental state' perspective, instead of making the idealistic assumption that a 'strong state' is required with capabilities spread out across the entire bureaucracy, it is more realistic to anticipate the formation of 'pockets of efficiency' comprising state bureaucrats who can formulate and effectively implement industrial policies in partnership with key investors and business networks (Whitfield et al 2015; Nem Singh & Chen 2018; Ovadia & Wolf 2018). This is tricky work, because this often means tough negotiations to align a range of potentially divergent interests. For such a 'pocket' to emerge, the lead faction in the ruling coalition must ensure that political space is created for a trusted and capable group of state bureaucrats to act, and this group must comprise individuals with the relevant industry knowledge and experience. If such a 'pocket of efficiency' can master the art of building an industry and managing competing factions within the ruling elite and business class, they can be enormously successful. Close formal and informal personal

relations between state bureaucrats and businesses can, under these circumstances, enable effective flows of information and coordination; but when corrupted for personal gain in ways that compromise rather than reinforce certainty, investments can dry up. Ultimately, the aim is to create the certainty needed for long-term investing. Two examples are worth citing, namely the activities of the ECA in Cameroon, and the Independent Power Producers Office (IPPO) in South Africa.

The Independent Power Producers Office (IPPO) in South Africa is internationally regarded as a pocket of excellence within the public sector despite the hollowing out of the state as a result of state capture. Established in August 2011 to manage the auction system for procuring over R200 bn worth of renewable energy in a short period of five years. Institutionally, the Renewable Energy Independent Power Producers Programme (REIPPPP) was made possible by a partnership between the Department of Energy (DoE), National Treasury, and the Development Bank of Southern Africa (DBSA), which mandated the IPP Office, as a semi-autonomous institutional entity located within the DoE, to oversee ministerial determinations for the procurement of utility-scale RE. It was funded by a loan from the DBSA plus a levy imposed on every successful contract awarded to an IPP. Participation by the National Treasury, and specifically its Public-Private Partnership Unit, was instrumental in configuring the programme. The Treasury's provision of state guarantees for 20-year Power Purchase Agreements (PPAs) is widely recognised as a feature that increased the REIPPPP's investment attractiveness and sustained its viability. Much of the success of the procurement framework has been attributed to its stringent and comprehensive design, together with ongoing adjustments and improvements as a result of learning. The re-coding of the procurement rules was done in a way that departed from South Africa's statutory procurement standards in order to give more weight to social equity outcomes. Qualifying bids were assessed according to a 70:30 split between price (70) and economic development (ED) criteria (30). The ED criteria included job creation, local content, ownership, management control, preferential procurement, enterprise development (EnD), and socio-economic development (SED). For Karén Breytenbach, the founding head of the IPP Office, merging energy transition and SEOs was a strategic priority:

> "Through the REIPPPP we have proved that we can quickly help reduce the country's reliance on fossil fuels, that we can stimulate an indigenous renewable energy industry and that we can contribute to socio-economic development and environmentally sustainable growth. Today, our REIPPPP approach has become an export product in itself, with an increasing number of countries in Africa and elsewhere in the world, adopting and adapting the South African model to suit their particular conditions." (quoted in Swilling et. al., 2021)

Learning for productivity (bureaucracy-business relations): The transition from low-value to high-value productivity is not just about capital investments, technology and effective financial governance. It is also about learning over time. Learning refers to accumulated knowledge and know (often formalised in 'hard' and 'soft' technological capabilities) by firms and farms across the various value chains. Learning of this sort takes time and needs to be nurtured, but can also be destroyed very quickly when, for example, a key individual gets removed or a policy is arbitrarily changed to suit a particular political interest. Firms and farms only invest in learning for higher-value returns if they are convinced that the reinvestment of profits today will ensure higher profits and improved competitiveness in the longer run. If they do not correctly perceive what is in their best interests, they can be compelled by regulations that link the

allocation of rents (subsidizes, preferential procurement, etc) to re-investments in learning (e.g. skills development, technological upgrading, management systems). They might protest and complain initially, but they will benefit as the economy as a whole benefits and grows. The example referred to above when the IPPO dropped FiTs in favour of auctions is a case in point – business protested vigorously, but soon realised the benefits.

Ideally, well-organised industry associations should negotiate industrial policies with government. When well-informed state bureaucrats can deal with self-organised industry groups rather than individual firms/farms, the potential for corruption and high transaction costs are reduced. Alternatively, (usually weak) industry associations could be supported by bureaucrats so that they can eventually be strengthened to help negotiate industry-wide agreements. This can be tricky, and requires leading with integrity to avoid anyone taking advantage of these weaknesses. Targeted, and duration specific, interventions will also invariably be more effective. Finally, when state bureaucrats have the necessary autonomy and capacity to enforce agreements and the implementation of rules in return for policy-generated rents (e.g. taxes, skills development levies, etc) without powerful businesses using political connections to bend the rules, that is when learning for productivity has a real chance of succeeding. Three examples are worth citing, namely Gabon's forestry industry, the DEK Growth Triangle in Cameroon and Seme City in Benin.

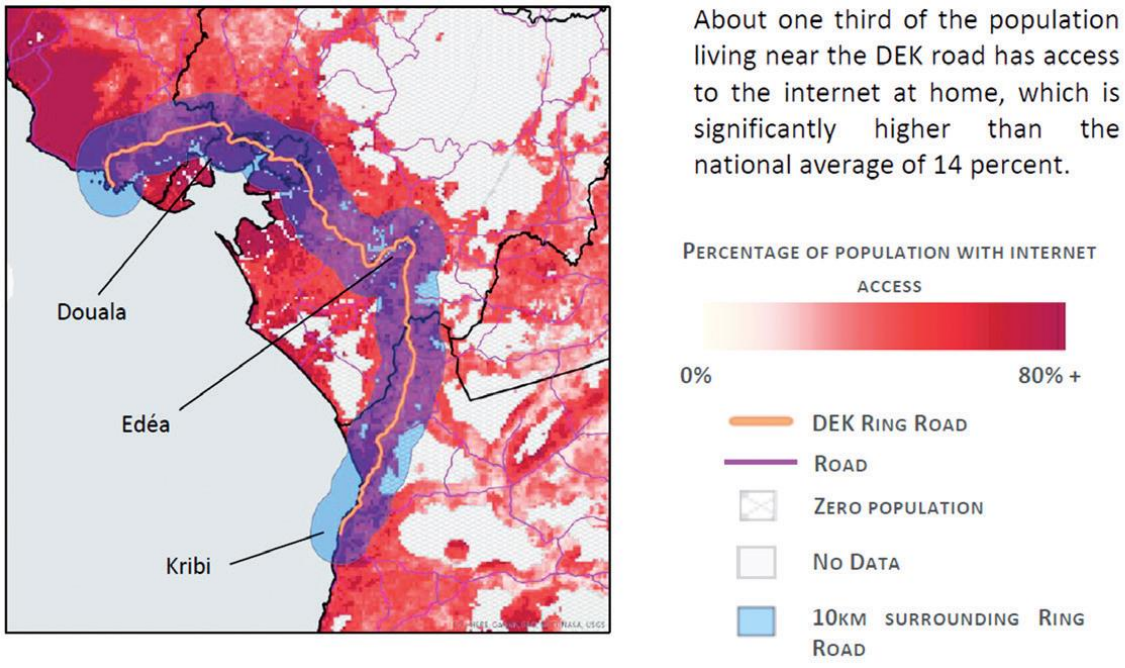
Gabon's tropical timber industry could generate considerably more value than it does now if forward linkages could be established (Terheggen 2011). Traditionally, the industry extracts and exports logs. However, there are forward linkages to sawnwood, veneer sheet and plywood processing sub-sectors. The French set the industry up during the colonial and post-colonial period, and the state plays a minor role. In 2001 the Government introduced the Forestry Code that helped increased exports of logs and processed products. Only sawnwood processing expanded. However, high production costs undermine the huge potential of timber processing in Gabon. These high production costs are due to a scarcity of skilled labour, relatively high wage levels, poor physical infrastructure, inadequate soft infrastructure (banking, energy) and an unfavourable business climate due to corruption and rent-seeking. China has become a dominant player, and prefers logs not processed goods. The only way a Gabonese timber processing industry can emerge as a major employer and generator of taxes is if the Forestry Code is complemented with an appropriate industrial policy co-crafted with those processors that are not beholden to the companies that depend on exports to China. Such an industrial policy would create a viable business environment, help consolidate an industry association, invest in capacity building for skilled workers, address the physical and operational constraints, and assist with export financing and logistics. In short, such an industrial policy would build on the learning curve that began after the Forestry Code was adopted in 2001. It would depend on positive interactive relationships between bureaucrats with expertise and business groups that could work together with a focus on the national interest.

Sèmè City in Benin is probably Africa's most ambitious innovation and learning hub. Officially called The International City of Innovation and Knowledge in Benin, it is an eco-city initiative dedicated to knowledge and innovation with the aim of providing a framework for meeting the skills needs of African markets through training, research and entrepreneurship. Responding to a World Bank study that concluded that even though high-growth entrepreneurs make up less than 10% of the total entrepreneurs in Africa, they are responsible for nearly 40% of the jobs created. With proper coaching,

financial backing, and public support, the assumption is that African youth have everything it takes to alleviate unemployment across Africa. The Sèmè City project aims to turn the small West African country into a regional technology hotspot similar to Kenya or Rwanda. The centre currently serves as a hub for students, researchers, developers, and the heads of companies providing direction in terms of potential financial donors and technical feedback. Developing new projects and launching startups requires not just funding, but partnerships and knowledge of marketing, laws and regulation. Th Government made available land for the project, and international donors have provided start-up funding. It is a good example of an effective working relationship between government officials and businesses, intermediated by the core staff employed by Seme City who effectively play a facilitation role.

The Douala-Edea-Kribi Growth Triangle is a joint venture between the Government of Cameroon and UNECA. Concentrated around the DEK ring round are settlements with a population of 4.2 million connected by roads and water infrastructure. This DEK ring road population has major economic advantages, namely 42% are young, many have internet access, and nearly everyone aged 15 or older have completed primary school of higher. With UNECA facilitating the linkages between key stakeholders and also capturing the learning as the project unfolds, the DEK Growth Triangle is potentially a key example of learning through effective collaboration between government departments, businesses and communities.

Figure 3: The Douala-Edea-Kribi Growth Triangle



(Source: United Nations Economic Commission for Africa, 2021)

3.3.2 Socio-political-economic conditions

Partnerships (business-civil society relations): The rise of impact investing on a global scale since the 2007 financial crisis has resulted in the proliferation of a vast array of civil society-based organisations willing to partner with businesses to achieve social goals. This is particularly true with respect to natural commons like the ocean, natural forests such as the Congo forest, fisheries and food production. Invariably, there are NGOs or social enterprises who have in-depth local knowledge, but lack the capital and/or technological capacity they require for making an impact. This creates the potential for partnerships with financial intermediaries (e.g. DFIs) or technology platforms (e.g. cellphone-based currency vendors) with success measured in terms of both financial *and* social/ecological returns on investment. Another high potential sphere for these kinds of partnerships is in the informal sectors of the burgeoning cities. Numerous partnerships between impact investors, social enterprises and civil society groups have emerged in informal settlements to provide sanitation services, water supplies, food, renewable energy (solar panels), visual art, e-currencies and credit. Given the experimental nature of these initiatives, they are still relatively small-scale due to the fact that transaction costs are high and non-standardised documentation still exists – this results in high-risk low margin returns. However, slow qualitative learning over time can result in lower risk higher margin returns. That sweet spot needs to be envisaged and pathways cleared for this to happen. This is what is happening in the innovation hubs that are mushrooming across the continent funded by a surprising array of philanthropists, DFIs, government agencies and wealthy individuals. It is only a matter of time before we see significant initiatives emerge that can go to scale. The Makerspaces that have emerged across many African cities are a good initial example, while the Seme City initiative in Benin is potentially the most significant in terms of scope and scale.

The Fabrica de Saboa in Angola was established in 2015. With start-up funding from the Angolan Sovereign Wealth Fund, it was Angola's first innovation hub. It operates as a vehicle for young people to pursue creative ideas that could impact both their own, and the country's socio-economic circumstances. The space has produced everything from home décor to furniture to tiles made entirely from discarded plastics, as well as apprenticeships and training for coding and 3D printing by bringing together experts and inexperienced makers. Fábrica requires no cash payment for these learning opportunities. However they do ask those who want to participate to bring in any plastic bottles they may have. The team at Fábrica upcycle these bottles into polyethylene terephthalate which can be used in the production of a variety of products. This initiative has also helped resuscitate the appeal of purchasing locally designed and produced products (Samson, 2019).

Tech startups in Angola are growing. Across Angola start-ups are on the rise, capitalising on the digital revolution and the training provided by Angola's oil sector, enabling farmers and other producers in the informal economy to sell into the formal economy. The effect has been to diversify and encourage investment in other sectors, potentially empowering millions in the informal economy.

- The online ride service Kubinga provides different levels of travel, even motorcycles, which makes it affordable for everyone. The aim is to help shift the informal economy into the formal economy.

- Another start-up with an online ecosystem is Roque-Online, named after a former market in Luanda. In about two years it's gone from 250 members to 36,000, connecting more than a dozen informal open-air markets with customers. Roque-Online's founder Geraldine Geraldo worked in the oil sector, learning supply chain management she's now applying in the start-ups. "The oil industry experience is central to everything that we do here. And so we took that same model, where you look at everything - from the well bore to the pump," Geraldo told Business Angola. "All these people are really resources that play along the value chain and then we connect them to the end consumers in the market. So it is empowering to everyone that participates in the system." (Burns, 2021).

Responsiveness (bureaucracy-civil society relations): Civil society groups across the African continent in both rural and urban environments complain about the non-responsiveness of state bureaucrats. In the same way that pockets of excellence are needed within the bureaucracy to facilitate industrial policies aimed at building targeted industries, so it will be necessary for similar pockets of excellence to be established to support civil society initiatives. International donors are currently the main funders of NGOs that provide this kind of technical support for civil society groups. However, there are examples of African local governments that have developed capacities to work with affiliates of, for example, Shackdwellers International (SDI) who facilitate upgrading of informal settlements in numerous African cities. Often trained by donor-funded SDI programmes, these bureaucrats and local politicians become key interlocutors of substantial investment flows into urban infrastructure upgrading. The result in a new kind of creative responsiveness.

The Connected African Girls' Coding Camp was a ten day camp in July 2021 in Yaoundé, Douala and Buea attended by 8000 women in person and online. This was delivered by a partnership between UNECA, the International Telecommunications Union, UNWOMEN and Cameroon's Ministry of Posts and Telecommunications. The participants developed more than 70 innovative solutions across many sectors. This is clearly a good example of responsiveness by the public sector to young women in civil society who can be expected to be more than curious about the potential of ICTs to improve their lives and create livelihoods in the digital economy for themselves.

Accountability (ruling elite-civil society relations): Urban-centred youth-led uprisings have taken place in forty African countries since the 1990s (Branch & Mampilly, 2015). The most recent was the largely women-led urban-centred revolution in Sudan. The upshot has been the formation in 2016 of a pan-African alliance of social activists called *Africans Rising for Justice, Peace and Dignity* who are demanding that ruling elites are more accountable. Coupled to strengthening of independent journalism on the continent, these civil society initiatives raise the potential reputational and financial costs of extractive rent seeking practices by many ruling elites. This can, of course, reduce these practices, but it can also result in a more positive extraction and deployment of rents to broaden ruling coalition support for economic transformation in general and industrial policies in particular. When civil society formations form alliances with industry associations to demand an end to anachronistic property regimes that benefit elites that stand in the way of economic transformation, this can result in legal reforms with far-reaching long-term implications. Donor funding of rights-based law reform movements reinforces this trend. The end result of all these initiatives is greater *accountability*. The key factor here, however, is how ruling elites respond to protest action. If the response is repressive which often happens when security

officials are too influential, then the potential creativity of bottom-up action is pushed underground where it can fester and morph into potentially destructive social energy. However, if the protest action is engaged and absorbed, the hand of reformers within the ruling elite can be reinforced resulting reforms that create more space for a health balance between the top-down authorizing environment and the bottom-up mobilising environment. Everything depends on how confident key leaders are in their own capacity for authoritative leadership.

In summary, although all six conditions for successful economic transformation should be realized, it is highly unlikely that all six will apply in equal measure at any point in time. The first three may emerge in countries with a strong centralized leadership that is not that accountable or responsive to civil society. Similarly, close cooperation between firms/farms and the ruling elite might result in weak or non-existent partnerships with civil society. However, the Sudan revolution is testimony to the power of civil society to set the terms of new forms of democratic accountability. There may also be examples where protest action triggers reforms that creates new spaces for entrepreneurs to influence the formation of supportive industrial policies. Exactly how the interaction between these six conditions pans out will depend on the political history of each context, the degree of diversification of the economy, the strengths and weaknesses of industry associations, the capabilities of the bureaucracies, the strengths and weaknesses of civil society and the quality of institutional cultures (in particular financial institutions).

3.3.3 Political leadership during the early stages of development

The six conditions for successful economic transformation will depend on how successful the core political leadership is in ensuring that ruling elite remains in power and enjoys sufficient popular legitimacy. The stronger the forces outside the ruling elite are, the more vulnerable the ruling elite feels the less likely it will be prepared to take risks. Furthermore, factions within the ruling elite may choose to contest a given strategy for the sake of power positioning and not because they disagree with the merits of the strategy itself. If the ruling elite feels vulnerable and factionalism results in endless contestation, it is unlikely that there will be space for pockets of efficiency, mutual interests, learning, partnerships and accountability. Under these conditions, economic transformation and effective industrial policy planning and implementation will not be possible. Under these circumstances, if the ruling elite or the dominant faction within the ruling elite is not displaced by an alternative coalition with a clearer commitment to industrial policy, economic diversification and therefore accelerated economic growth will not happen.

Similarly, domestic firms/farms must have political influence to ensure that industrial policies address the obstacles they face. However, if their influence is too great, they will be able to circumvent the enforcement of rules aimed at linking rent allocation to re-investments in learning. Furthermore, if their 'hard' and 'soft' technological capabilities are weak thus reinforcing a short-termist opportunist culture, they are unlikely to favourably regard increased costs (and a squeeze on already low margins) to upgrade their capabilities for the sake of longer-term benefits. When local business has too much political influence and low-level technological capabilities, the chances of successful economic transformation led by industrial policies are almost zero.

The case studies of Uganda, Ghana, Mozambique and Tanzania undertaken by Whitfield et. al. (2015) suggest that the conditions for successful economic transformation in these and possibly many other

African countries are at best weak. Firstly, when business leaders are effectively the core of the ruling elite they can avoid the hard choices involved in shifting from short-termism to investments in learning for the sake of long-term benefits (including national-level economic transformation). Secondly, because of high levels of fragmentation of power between factions within ruling elites, contestations over short-term gains are the norm. Thirdly, to win elections ruling elites enter into short-term alliances with smallholder farmers, fishermen and informal traders around minimal concessions that deflect attention away from the need to invest in far-reaching productivity improvements over the long term. Detailed research into the dynamics of Central African countries of this type is required to ascertain readiness for economic transformation.

It follows, therefore, that the job of a skilled African political leadership with a long-termist vision for economic transformation would be to limit factional contestation within the ruling elite, broaden out the base of the ruling elite to ensure long-term political survival, encourage business influence but ensure it remains restrained, and prevent business with low levels of technological capability from sabotaging long-term mutual interests and the pockets of efficiency needed to drive transformative industrial policies.

3.4 Opportunities for capability building and institutional work within the Central African context

For decades now the constant refrain at African conferences has been about 'poor governance'. The 'one-size fits all' 'good governance' solutions offered by the Washington Consensus during the 1990s (what Mkandiwire called 'institutional monocropping') disconnected ruling elites and state bureaucrats from the realities of their respective contexts – if 'one size fits all' there is no need to be concerned about context! (Mkandawire, 2011). The tragic legacy of this view is a profound under-appreciation of the importance of institution building. Institutions are understood as rigid structures of control and depicted formalistically in organograms. All that matters is recruiting the 'right people'. Institutions are not treated as fragile relational eco-systems that need to be nurtured and carefully built up incrementally over time. They take years to build but can be destroyed by capricious top-down acts that can literally destroy networks, memory, trust and key individuals overnight.

If leadership and institution building are key to unlocking the potential for economic diversification, it will be necessary to ensure that there are Central African centres of expertise and experience who can facilitate organizational design, partnering and visioning processes. More often than not, international consulting companies like McKinsey, Ernst and Young or Deloitte are contracted to facilitate visioning, organizational design and change management. African-led companies like Dalberg are starting to move into this space, but it uses the same methodologies as the global mainstream companies. A counter-example within the African context would be the Western Cape Economic Development Partnership (EDP) based in Cape Town. Funded by Western Cape Provincial Government and Cape Town City Council, the EDP is an independent non-profit company that employs 25 professionals whose sole function is to facilitate partnering between levels of government, between different departments, and between government and civil society. Highly trained facilitators deploy a range of participatory methodologies to bring diverse groups together to develop a shared vision, agree on joint action, and

resolve conflicts. This is the kind of local expertise that needs to be built up within Central African countries, or possibly within the UNECA Central Africa office to service the Central African region. An organization like EDP is significantly cheaper than contracting the global consulting firms, and the staff develop deep knowledge of local dynamics. This enhances their effectiveness as facilitators.

The bolstering or dissipation of the six key conditions discussed in the previous section depends on leadership development, organizational change, capability building and partnering. Conventional ways of running meetings, workshops and conferences will not help to build these human capabilities. Specific well-formulated methodologies need to be deployed by professionals with well-developed facilitation skills. Without this kind of 'on tap' facilitation capacity, leadership for economic transformation with respect to the six conditions will not materialize in practice.

Of the six conditions for economic transformation, the formation of 'pockets of efficiency' is the most important. However, the research on these 'pockets of efficiency' say nothing about *how* best to create and maintain them. To answer the *how* question, it is worth referring to two increasingly influential methodologies are worth referring that can work well within the Central African context. These approaches are the *Problem-Driven Iterative Adaptation* (PDIA) approach associated with the works of Andrews et. al. (2017), and the *'institutional work'* approach associated with the works of Lawrance and Suddaby (2006).

Rooted in actual change management experience in developing countries (including many African countries), the authors of the PDIA approach tend to focus on the formation of teams within public sector institutions mandated to drive the institution building processes – or what we have referred to above as 'pockets of efficiency'. These teams operate within highly complex conditions characterised by extremely poor levels of useful information. In these circumstances, there are limited incentives to perform/innovate and missions are almost impossible to formulate and implement. However, instead of finding technocratic solutions to these challenges (usually in the form of slick consulting reports that create false impressions of clarity), the PDIA approach "allows solutions to emerge from experimental iteration, ensuring continued and expanding authorization for work by teams of agents with highly varied skill sets and functional roles" (Andrews et. al., 2017). Instead of the traditional MBA 101 dictum that form determines function, for the PDIA approach function determines form. In other words, form emerges from what works through experimentation over time. The 'soft' technologies of organizational change, navigational agility and leadership formation become the focus.

The PDIA approach draws a distinction between logistical challenges and wicked challenges. To address a logistical challenge, no new knowledge is required – it is familiar, uncomplicated and relatively low risk. When it comes to addressing a wicked challenge, it is complex, there is a lack of knowledge available as to how to respond, many competing interests, and because many interactions are needed to figure out what to do the risks of failure are high. The strategy to address a logistical challenge is simple and familiar: problem statement, expert selection of a solution, development of an implementation plan, implement, with strong oversight. The strategy to address a wicked problem is more complex: using facilitators, it means discovering the shared problem as experienced by stakeholders, exploring potential solutions where no precedents exist, learning from experiments, and as time passes expanding the mandate for diverse work teams comprised of many varied skills and disciplines to expand their scope of work. In

reality, actual real-world challenges are usually a mix of both, but with wicked challenges usually dominant.

In this regard, the PDIA combines four key principles of engagement that are relevant to all six conditions for economic transformation. They are, in the words of Andrews et al.:

> "a way of thinking about and doing development work in the face of complexity: (1) Focus on specific problems in particular local contexts, as nominated and prioritized by local actors; (2) Foster active, ongoing experimental iterations with new ideas, gathering lessons from these iterations to turn ideas into solutions; (3) Establish an "authorizing environment" for decision-making that encourages experimentation and "positive deviance"; and (4) Engage broad sets of agents to ensure that reforms are viable, legitimate, and relevant—that is, politically supportable and practically implementable." (2017:135)

Although the PDIA helps to unpack the inner workings of the 'pockets of efficiency', it does not say enough about how individuals and networks go about creating pockets of efficiency in particular, but also mutual interest agreements, learning processes, accountability mechanisms and responsive engagements. The 'institutional work' approach brings into focus the role of individual 'agents' within institutions and is especially relevant when it comes to building 'pockets of efficiency'. Institutional work is defined by Lawrence and Suddaby as "the purposive actions of individuals and organisations aimed at creating, maintaining and disrupting institutions" (2006:215). By foregrounding the 'work' that is exercised in institutional change, the concept helps to reveal how ideas and intentions take on particular forms in diverse contexts. It searches for explanations that focus on the intermediation of actors between technology and institutions (Fuenfschilling and Truffer, 2016).

The institutional work literature addresses what Battilana and D'Aunno refer to as the "paradox of embedded agency" (2009:32): what individuals can do is institutionally constrained by the rules, and yet institutional change happens when individuals act to make change happen by 'creating, maintaining and disrupting' their institutions. What matters are the intentions of change agents. To construct their narratives of change, they can 'schematize', 'contextualise' and/or 'hypothesize' alternatives depending on the context. (1) Schematization is about invoking ways of doing things from the past to recommend improvements and modifications in the present ('it worked before, but we lost our way'). (2) Through "translation, bricolage and reacting to shocks" (Battilana & D'Aunno, 2009:48) they can (re-)contextualise the lived experience of the present to validate what works as a way of transcending what does not ('The old way no longer works, lets accept what's working now'). (3) They can "hypothesize" futures by "inventing, creating, advocating and establishing" (Battilana & D'Aunno, 2009:48) new institutional configurations that respond to major new opportunities ('What we did in the past, and what we do now is no longer fit for purpose, we must imagine a new way').

In short, both the PDIA and 'institutional work' approaches bring 'agency' into focus – how and why individuals and groups act out their roles as they go about creating, maintaining and disrupting institutions. This knowledge and related insights is what will be needed when it comes to facilitating the six conditions for economic diversification, namely: mutual interest between ruling elites and businesses, pockets of efficiency between ruling elites and state bureaucrats, learning for productivity between state bureaucrats and businesses, partnering between businesses and civil society, responsiveness between

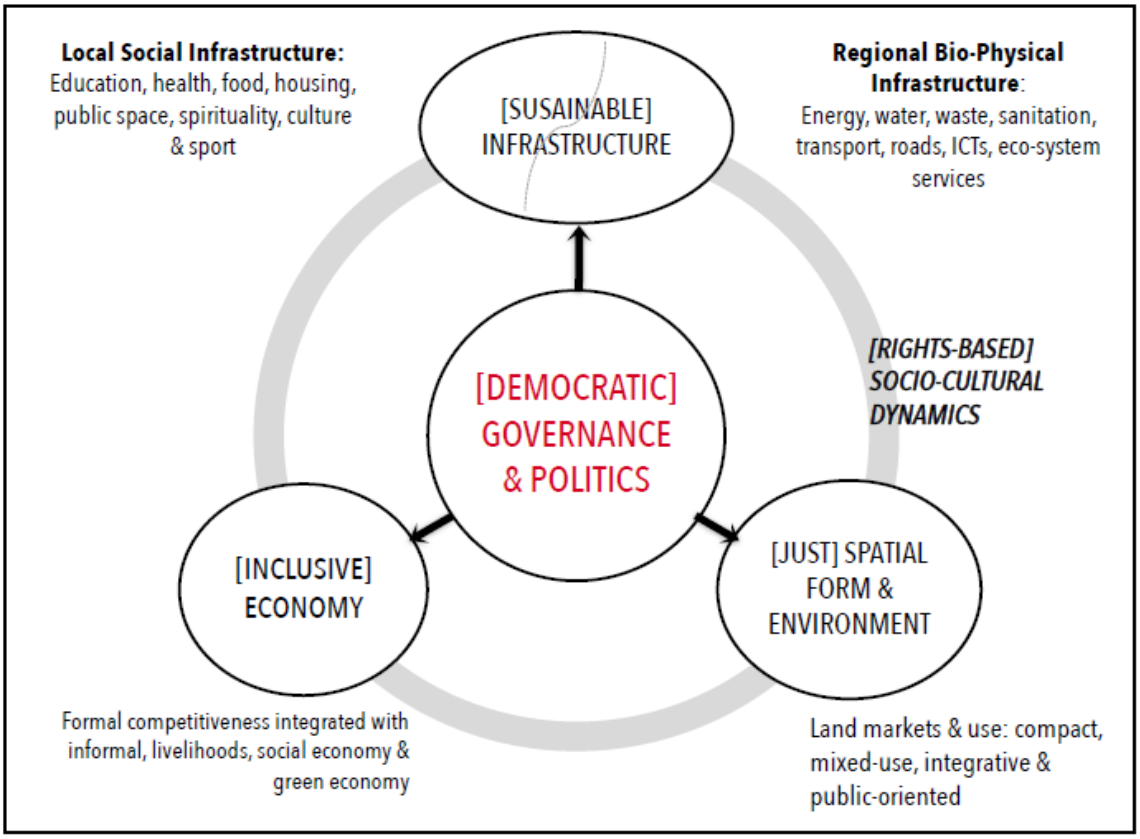
state bureaucrats and civil society, and accountability between ruling elites and civil society. Whichever combination emerges in context specific ways, political leadership will play a key role as coalition builders to ensure that these conditions are not disrupted too severely by internal and external political pressures. And finally, all actors need to appreciate the art of institution building by protecting rather than subverting the actions of change agents who go about creating, maintaining and disrupting of institutions. This is particularly true for the 'pockets of efficiency' – they are, after all, the hinges on which big doors swing.

3.5 Facilitating of planning processes for infrastructure, in particular urban infrastructure, creates major opportunities for localising value chains and enlarging internal markets

The African Union's *Agenda 2063* emphasized the importance of African knowledge capabilities to build an African knowledge economy and green industrialisation. The policy nexus at the centre of Agenda 2063 is a call for fundamental economic transformation that will be the outcome of actions that clearly directly address the infrastructure deficit, the need for economic growth, employment and livelihood creation, and the need to transition to a low carbon and green future. This Agenda 2063 commitment dovetails well with the SDGs, specifically the need to reduce inequalities, respect environmental limits, and promote sustainable production and consumption. However, if African economies once again download solutions from elsewhere, the result will be another era of failed projects. It therefore follows that the focus needs to be on *indigenous innovations* that draw on the everyday practices and intelligences of Africans themselves.

The twin imperatives of urbanisation and economic diversification, therefore, come together most clearly in the new generation of National Urban Policy frameworks that African Governments have started to adopt. Progress is slow, despite the best efforts of the lead promoter, namely Cities Alliance.

Figure 4: Democratic Governance and Politics

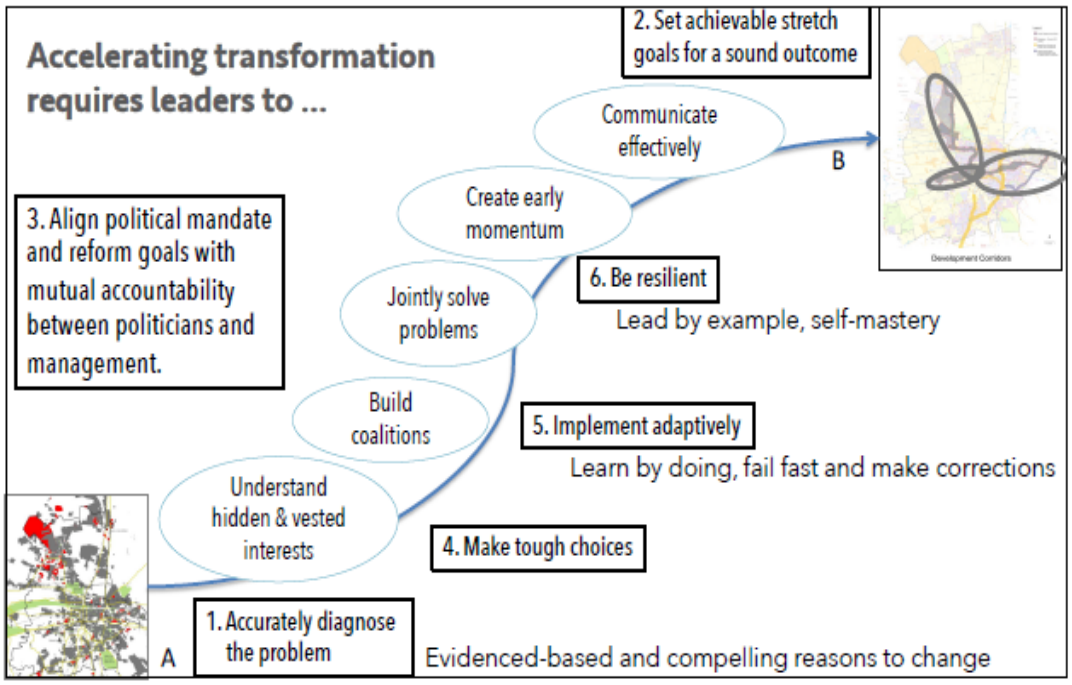


(Source: compiled by Edgar Pieterse, University of Cape Town)

This diagram represents a generic perspective for connecting sustainable infrastructure, economic diversification and greening/decarbonisation. Sustainable infrastructure is the physical operating system that allows the built environment to become the driver of economic transformation, which in turn is defined by four features: being low carbon, resource efficient, socially inclusive and spatially integrated. Successful transformation of African cities will depend on top-down reforms enabled by ruling elites and implemented via state bureaucrats within 'pockets of efficiency' at different levels. These reforms include interlocking National Urban Policies, green industrial strategies, and climate change policies. These top-down reforms need to be reinforced by bottom-up activism as civil society enters into responsive relationships with state bureaucrats and partnerships with business. The result would be radical localisation, community management of services within agreed parameters, and expanded civic power and confidence that creates spaces for youth voices and aspirations. To complement these top-down reforms and bottom-up activism, regional planning will be required with respect to the design, management and financing of water, energy, waste, food supply and digital infrastructures.

Using a problem-driven iterative adaptation (PDIA) approach, this is what transformational leadership at city level looks like:

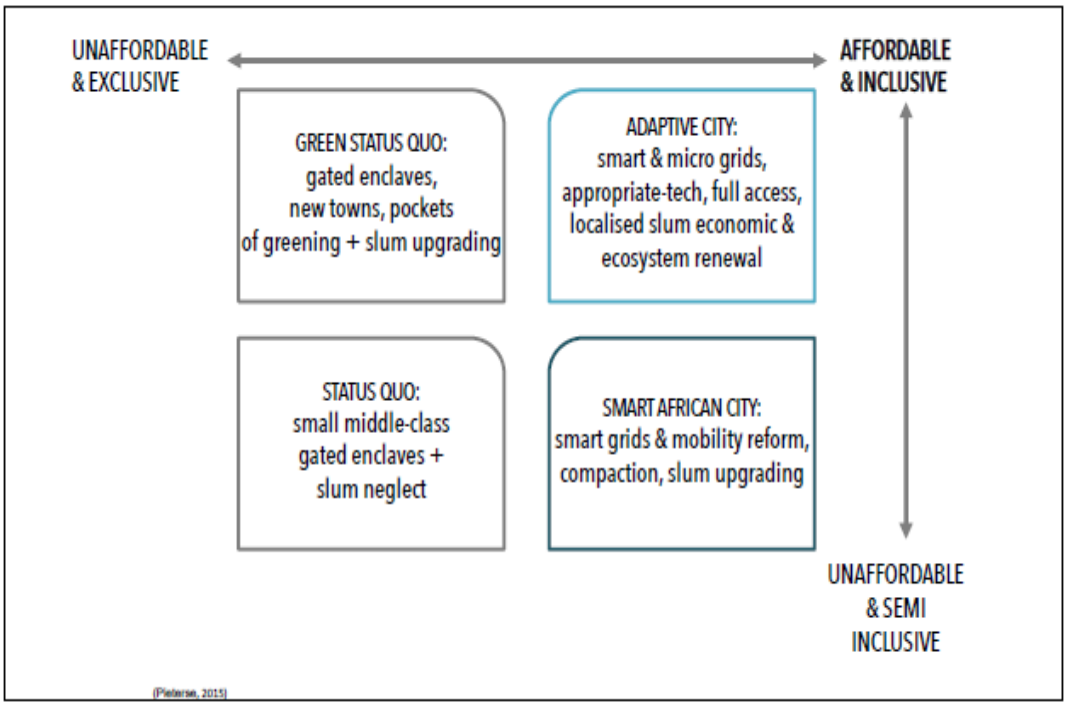
Figure 5: Transformational leadership at city level



(Source: compiled by Edgar Pieterse, University of Cape Town)

As reflected in the diagram below, there are three pathways forward from the status quo. Like Eko-Atlantic, a city being built off the coast of Lagos, one pathway is greater fragmentation into a new 'green status quo'. Driven by private developers, this creates an escape from the city for the rich. The other is into the 'smart African city' – promoted by big IT companies like Cisco and Siemens, the smart city pathway is more inclusive, but also unaffordable. The adaptive city pathway is the most affordable and inclusive. Driven by public-private-community partnerships, they combine improved technologies, slum upgrading, renewables, ecosystem restoration and economic inclusion.

Figure 6: Three pathways forward from the status quo



(Source: compiled by Edgar Pieterse, University of Cape Town)

It's hard to be productive in African cities with traffic jams, poor services, potholes, energy blackouts, polluted environments, inadequate housing and the shear effort required to get the basics done. But African cities can be re-imagined, reconfigured and rejigged in ways that enable the wider economic transformation of the national economy. The end result could well be job-rich growth, enhanced dignity through access to basic services, security and decent livelihoods, protection against environmental risks, and the creation of neighbourhood spaces of profound human flourishing, cultural reclamation and invention.

Chapter 4: Opportunities and challenges for Central African Countries

4.1 Introduction

The Made in Central Africa report recognises that limited economic transformation in Central African economies to date has left the countries exposed to international commodity price shocks and associated vulnerability. Outside of Rwanda and pockets of progress elsewhere, the economic growth that was experienced in Central Africa between 2004 and 2014 did not reduce multi-dimensional poverty (Jennings and Oldiges, 2020) or increase economic diversification (Sovacool, 2020). On the contrary Manufacturing Value Add (MVA) as a percentage of GDP, declined in all Central African countries except Gabon and Cameroon (where it was stable) between 2008-20013, and MVA per capita declined in Burundi, Central African Republic and Rwanda over the same period. The lack of economic transformation, and manufacturing in particular, is understood as a foregone opportunity given the "many key advantages and real opportunities for designing and implementing an accelerated industrialization strategy" (ECA/SRO-CA, 2017). The "priority action framework" for driving industrialisation in Central Africa refers to (i) gradually shifting towards a manufacturing industry-driven growth model until MVA reaches 25-30% of GDP; (ii) gradually integrating into the global and regional value chains; (iii) rapidly introducing a formal planning for industrialization in Central Africa; and (iv) fostering linkages, development of specialized economic zones and smart implementation of local content policies (ECA/SRO-CA, 2017).

Table 7: Industrial performance indicators, Central Africa (2008-2013)

Country	MVA per capita *(in $ in 2005)*				Share of MVA in GDP *(in %)*		Real GDP growth *(%)*	
	1990	2008	2010	2013	2008	2013	2008	2013
Angola	26		62				13.8	6.8
Burundi	16	16	7	13	10	8	4.4	5.9
Cameroon	126	151	179	154	16	16	2.9	5.6
Congo	62	19	67	97	5	5	5.6	3.3
Gabon	163	256	201	275	4	4	1.7	5.6
Equatorial Guinea							17.8	-4.1
CAR	21	26	15	16	7	6	2.1	-36.7
DRC	16		1				6.2	8.5
Rwanda	56	21	21	22	7	6	11.2	4.7
São Tomé and Príncipe	34		61				8.1	4
Chad	22		15				3.1	5.7
Malaysia		1617		1717	26	25	4.8	4.7
Thailand		1080		1168	36	34	2.8	2.7

(Source: UNECA 2017:17. Data drawn from UNIDO, Industrial Development Report 2016; UNECA, Transformative Industrial Policy for Africa, April 2016. IMF, World Economic Outlook, Data base, April 2017)

The key question involves "how", given the prevailing context, including the limitations imposed by IMF structural adjustment packages on 8 of the 11 Central African countries, might the Doula Consensus be embraced, and economic diversification accelerated. More specifically, how might the "primary obstacle" of poor governance, as identified in the STEPS document, be addressed to improve economic prospects. The "trip to 2030" framing of this report, points to the need to envision new approaches to leadership. Outlined below is the opportunity for leaders in Central African countries to draw on the "global", "continental" and "regional" dynamics (Chapter 2) to address the 7-point "priority action plan" identified by UNECA in 2017 (Text Box 4.1) and break the path-dependency of prevailing economic activity in support of something better.

Central African economies are undeniably a combination of formal, informal and illicit activities that co-exist with political clientelism, elite capture of public goods and ethnic politics (Petrou and Thanos 2014; ACET, 2015; Paller, 2019). These are difficult features to dislodge, and it is disingenuous to imagine that accountable institutions and good governance and will spontaneously emerge from the current set of circumstances (Nkomo, 2011; Jaglin, 2014). The commodity deals that have come to define so much of the region's economy continue to generate benefits for Central Africa's economic elite while simultaneously perpetuating resource dependence, economic volatility and poverty (Jennings and Oldiges, 2020). "Leadership for economic transformation" will involve convincing Central Africa's elites that the current set of the global, continental and regional drivers not only makes a continuation of business-as-usual a recipe for further economic decline;[9] it also creates the potential for an alternative, more prosperous economic future.

[9] Petrou and Thanos (2014) capture the essence of the elite's strategy as, "Wielding public power for private gain untenable".

Text Box 4.1: Summarised Priority Action Plan for Accelerated Industrialisation of Central Africa (ECA/SRO-CA, 2017, p. 58-72)

1. Strategic Guidelines for accelerated industrialization of Central Africa

1.1. Gradual shift towards a manufacturing industry-driven growth model

1.2. Rapid introduction of formal industrialization planning in Central Africa

1.3. Gradual integration into global and regional value chains

2. Strong leadership and institutional organization in transforming industrial policy

2.1. Strong and proactive leadership for a transformative industrial policy

2.2. Monitoring and coordinating a strong and efficient institutional organization

3.3. Pre-eminence of industrialization policy in national and regional development plans and policies

3. Pre-eminence of transformative industrial policy in development plans

3.2. How to structure the transformative industrial policy with all the other public policies

4. Massive investment in industrial infrastructure and human capital for rapid technological development

4.1. Role of technology absorption and accumulation capacity in technological development

4.2. Higher volume of investments for industrial infrastructure development

4.3. Ever increasing investment in human capital development

5. Increasing national and regional industrial and infrastructure project absorptive capacities

5.1. Establishing Project Preparation and Execution Units or Project Management Bureaus

5.2. Participating in ISO international standardization deliberations on project management

5.3. Adopting ISO project management standards as national standards

5.4. Acquisition and mastery of project management technologies

6. Required industrialization funding institutions

6.2. Building required capacities to mobilize international funding

7. Support to SMEs, to national champions and FDIs for successful integration into value chains

7.1. Proactive support to SMEs and to the emergence of national champions

7.2. Incentives to FDIs and integration into global value chains

7.3. Effectiveness of performance monitoring and evaluation mechanisms

This section of the report addresses the "how" of economic transformation with a clear policy recommendation for the region's leadership: take advantage of systemic changes at the global, continental and regional level to forge economic compacts that offer existing elites legitimacy, access to capital and improved terms of trade in global markets in exchange for greater reliance on regional value chains and markets, a commitment to institution building, and the adoption of an inclusive sustainable economy.

4.2 Harnessing drivers of change for economic transformation

As outlined in Chapter 3, the process of transforming Central Africa's economies is unlikely to resemble those processes adopted by either Global North or Asian countries. UNECA (2020) identifies promising "mining", "forestry", "agricultural" and "energy sector" prospects in Central Africa but also notes how past strategies in these sectors have created ecological damage and delivered very little by way of economic transformation in Africa (ECA/SRO-CA, 2017). In addition, the set of technologies and social norms that has emerged since European and East Asian countries industrialised, renders a reprisal of those strategies unviable. Adopting an imagined European or Asian blueprint for industrialisation in Central Africa, would entrench the region's status as an industrial laggard, see it continue to operate under weak and deteriorating terms of trade in global value chains and progressively haemorrhage the agency of the region's political and economic decision makers in the global economy.

The strategy outlined below builds on the Priority Action Plan proposed by UNECA's Sub-regional office for Central Africa in 2017 (Text Box 4.1), but outlines opportunities for Central African leadership to curate bargaining positions that secure higher wages, higher prices for goods and services and greater protection of local environments and social systems. While the emphasis on leadership is critical, it is recognition of the risks and opportunities generated by global, continental and regional circumstances and the associated need for change that elicits leadership, more than leadership generating opportunities under business as usual.

This approach will make different demands on leadership in respective Central African countries. What works in Rwanda will be very different to what works in Chad. For example, Gabon, Congo and Cameroon are well into their urbanisation phase, while DRC, CAR, Equatorial Guinea and the Gambia have just begun urbanising. Described below are the generic opportunities created by the respective drivers of change and the respective levels.

4.2.1 Harnessing global decarbonisation for low carbon development

The concentration of greenhouse gases in the atmosphere is at its highest for at least the last 2 million years (IPCC, 2021). To have a 50% chance of limiting warming to 1.5°C above the pre-industrial baseline (1850-1900) and avoiding the catastrophic damage associated with mean temperatures above this level, the world can only emit an additional 500Gt of CO_2e and is required to be "net zero by 2050" in terms of emissions. The required socio-economic reconfiguration will be highly disruptive of all economies. The science is also clear that even once global leaders are able to cohere and implement the ambitious decarbonisation effort that is required by science (and global emissions are expected to increase 16% in

2021), the lived experience of climate change will continue to become more acute and more threatening for at least another 30 years (and 200 years in the case of sea-level rise) (IPCC, 2018). Put differently, effective leadership should anticipate the climate affecting all aspects of life and gaining social and economic prominence over the next 30 years.

Responding to the science and impacts of rising numbers of natural disasters that are destroying insured assets on scale, global finance is recognising the need to disinvest in fossil fuels and ramp up investments in renewables. 140 of the world largest global banks, insurers and investors have announced divestment from coal mining and coal-fired power plants. General Electric has announced it will no longer build or supply coal-fired power plants. Many large energy companies such as Enel (Italy) are shutting down coal-fired power stations, and India has announced that it is terminating orders for coal-fired power stations and replacing them with a programme to build 450 GW of renewable energy capacity by 2040, half its current energy requirement. With a population similar in size to Africa, India is now the largest clean energy market in the world. The Net Zero Asset Managers Initiative comprises the largest asset managers in the world, including Black Rock and Norwegian Sovereign Wealth Fund. With $37 trillion under management by 87 signatories, they all plan on reducing investments in fossil fuels. China has announced it will not be investing in coal-fired power outside China. This divest from coal is just the start – it is gradually gathering momentum with respect to oil, and gas. The International Energy Agency has called for a halt to all new fossil fuel investments. In short, low-cost capital investments for fossil fuel infrastructures in Africa will be at best hard to come by. At the same time, annual investments by both public and private sectors in renewable energy have been steadily increasing since 2004, breaching the $300 billion mark in 2020 which is twice the total investment in new nuclear and fossil fuel power.

In some respects, responding to the global climate challenge is easier in Central African countries that have neither high levels of greenhouse gas emission nor large infrastructure stocks that are at risk. Central African leaders can build their power generation capacity, industry and cities with full cognisance of inevitable transition to low-carbon economic growth. Paradoxically, Central Africa's relative lack of development provides the opportunity in the current context to build competitive advantage and bargaining power in three broad ways:

- Access to reliable electricity is a prerequisite for economic diversification. Central African countries could take advantage of the global shift towards cheap finance for renewable energy, to roll-out affordable clean energy to every citizen. Early investment in renewable energy and electrification would obviate the default in which energy demands from growing populations result in ecological degradation through fuelwood and charcoal harvesting (Abernethy et al., 2015). The weighted average, levelized cost of photovoltaic energy fell 85% between 2010 and 2020. All renewable energy costs dropped in 2020,[10] and the decline is expected to continue for another 10-15 years driven by improved technology, supply chains, scalability, and

[10] In 2020, the global weighted-average levelised cost of electricity (LCOE) from new capacity additions of onshore wind declined by 13%, compared to 2019. Over the same period, the LCOE of concentrating solar power (CSP) fell by 16%, offshore wind fell by 9% and that of utility-scale solar photovoltaics (PV) by 7% (IRENA 2021).

manufacturing processes (IRENA, 2021; Way et al., 2021).[11] Renewable energy is now as cheap or cheaper than fossil fuel powered electricity (even when environmental "externalities" are ignored) and can be accessed with much shorter lead times. Globally, a rapid transition to renewable energy will "result in savings of many trillions of dollars" (Way et al., 2021) and Central African countries have the opportunity to harness these savings as they extend electrical power connections. The $4.4 trillion that will have to be spent by 2050 on clean energy infrastructure in order to implement the Paris Agreement and avoid run-away climate change, could finance new power supply in Central African countries many of which are seeking to connect significant portions of their population to electricity grids for the first time (IEA, 2021). The same investment in renewable energy could also support the roll-out of minigrids to remote communities located too far from the existing grids. Sub-Saharan African countries have already attracted 65% of the world's off-grid renewable energy investments over 2007-2019, with investments concentrated especially in East Africa.[12] In the process Central African countries will not only alleviate the burden that comes from energy poverty, but enable low-carbon industry. Services and products with low embedded carbon will become increasingly competitive as countries applying border adjustment taxes to account for carbon.[13]

African countries have already experienced significant growth in renewable energy consumption and investment, but to sustain this trend will require leadership to shift away from the current vertically integrated energy utilities towards a more diversified system involving independent power producers and locally managed grids (Eberhard et al., 2016).

- Using the surge in demand for rare earth metals (the "green economy minerals", required for low-carbon technologies) that are found in Central Africa and neighbouring African countries (UNU-INRA, 2019), there is an opportunity to secure improved terms of trade in all mining contracts. Global demand for solar PV technology (aluminium, cadmium, copper, gallium, indium, iron, lead, nickel, silica, silver, tellurium, tin and zin) and lithium-ion batteries (aluminium, cobalt, iron, lead, lithium, manganese, nickel and graphite), far exceeds the current supply of the minerals required to manufacture them. Given current supply and demand, the countries that hold these minerals and the copper required to extend electricity networks, will have the opportunity to secure new and more favourable terms of trade – terms that protect the underlying natural environment and contribute more to socio-economic progress. Examples are already emerging. The DRC holds 47% of the world's known Cobalt reserves and has attracted attention by companies making lithium iron batteries for energy storage and electric vehicles (UNU-INRA, 2019). In Burundi TechMet has funded a US$3m rare earths separation facility at Rainbow Rare Earth's Gakara project. The leadership challenge involves exchanging access to these minerals for investments

[11] In 2020, the global weighted-average levelised cost of electricity (LCOE) from new capacity additions of onshore wind declined by 13%, compared to 2019. Over the same period, the LCOE of concentrating solar power (CSP) fell by 16%, that of offshore wind fell by 9% and that of utility-scale solar photovoltaics (PV) by 7% (IRENA 2021).

[12] https://irena.org/publications/2020/Nov/Global-Landscape-of-Renewable-Energy-Finance-2020

[13] The EU intends implementing a border adjustment tax for carbon from 2023.

in local value chains and local markets, so as to ensure that the Clean Energy and Fourth Industrial Revolutions generate opportunities for the region (UNIDO/GGGI, 2015; Oyewole, 2016). At the same time, Central Africa's relative bargaining power in mining contracts should be used to prevent the ecological and human toxicity that has accompanied lead mining in Southern Cameroon, Gabon and Eastern DRC, radio-nucleotide contamination that has been a feature of uranium extraction, and the mercury toxicity that has accompanied artisanal gold mining in Central African (Abernethy et al., 2015).

- Position the region's considerable natural environment as a globally valuable resource in the effort to prevent climate change damage and the spread of zoonotic viruses. IPCC models suggest that limiting warming to 1.5°C above pre-industrial levels will require Carbon Dioxide Removal from the atmosphere of between 100Gt and 1,000Gt by 2100, depending on how effective other measures are. Protecting and restoring the Central African Rainforest (roughly 178 million hectares) as a carbon sink and habitat for 60% of Africa's biodiversity, could attract global investment (ECA/SRO-CA, 2017). Nine countries, including Tanzania and Zambia from outside the Central African region, share portions of the Congo forest, but six countries comprise the bulk of the asset: Cameroon, the Central African Republic, the Republic of Congo, the Democratic Republic of Congo (DRC), Equatorial Guinea and Gabon. Leadership that forges forest stewardship partnerships across these countries is more likely to attract climate finance than piecemeal efforts. The same leadership is required to prevent the "selling" of the region's natural heritage and resources in some form of commodity (Sullivan, 2018). Instead, there is a need to protect Central Africa's natural wealth and the buffer that it provides inhabitants against multi-dimensional poverty (Jennings and Oldiges, 2020).[14] These benefits could be threatened by commodifying the region's natural resources to attract investment from a global financial

The medium-term goal for Central African countries is improved competitive advantage in a global economy that will be reconfigured by massive changes in global financial flows that are responding to the threats posed by climate change to their assets. International initiatives for Africa's development create a strong case for donor and financial investments that could assist Central African countries cope with climate change (Boyd, 2017; ECA/SRO-CA, 2017). Morocco, Rwanda and The Gambia have already harnessed the global climate response to raise their profile, attract investment and gain competitive advantage. The Gambia has received accolades and investment as one of only two countries "on track to meet Paris [Agreement} targets" (CAT, 2021). The Gambia's proactivity has secured support disproportionate to its scale or climate influence, and has seen the country attract investment in photovoltaic electricity generation, forest and mangrove restoration and clean cookstoves.[15]

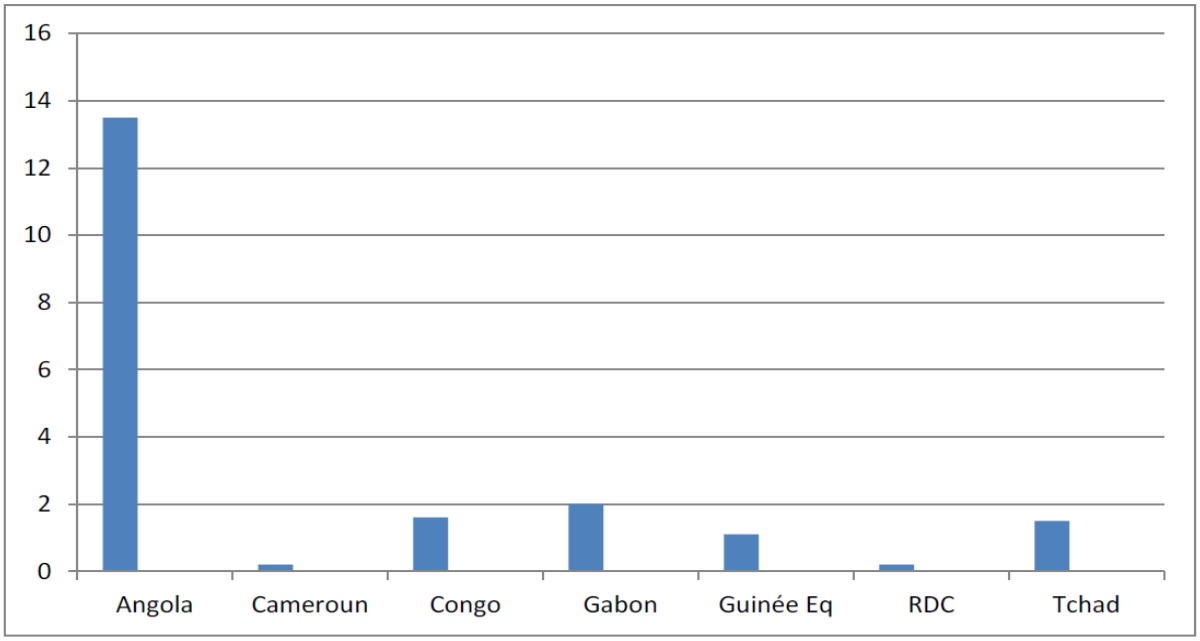
The same leadership will be required, however, to forego new investments in fossil fuel extraction in Angola and Republic of Congo, for example (see Figure 7). Angola's state owned oil company, Songangol, for example, has already started to realize that it needs to increase investments in renewables as part of

[14] The multi-dimensional poverty index factors in 11 parameters under categories of health, education and living standards. Central Africa's multi-dimensional poverty scores are better than its financial poverty scores, suggesting the natural environment plays an important buffering role (Jennings and Oldiges, 2020).

[15] https://www.nationalgeographic.com/environment/article/climate-change-report-card-co2-emissions

a transition strategy. This will enable it to capture a new class of capital that has emerged over the past two years, namely "transition finance" – funding for companies like Sonangol who want to transition out of fossil fuels. Central Africa's historically negligible contribution to greenhouse gases might provide the region with the moral high ground in climate negotiations but new fossil fuel plants will struggle to raise investment and risk becoming "stranded assets" as pressure to cut emissions grows (UNU-INRA, 2019). China joined a growing number of countries when it announced its discontinuation of off-shore investments in coal in September 2021. Central Africa cannot escape, in the words of UN Secretary General, the "death knell for coal and fossil fuels" (Guterres, 2021).

Figure 7: Distribution of Central Africa's oil reserves



Source: *US Energy Administration Information*, 2013

4.2.2 Harness the reinvention of the primary sector to support vertical integration

The industrial prowess and wealth of European and North American countries relied on extractive industries (Rosenzweig et al., 2020). In parts of Asia, too, the shift to high productivity agriculture (framed as a "green revolution" in India) preceded the emergence of industrial capacity. The evidence is now clear that the extractive primary sector activities that characterised the industrial revolution contributed to climate change, soil degradation, biodiversity crises and systemic problems for human health (Milner et al., 2012; IRP, 2012; Rozenberg and Hallegatte, 2015; Steg et al., 2015; Elbehri, 2015; Sovacool, 2020; IPCC, 2021). In response, primary sectors and the finance that supports them are being transformed to take account of International Resource Panel findings, climate change and mounting evidence of

industry's role in ecological and social harm.[16] This 'reinventing' is shifting global value chains towards resource efficiency and circular flows of materials, energy, rare minerals, nutrients and water in industry, agriculture and forestry, in ways that will make the primary sector much less dependent on land and mineral deposits, create primary sector opportunities in all locations that have access to technology and skills, and that radically alter socio-political configurations in ways that could reduce geographical and economic inequality (Arbib et al., 2021). Driven by the shift to renewable energy and improved energy storage, the electrification and automation of transport and the increasing adoption of precision fermentation and cellular agriculture for food production (Airbib et al. suggest cellular agriculture could make animal protein five-times cheaper, safer and tastier than farmed animals) all of which is already underway, applying existing technologies and being accelerated by digitalisation of communication, the basic building blocks of all economies will be reconfigured to generate non-linear improvements in resource efficiency and declines in greenhouse gas emissions.

Central African nations are already engaging these transitions and their opportunities for leap-frogging. The reinvention of the primary sector will necessitate a greater focus on regional markets, and generate energy, food production and business opportunities in places previously considered unsuitable. Whilst adopting new technologies, Central African countries can complement the global transition by aligning what they are already doing as a complement to the global transitions. This includes regenerative agriculture intent on retaining soil fertility and limiting the use of chemicals; enhanced sustainable forest stewardship; integrated water resource management rather than exclusive dependence on dams and groundwater extraction; an emphasis on circular material flows rather than waste deposits in landfills, oceans and rivers; the provision of minerals necessary for lithium-ion batteries, the construction of smart-grids, photovoltaic panels and wind turbines, within the frameworks of mining charters aimed at protecting mine workers, limiting environmental damage and governing the illegal extraction and trade of mineral wealth. The Extractive Industries Transparency Initiative (EITI)[17], for example, operates on the principle of having accountable and transparent assessments of the ways that extractive companies interact with governments. Similarly, the Kimberly Process has sought to reduce the sale of diamonds from conflict zones. After an ambiguous start, the ability for mines to access finance and investment is now being linked to compliance with these standards (Sovacool, 2020).

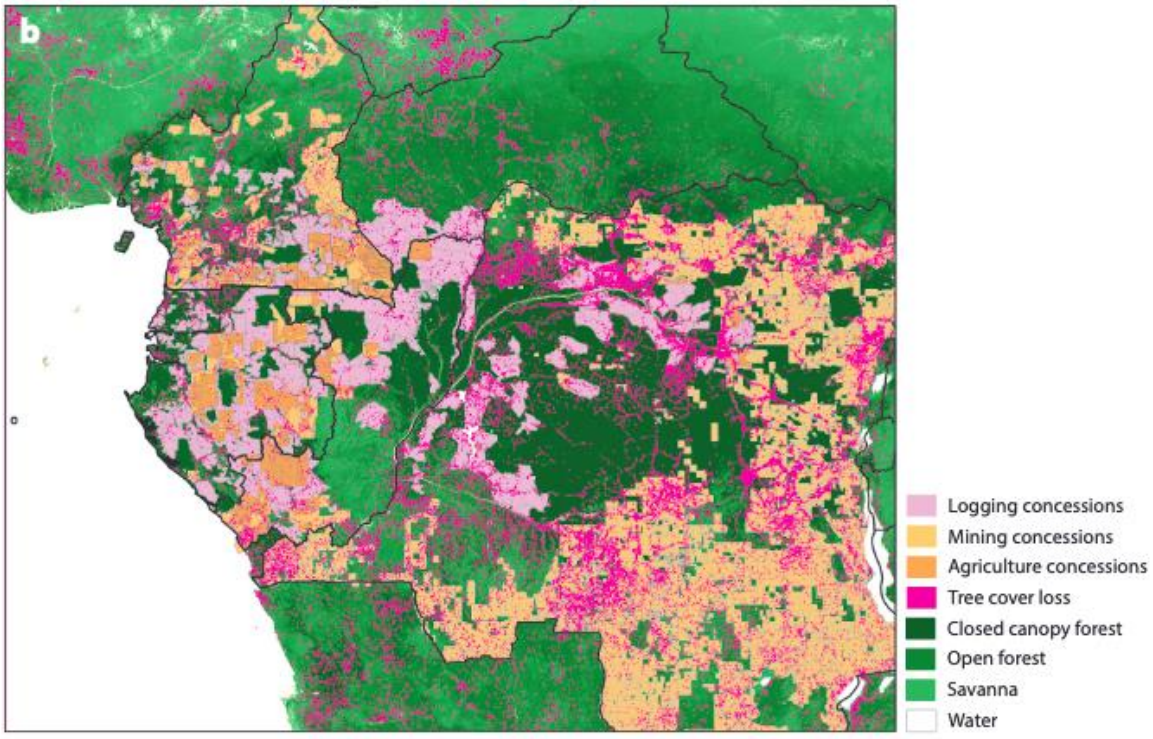
Commodity exports from Central Africa comprise over half the respective country's GDP in every country except Rwanda, and mineral exports dominated export revenue (94% of Equatorial Guinea, 90% in Congo, 81% in DRC) in 2015 (World Bank, 2021). Timber accounts for 3-4% of total GDP in Cameroon and Central African Republic, but the Central African rainforest is being destroyed at a rate of 1-2% per decade from charcoal burning, logging, agriculture and mineral extraction – Figure 8 (Abernethy et al., 2016; ECA/SRO-CA, 2017). Effective leadership will build on the region's economic foundation by

[16] As an indicator of how material value chains are being influenced ecological considerations, the 2021 Nobel Prize for chemistry was awarded to two scientists, Benjamin List and David MacMillan, that reduced the use of environmentally damaging heavy metals in the catalysts by most manufacturing value chains (plastics, liquid fuels, pharmaceuticals).

[17] EITI requires reporting on i) contracts and licensing ii) production iii) revenue collection iv) revenue allocation) social and economic spending by mining companies.

identifying "pockets of efficiency" and associated opportunities to re-position Central Africa's commodities in the global economy and secure improved outcomes. Circular economies tend to have higher local content and be more labour intensive (UNCTAD, 2004; De Oliveira, 2007; Oppong et al., 2020). For Central African countries that have historically struggled to draw down systemic benefits from commodity trades and global value chains, the shift creates novel prospects (Whitfield et al., 2015; Sovacool, 2020).

Figure 8: Central African Forest timber concessions



(Source: Abernethy et al., 2016; UNECA 2017)

As with the other opportunities generated by global, continental and regional change, shifting the current state of primary sector activities towards a more favourable outcome for Central Africa is not guaranteed, and is likely to be contested. Previous promises of "green consumption," greater transparency and ethical trade have been around since 1990s but have done little for the nature of extractive industries in Central Africa (Gallarotti, 1995; Whitfield et al., 2015; Sovacool, 2020). The latest potential for change has the advantage of being able to draw on the Fourth Industrial Revolution and the digitalisation of information, growing global awareness and changing regulations, to drive higher levels of accountability. In addition, the emerging opportunities are being underwritten by China's long-standing pursuit of "ecological civilisation" (Freymann, 2021) and ESG pressures on Western multi-national companies.

Examples of the opportunities that lend themselves to this leadership strategy, include:

- Higher value agriculture, linked to sustainable agricultural practices and forest stewardship, could generate the revenue required to begin agri-processing and supply of urban markets within the region in what could become a virtuous cycle of investment and improving returns.

- Revaluing Central Africa's considerable forests for not just their timber, but also for their contribution to global carbon sequestration, water catchments, pharmaceutical products, diverse habitats required for biodiversity, weather influence and cultural significance (Abernethy et al., 2016; ECA/SRO-CA, 2017). In this way, Central Africa's forests could take on new global significance and value (UNECA 2019), opening the opportunity for "sustainable forestry", investment in forest stewardship and higher value timber, as opposed to the extractive models that have defined Central Africa's forest and charcoal sectors to date. This is already the case at the Compagnie Forestiere et de Transformation (CFT) growing schemes in Kisangani, DRC, and has been the case in the region of Likouala in the Republic of Congo, where sustainable forestry has driven spectacular progress in reducing multi-dimensional poverty since 2010 (Alkire et al., 2016).

- The rush for the minerals required to generate renewable energy, green hydrogen, electric vehicles and lithium-ion batteries, in combination with new mining technologies, all of which are required by the global transition away from fossil fuels, are creating the potential for novel and niche opportunities in Central African countries (UNU-INRA, 2019; Ramdoo et al., 2021). Historically, mining in Central African countries has been the greatest export earner, but has also fuelled conflicts and provided very little by way of local economic progress (UNCTAD, 2004; Sovacool, 2020). Projected wind energy investment will generate demand for 1.7 billion additional tonnes of steel by 2050 (IEA, 2021) and "green minerals" such as Cobalt will gain increasing strategic value as the demand for catalytic converters and lithium-ion batteries increases (UNU-INRA, 2019). Similarly, the demand for copper will form an essential part of the drive to bring clean and safe electricity to the roughly 600 million Africans that do not yet have access. These supply and demand circumstances create the potential for longer-term contracts in which multi-national mining companies are not just extractive, but also contribute to local infrastructure, local mineral processing and regional research and development. The same re-imagination of mining has the scope to legitimise artisanal miners and smaller-scale mines (about 300,000 people in in Sierra Lone and 200,000 in Burkina Faso are engaged in small-scale and artisanal mining), while emphasising the importance of forward and backward linkages between mining and local economic development and demand for mineral products within the region's cities.

- Activities that repurpose plastic (into construction bricks, roads or fuel, as undertaken by Arena Recycling in Tanzania, for example), recycle green and animal waste to retain soil fertility, and redeem e-waste to feed back into markets are already present on the continent. Sèmè City in Benin is pursuing the jobs and investment associated with circular flows of materials in a place-making project, and in the process linking a new type of resource efficient, low carbon industry with urban services and the prioritisation of local content. Similarly, Rwanda E-Waste Recycling and Dismantling Facility in Bugesera District has, with support from Rwanda's Ministry of trade and Investment, attracted green fund investments. The circular economy repurposing of what

many industries consider waste or byproducts (agricultural and timber residue, plastic waste, animal waste) is labour intensive and well suited to the type of work that people in Central African countries can undertake, particularly in the region's cities where it can contribute to economic inclusion (Colenbrander et al., 2016; Thieme, 2018)

Harnessing the global reinvention of primary economic activity to secure higher commodity values and economic transformation in Central African countries will require a sober reflection on the de-industrialisation trend of the past two decades. Attention to regional and local markets form an important part of the proposed strategy. Regional value chains tend to offer easier opportunities for vertical integration and economies of scale (ECA/SRO-CA, 2017). Similarly, supplying the growing demand for goods and services (food, construction material, timber, energy, manufacturing inputs and mobility) to Central Africa's rapidly expanding cities not only represents a useful counter to the slow-down in demand in 'post-Growth' or 'a-growth' countries, but also provides a platform from which to negotiate more effectively in international trade (Kallis, 2011; Van den Bergh, 2011; Whitfield et al., 2015; ECA/SRO-CA, 2017). In this sense, a commodity trade strategy that has a fall-back to growing domestic markets, not only provides stability but also bargaining power in international trade, both of which offer better economic prospects (Cloete et al., 2019).

4.2.3 Infrastructure for a green economy

Central Africa's infrastructure deficits are "structural" and acute, and the deficit constrains human potential, rural-urban linkages and economic diversification (ECA/SRO-CA, 2017; IISD, 2021). Not only does manufacturing depend on a reliable energy, water supply and transport infrastructure, but the provision of infrastructure creates markets for materials, services and labour for local industries, strengthening local value chains in the process. Against this backdrop the leadership challenge in Central Africa is two-fold:

- How to overcome the conjoined issues of low per capita income, limited revenue collection from service providers, human settlements that precede land titling and contested (but generally weak) local government authorities that enjoy limited co-ordination or fiscal support from central governments, all of which underpin the obdurate infrastructure deficits.
- How to ensure that the infrastructure that is built not only supplies services, but unlocks a symbiotic relationship between people and the region's natural resources, so as to generate higher economic multipliers and the emergence of sustainable manufacturing and industry.

Once again, changes at an international and regional level create novel opportunities to address this challenge and secure investment in new forms of infrastructure that links growing urban demand with regional value chains in Central Africa (Castan-Broto, 2017; Cloete et al., 2019). This is particularly true when national infrastructure programmes can be aligned to the needs of economically ambitious young people moving to the region's cities in rapidly urbanising countries of Gabon, Congo and Cameroon, and where ICT technology can be used to secure local tariff revenues for the services generated by infrastructure.

Motivated by the opportunity created by modular scales, declining prices and the considerably reduced lead times for renewable energy (2 years for utility scale wind and solar as opposed to 6-10 years for coal fired power stations), the African Renewable Energy Initiative overseen by the African Union, emerged to support bargaining power and local content in negotiating offtake agreements with multi-national Independent Power Producers. AREI's efforts are complemented by those of the Least Developed Countries Renewable Energy and Energy Efficiency Initiative (LDC REEEI), an alliance forged by LDCs at COP22 in Marrakesh, in what is becoming a powerful network in securing energy investment outcomes that catalyse local economic development (Kidmo et al., 2021). In a growing number of African electricity projects, license to generate electricity is contingent on supplying electricity to adjacent communities or extending the regional electricity grid to enable feed-in.[18] Similarly, the confluence of energy and ICT technologies, facilitates revenue collection making it easier to raise infrastructure finance.

National Urban Policies that collate infrastructure portfolios and clarify which ministry or tier of government is responsible for different types of infrastructure, enable the work of Infrastructure Projects Preparation and Development Units (PPDUs) and the Infrastructure Master Plans. Collectively, NUPs and PPDUs allow Central African countries to exercise effective demand for infrastructure finance, can tailor infrastructure investments to the needs of households and industries, ensure cross-border compatibility (particularly for water and transport infrastructure) and make sure that infrastructure projects support rather the degrade the natural environment. The commitment of Ethiopia's Growth and Transformation Plans (GTP-I and GTP-II) to infrastructure delivery (energy, road, rail, telecoms) in 2010 and 2015, led to a five-fold increase in power, most of which was renewable, and contributed to over a decade of double-digit economic expansion. Growth was complemented by improvement in livelihoods, work creation and strengthening of the knowledge economy and university-industry collaborations.

In a stylised sense, the pursuit of economic transformation in Central African countries confronts the choice of whether to build network infrastructure capable of enabling the flow of goods and people within the region, or concentrate manufacturing in Special Economic Zones with bespoke power supplies and logistical links to the region's ports. Regardless of the choice, the evolution of Ethiopia's industrial parks suggests that infrastructure investments that link people, goods and opportunities, and build forward and backward linkages, are crucial. Infrastructure investments that unlock ecosystems of economic activity in existing food, construction, mining, energy, water services and mobility, value chains generate much higher economic multipliers than infrastructure targeted at commodity exports through Industrial Development Zones (Cloete et al., 2019).

Against the backdrop of resource conflicts, migration and the urbanising youthful population, public and private infrastructure will have to pay keen attention to the creation of work opportunities that build a sense of place as well as the social capital required to grow the economy. Public works programmes (such as catchment stewardship above dams, afforestation, riparian management, fire-breaks, litter collection and sorting, and land rehabilitation programmes) that generate complementary ecosystem and infrastructure services, have a crucial role to play in generating the type of work that unemployed people can access and in ensuring an inclusive economy. These programmes were central to establishing post-

[18] https://www.news24.com/fin24/companies/mining/sa-mines-to-invest-in-massive-2gw-of-renewable-energy-20210923

conflict inclusion and solidarity in Rwanda, Burundi and Sudan and is being redeployed in Rwanda as part of the Covid-19 recovery package (ILO, 1989; Massink, 1991; Umulisa et al., 2020)

4.2.4 Digitalisation and services

While emphasis in this document is given to the opportunities for domestic markets and domestic value chains, harnessing the best of the Fourth Industrial Revolution and digital economy to overcome the barriers of limited infrastructure and find new outlets for primary resources, presents a crucial opportunity for economic diversification. Digitalisation and ICT offers the scope for both product-based and systemic changes to economic transformation (United Nations, 2020), and have already seen significant investment in the continent.[19]

In terms of products, the ability of mobile phone telephony to connect people in the absence of other infrastructure has been transformational across Africa. Similarly, drones are being used across African countries to deliver medical supplies to clinics when roads are congested or flooded, and conduct aerial surveillance of human settlements, crops, forests and mines.

Where harnessed appropriately, the systemic influences are arguably more profound and have already driven new economic and social structures. The transparency and accountability generated by mass access to digital communication, is already making the types of bilateral commodity deals that benefited a small economic elite, unviable and untenable, and ushering in more inclusive economic opportunities (Paller et al., 2019).

Digitalisation has also enabled improved revenue collection and accountability, making it easier to raise project finance and rendering urban infrastructure in Central Africa, "bankable" for the first time (IEA, 2019). Renewable energy uptake has been supported by digitalisation, which in turn has attracted investment by Independent Power Producers and private distribution companies (DISCOs) capable of displacing the Emergency Power Producers that have provided expensive and bespoke energy solutions to mines, factories and some communities for the last decade.[20] In Nigeria the local DISCO reported that 93% of customers paid their electricity bill, significantly enhancing revenue collection and opening the opportunity for ongoing investment.

Digitalisation has also enabled M-Kopa Solar, now owned by Safaricom, to finance the supply of solar homes, fridges and smartphones in Kenya, Nigeria and Uganda. For customers that prove their ability to make reliable payments on PAYGo, M-Kopa offers clean biomass cook stoves, entertainment packages and even financial services such as loans and hospital plans (Ren21, 2021). Pico Solar also uses the PAYGo platform and sold over 2 million solar homes affiliated appliances in 2020.

Rwanda is the Central African exemplar of the links between digitalisation and economic transformation, having followed through on its ambition to not only draw down the benefits of ICT for the country, but

[19] In October 2021, Google pledged a $1 billion, five year investment in African countries.

[20] In Ghana the uncoordinated procurement of energy from independent and emergency power producers prior to 2016 required the government to pay US$450 million in 2019 to private companies for power that the country does not use.

to be a regional hub for developing systems. Ghana, Kenya and Nigeria have similarly attracted investment in both ICT infrastructure and tech start-ups.

4.3 Finance

Once the strategy for economic transformation has been set, Central African countries face the challenge of how to pay for the required public and private interventions, including the institutional capacity to ensure that investments enable the construction of network infrastructure that links the region and supporting the manufacturing drive. This is only possible if public finance and resource taxes, no matter how meagre or unreliable, are able to crowd-in private finance behind a common vision.

To the extent that some external finance will be necessary to advance Central African countries, leadership focus should shift to the opportunities created by the current wave of state-led recovery packages and the changing rules and norms that influence the allocation of capital in the world's $400 trillion finance system. There is a sense that the G20 compact with Africa and the EU-Africa Partnership, as well as the emergence of new financiers from China and the Middle East, is creating new opportunities for Central African countries.

In response to the Covid pandemic, state-led interventions in economic recovery has seen the US and the EU respectively invest $2 trillion in infrastructure. Much of this investment forms part of a new nationalism that could see declining transfers to African countries. However, these flows are being complemented by the $1.3 trillion investment strategy that has accompanied China's quest for global influence and resources since 2012 (Chen, 2021), the availability of Green Climate Funds, the growing traction of carbon market investments and the emergence of new finance mandates by the likes of Norfund, which is now compelled to invest half its portfolio in Africa (Lynberg, personal communication).[21]

At the same time, the emergence of the Taskforce for Climate Related Financial Disclosure, alongside the growing need for financiers looking to raise capital to report against ESG criteria, the linking of these criteria to the SDGs and improved data from Africa, has already seen new flows of finance to African countries.

It should be clear that the default for finance is to replicate a small number of discrete private goods: housing enclaves, mines, logging operations, shopping malls, office buildings and elite transport options, that on their own do not constitute a transformed economy. The leadership opportunity for Central Africa, involves taking advantage of shifts in the global financial landscape to support institutions that can make existing economic activity and economic value more legible to financiers. This task cannot rest only on the demand-side requirement of a portfolio of "bankable" projects – where bankable means projects that offer low-risk and high returns to financiers, often replicating existing ideas and projects. Rather the Central African finance needed is for the recognition of new asset classes that include social and ecological capital (carbon sinks, watersheds and sources of biodiversity) and support the institutions that form a functional state. The emergence of such institutions is most likely at a regional scale, where

[21] Ylva Linberg is on the Board of Norfund

national borders can be spanned to create the possibility of aggregation and effective demand for finance.

Considerable scope lies in combining the emphasis on local value chains, with digitalised revenue collection and payment options, to mobilise domestic finance behind infrastructure and natural capital assets within the region. A local revenue base is essential to securing improved terms on public debt, including green bonds.[22]

While options that extend beyond traditional World Bank and European DFI loans should be welcomed by the region, attracting this finance has to be seen as a means to an end, rather than an end in itself. It is incumbent on Central Africa's civil society, business and government leaders to articulate that ends in the form of transformed, low carbon economies, so as to ensure that finance supports, rather than undermines, economic transformation. Rifkin (2011) is clear that converting finance into economic progress, hinges on a compelling and coherent narrative. This is particularly important for efforts trying to leverage Central Africa's natural resources and climate change needs to secure investment. The global financialization of society has now been extended to nature and climate (Ouma et al., 2018), making "green structural adjustment" an increasing reality (Langley and Morris, 2020; Bigger and Webber, 2021). Attracting finance in support of Central Africa's natural capital and climate adaptation efforts is presented as an opportunity in this Chapter 4, but could very easily replicate the same "neoliberal modalities of governance" that have created barriers for central African countries in the past (Christophers, 2017). Successful leadership for economic transformation will be alert to this risk

4.4 Realising opportunities

The central assertion in Chapter 4 is that a range of international, continental and regional changes are shifting the incentives for Central Africa's ruling elites and business associations to forge novel political settlements that secure improved terms of trade in commodity markets, attract new forms of finance and deliver unprecedented services in support of economic transformation. This proposition builds on the recent literature describing the institutional dynamics of an alternative industrial strategy in the African context (Noman et al., 2011; Whitfield et al., 2015; Nem Singh and Chen, 2018; Ovadia and Wolf, 2018).

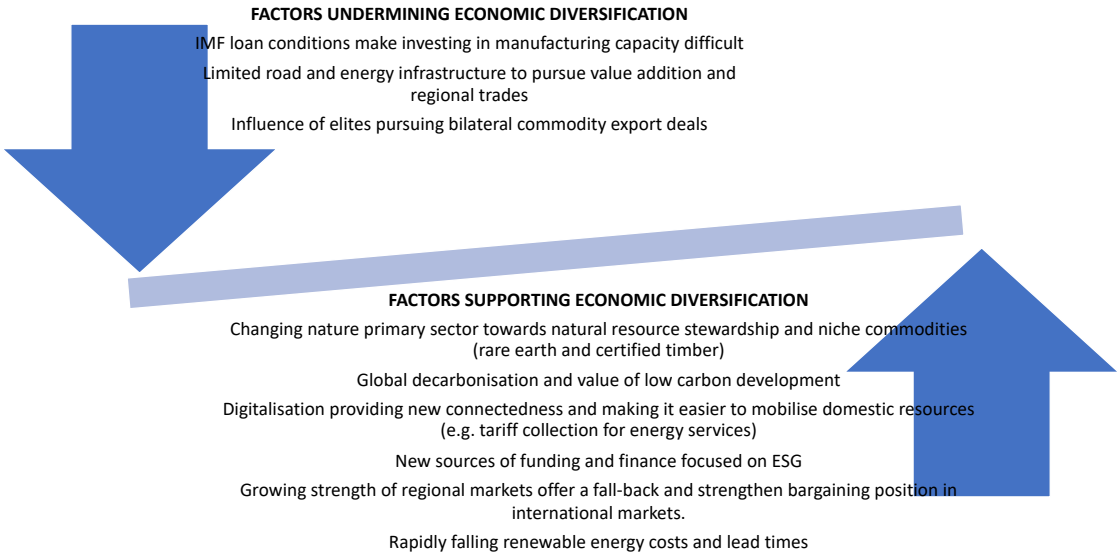
Realising the economic opportunity requires political and business leaders to break from the assumption that purely extraction and export provides a pathway to economic diversification. A more tenable strategy involves linking existing commodity value chains and regional markets and figuring out how they might be shaped to align with global trends. If framed as a bargaining strategy, the approach involves looking to change the circumstances in which Central African countries always come off second best in commodity and finance transactions. Instead, Central African countries could position their commodities and their labour to secure a greater proportion of benefits from their transactions.

[22] A notable feature of the celebrated green infrastructure bonds issued in South Africa to date, has been their short-terms and their high expense.

The key to this strategy involves formulating a compelling offering, linked to prevailing global interests to improve the default (or "walk-away") position in international negotiations. Central Africa is able to improve its bargaining power by positioning its economic contribution strategically within the global trends around climate, circular economies, digitalisation and finance, in ways that not only secure more by way of investment, revenue and employment, but also build domestic markets around economies that are emblematic of these global features.

There are few definitive precedents, and inadequate regional data, on which Central Africa is able to draw in pursuing this strategy (James et al., 2013, Abernethy et al., 2016). The lack of blue-prints, and indeed data on the state of natural resources, makes the documentation and review of the respective processes essential. This is, indeed, the classic 'wicked challenge' that does not lend itself to conventional planning approaches. Hence the need for a PDIA approach, underpinned by capacity for institutional work to build leadership capabilities. Where it works the strategy proposed above will represent a process, not an end goal, of improving terms of trade, investment in local value chains, expansion of local markets and economic inclusion. Calibrating success requires this process to be embedded in a knowledge economy and the capacity for learning – linked to data collection, research and training. It is this knowledge and learning economy that will place Central Africa's historically volatile economies onto a more sustainable and durable developmental path in which the conjoined welfare of the region's people and environment are the primary focus.

Figure 9: Multi-level perspective on the factors shifting incentives for settlements that secure improved terms of trade and economic diversification in Central Africa



(Source: compiled by Anton Cartwright)

Chapter 5: Summary and recommendations

It is common cause that there are a range of global and regional drivers of change that are creating new economic challenges and opportunities for the Central African region (Chapter 2). What is far less clear is how the Central African region and the individual nations take advantage of these opportunities for the benefit of all the Central African populations. Many policy and planning frameworks exist that address this question, but still little changes. It is easy to make sweeping normative statements about the need for effective leadership to ensure that the existing policy and planning frameworks get implemented. But these kinds of arguments have a limited impact because it is rarely specific who exactly should be doing what. To argue that "the leadership should …" is not different from arguing that "the state should …. ." Both are abstractions that relate at best vaguely to real-world dynamics. Instead, leadership for transformation means unpacking the various often competing interests that need to align if anything is going to get done. This is what Chapter 3 does, focussing in particular on the complex relations between four key groups: the ruling elite, business leaders, state bureaucrats and civil society. Chapter 3 also refers to methodologies for facilitating capability building for leading, visioning and facilitating. Chapter 4 outlines some key economic opportunities that could be exploited by the appropriate coalitions of interests. In the final instance, leadership for transformation is about the capacity of key leadership groupings to build the kinds of coalitions that can support the formulation and implementation of industrial policies that can drive a long-term programme of economic diversification.

To substantiate the above proposition, the central argument that runs through this report proceeds as follows:

I. the shift into the fourth phase of development thinking is noted, in particular how the 'new structural economics' calls for a balance between markets (for efficiency) and state intervention (for directionality), with special reference to industrial policy (Chapter 1);
II. this does of course mean taking seriously the need to build capable 'developmental states' to drive industrial policies, but instead of blueprint thinking based on the assumption that the entire state system must be developmental before development can be achieved, start incrementally by creating 'pockets of efficiency' that allow bureaucrats to explore innovative solutions (Chapters 1 and 3);
III. there are a range of global and regional drivers of change that need to be seen primarily as opportunities for breaking with past practices in order to do things very differently in future (Chapter 2):
    a. the three global drivers of change are resource depletion, climate change and accelerated digitalisation (4th Industrial Revolution);
    b. the six key global and continental processes of change reflected in key documents are Agenda 2030/SDGs adopted in 2015, African Union's Agenda 2063, the Accelerated Industrial Development in Africa (AIDA), the African Continental Free Trade Area (AfCFTA), the Africa Renewable Energy Initiative and the African Circular Economy Alliance;
    c. Regional (Central African) factors are shaping the challenges of the present, including economic factors (such as the emerging potential of agri-business, renewable energy and

mining sectors), social factors (like the low rankings on the Multi-level Poverty Index and the Sustainability Development Index), environmental factors (from indoor air pollution to climate change), and spatial factors (such as urbanization and urban infrastructure requirements);

IV. all other priority actions will depend on 'strong leadership and appropriate institutions', but to discover what this means in practice it is necessary to take into account:
    a. the changing global and regional economic dynamics that highlight the close linkages between economic diversification, TFP and the institutional holding space needed for developing 'hard' and 'soft' technological capabilities;
    b. the six conditions for transformational leadership, including mutual interests between businesses and ruling elites, pockets of efficiency between ruling elites and state bureaucrats, learning for productivity improvements between state bureaucrats and businesses, partnerships between businesses and civil society, responsiveness between civil society and state bureaucracies, and accountability between the ruling elites and civil society;
    c. the opportunities for introducing methodologies for managing change, in particular the PDIA and institutional change methodologies;
    d. the need to facilitate urban planning processes which can create significant opportunities for localising value chains and enlarging internal markets;
V. given the *Priority Action Framework* for Central Africa and the need to build strong leadership by doing things differently, the following high potential priority actions were identified as appropriate foci for industrial policies aimed at catalysing economic diversification:
    a. harnessing global decarbonisation for low carbon development;
    b. harness the reinvention of the primary sector to support vertical integration;
    c. promote infrastructure development for a green economy;
    d. accelerate digitalisation; and
    e. rethink financial flows, with special reference to building Central African financial institutions.

Central to this argument is the idea that region-wide industrial policy - that is the various forms of intervention to improve the business environment or to alter the structure of economic activity towards sectors, technologies or tasks that offer better prospects for economic growth and social welfare - is necessary to alter the history of dependence on a few low-value commodities, and the associated economic fragility in Central Africa.

This is not a new idea, and the challenges in implementing industrial policy are well documented: the dependence of industrial policy on the fine balance between competition and efficiency on the one hand and infant industry protection on the other; the need for state support in economic growth and the innate difficulty of "picking winners" while remaining fiscally responsible; and the correct combination of support for regional development and local markets relative to embracing international trends in technology and product offerings. The history of what has been called 'industrial policy' in Central African countries has been characterised by undue influence of ruling elites. The result has been the locking in of bilateral deals with enclaved benefits at the expense of systemic economic development, institution

building and sectoral diversity. There is a general sense of what does not work, on the basis of international experience what does not work. Unfortunately, there is less agreement among economists about what does work causing many economists and policy recommendations to avoid the topic of industrial policy for diversification altogether (Rudiger, 2006, cited in UNFCCC, 2016).

The proposition outlined in this report is that the current set of non-linear changes in earth and social systems, driven by technological innovation, are reconfiguring the global economy in a manner that creates incentives for Central African ruling elites to coalesce around new compacts and coalitions of the kind discussed in Chapter 3. This proposition rests on the understanding that the existing leadership in Central Africa's political, bureaucratic, business and civil society sectors emerges from an underlying set of factors and circumstances that are now changing. This is not to assume that the emerging circumstances will automatically lead to leadership for economic transformation, but rather that the current set of dynamics creates novel and more conducive opportunities for this outcome. Realising these opportunities (described in Chapter 4) requires recognising the moment and the risks and opportunities it presents for respective Central African countries and then, against the trend of history, wielding industrial policy to realise the opportunities that will allow Central African economies to become more diverse, resilient, competitive and inclusive.

Drawing on the chapters above, an interlinked set of policy recommendations to achieve this outcome are outlined below:

- **Update and re-activate the *Central Africa Industrial Sector Development Strategy* produced in 2013, with fresh support from each Central African head of state**. The strategy outlined a time frame until 2025 and was never implemented. Updating the strategy to accommodate recent technological innovations and global emphases (most notably the carbon imperative, the drop in cost of renewable energy and new food production technologies) offers the opportunity to align with the UN's Agenda 2030 and foreground the current moment as one of opportunity for the region. The update should be specific about the elements of industrial policy that will make a new effort different. This includes details on (i) technology, standards and innovation policy; (ii) competition policy; and (iii) trade or external trade policy as outlined by ECA/SRO-CA (UNECA 2017:63). Central Africa's Industrial Sector Development Strategy should, as a sovereign priority, be inserted in agreements signed with the IMF and other multi-lateral financiers seeking to attach structural conditions to the provision of finance.

- **Upscale investments in ICT infrastructures and embed ICT innovations** in the finance, transport, energy, healthcare, education and agricultural sectors. Not only are these investments critical to overcome constraints created by the backlog in conventional infrastructure, but the digitalisation of payments for services will unlock new investment in infrastructure and services by overcoming historically difficult revenue collection. The same digitalisation is crucial to modes of accountability, embraced by a new mode of leadership, that will alter the incentives for the prevailing political and economic elite and encourage new political settlements. The digital strategy should be co-ordinated regionally, in concert with infrastructure and value chains that traverse the respective countries.

- **National leadership from all sectors, co-ordinated within the region, should embrace the technologies driving seismic changes in energy** (wind, solar, hydropower and batteries), transport (electric vehicles, automation) and food (precision fermentation and cellular agriculture) sectors in order to gain competitive advantage. There is a complementary need, however, to adopt "dynamic specialisation" (ECA/SRO-CA, 2017, p.61) in the existing industries that will enable the macro-tech trends. These include the minerals necessary for lithium-ion batteries, wind turbine and photovoltaic manufacturing and grid extension, sustainable forestry and forest stewardship, combined with new research documenting biodiversity, human-nature interactions, carbon sequestration, tropical forest ecosystems and the regional heritage.

- **Establish a region-wide infrastructure planning and financing programme**. Infrastructure and services are necessary to address the burden of multi-dimensional poverty and the energy and water constraints facing manufacturing sectors. Within a new region-wide infrastructure programme, give priority to local content, renewable energy, public transport, safe pedestrianisation and the linking of infrastructure with retail opportunities through spatially targeted infrastructure in trade corridors and trade precincts. This prioritisation will enable access to climate finance and the new funds supporting SDG implementation in Africa (see Norfund, the Green Climate Fund and DBSA's renewable energy funds, for example). Blending the outcomes of infrastructure to secure a blend of finance will require Project Preparation and Development Units (PPDUs) dedicated to Central African countries. Located, ideally, within DFIs these units need not be large but should be given the mandate to cohere proposals that support the goal of low-carbon, socially inclusive, resource efficient economic diversification. The presence of a regionally curated infrastructure programme will enable Central Africa to engage new infrastructure investors, including the EU-Africa Programme, the G20 for Africa and China's Belt and Road initiative, with a greater degree of coherence and consistency, reducing the threat of piece-meal deals.

- **To support region-wide digitalisation and the commitment to infrastructure, reapply the ECCAS Free Trade Area, to link regional value chains (food, timber, pharmaceuticals, minerals) with markets and the nascent manufacturing capacity in the region's rapidly growing cities**. The growing significance of local markets offers a strategic strength when negotiating improved terms of trade in international markets; as UNECA (2015) pointed out, "regional value chains are a much-needed step towards global chains" (UNECA, 2015). Growing domestic markets are equally important in offsetting the anticipated slow down in demand for resources from "post-growth" economies in the Global North.

- **Capitalise on corporate and global commitments to "Net Zero by 2050" to reposition the region's rare-earth minerals in global value chains and to deploy the region's considerable hydro-power capacity to support the efforts of "hard-to-abate" sectors such as iron, steel and glass, to meet their climate targets.** To make sure that Central Africa's strategic contribution to the global efforts is marshalled effectively, a regional "low carbon procurement office" is proposed, with contributions from respective states. The office would be mandated to secure

not just best available prices when selling rare-earth minerals, or procuring renewable energy, but would also establish norms for local content, community development and investments in bulk infrastructure (such as grid extensions and roads) on which foreign investors depend. Examples of how this office might work have been established by South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). In Central Africa, however, the remit of such an office could extend beyond energy procurement and involve the negotiation of low carbon development, while incorporating the mandate of the African Renewable Energy Initiative.

The same office should, working with the PPDUs described above, be endorsed to secure a massive roll out of renewable energy (wind, solar and hydro). This is necessary to ensure universal access to modern electricity, supplied by multiple localised energy facilities, within a Central African Power Pool, and to provide the power required by the manufacturing sector.

- **National leaders to utilise the window of opportunity created around UNFCCC COP26 to build on the success of The Gambia and attract climate finance in support for the region's commitment to global climate goals**. Central to this process would be the repositioning of the region's tropical forests not only as sources of timber and charcoal, but as global assets for the sequestration of carbon, the protection of biodiversity and the advancement of scientific knowledge on tropical ecology, water catchments, biodiversity, zoonotic viruses and pharmaceutical products.

- **Within the 2030 timeframe of the updated industrial strategy, Central African countries to commit to adopting a regional carbon tax.** This will make up for revenues that might be lost from resource taxes as international demand for Central Africa's commodities slow. It will also position the region competitively with countries levying a Border Adjustment Tax on carbon (as the EU intends to in 2023). Perhaps most significantly, a region-wide carbon tax will ensure that multi-national companies that previously saw Central Africa as one the last opportunities for conventional extractive industries, will instead have to consider how they support the region's transition to a resource efficient, low carbon and socially inclusive economy, complete with higher MVAs and more diverse and balanced sectoral compositions.

As proposed in Chapter 3, the leadership reconfigurations that are required to support economic diversification through manufacturing-led industrialization will not organically emerge in response to what is needed. Rather than depending on international management consulting firms, skilled facilitation practitioners will be required that are based in Central African organizations. Like the example of the Western Cape Economic Development Partnership in South Africa, full-time professional staff are required who are deeply familiar with local contexts and have the experience and expertise to facilitate partnering between ruling elites, businesses, state bureaucrats and civil society. Sensitive to the balance required between the top-down authorizing environment and the bottom-up mobilizing environment, facilitated dialogue to create the conditions for transformational leadership will be required. Key stakeholders, for example, might be locked into path dependencies that block them from seeing the mutuality of interests that may exist and therefore the potential for joint action that results in local

industrialisation. Ruling elites might not realize that they have more to gain from allowing bureaucrats space to be innovative than continuing to micro-manage them. Civil society might realize it has more to gain by partnering with certain businesses instead of regarding all business as only interested in super-profits and nothing else. These kinds of alignments of interest and strategic directionality are essential for economic diversification strategies and industrial policy in particular.

At the heart of the leadership challenge in Central Africa, is the need for a new and compelling narrative, capable of linking new institutions, policies and projects into a transformed economy. This narrative has to resonate internally within each country, incentivising ruling elites to commit to a superior alternative to the 'business as usual' that has served narrow interests well, but come at the expense of legitimacy and stability. The internal narrative needs to offer short-term prospects of new investment, new markets and new work, all of it more resilient to the rapidly changing global context than has historically been the case. The same narrative needs to capture the imagination of the international community, placing Central African countries on the map with regards to growing local markets and value chains, expanding infrastructure, ecological stewardship, rare-earth minerals supplies, low-carbon manufacturing and a new mode of economic planning and partnering. Realising these opportunities will be easier where Central African countries can legitimately fall back on the option of growing regional markets, but will further require leaders to identify and build on the 'pockets of efficiency' that offer developmental progress in the changing global context.

Reference List

Abernethy, K., Maisels, F., and White, L. J. T. (2016). Environmental Issues in Central Africa. Annu. Rev. Environ. Resour. 41, 1–33. doi:10.1146/annurev-environ-110615-085415.

AESA, Accelerating Excellence in Science in Africa (2020). *Setting Priorities for Climate Change and Development in Africa, September 2020. Nairobi, Kenya.* Alliance for Accelerating Excellence in Science in Africa.

ACET (2015) Growth with Depth: 2014 African Transformation Report. http://africantransformation.org/wp-content/uploads/2014/02/2014-african-transformation-report.pdf

African Capacity Building Foundation (ACBF) (2019) Africa Capacity Report 2019: Fostering Transformative Leadership for Africa's Development. https://elibrary.acbfpact.org/cgi-bin/

African Development Bank OECD & UNDP. (2016). *African Economic Outlook 2016: Sustainable Cities and Structural Transformation*. OECD Publishing.

Africa Progress Panel (APP). 2016. *Power, People and Planet: Seizing Africa's Energy and Climate opportunity*. Geneva: APP.

African Union (AU). 2015. Agenda 2063: The Africa We Want. Addis Ababa: African Union Commission.

Alkire, S. Foster, J, Seth, S; Santos, M-E; Roche, J Ballon, (2015) Multidmensional Poverty, Measurement and Analysis. https://ophi.org.uk/publications/ophi-working-papers/

Andersson, J., Hellsmark, H. & Sanden, B. (2021). The outcomes of directionality: Towards a morphology of sociotechnical systems. *Environmental Innovation and Societal Transitions*, 40:108-131.

Andrews, M., Pritchett, L., & Woolcock, M. (2017). *Building State Capability: Evidence, Anaysis, Action*. Oxford University Press.

Angel, D., & Rock, M. T. (2009). Environmental rationalities and the development state in East Asia: Prospects for a sustainability transition. *Technological Forecasting & Social Change, 76*, 229–240.

Arbib, J; Dorr, A and Seba, T (2021) Rethinking Climate Change How Humanity Can Choose to Reduce Emissions 90% by 2035 through the Disruption of Energy, Transportation, and Food with Existing Technologies. A ReThinkX Disruptions Implications Report (August)

Battilana, J., & D'Aunno, T. (2009). Institutional work and the paradox of embedded agency. In T. Lawrence, R. Suddaby, & B. Leca (Eds.), *Institutional work: Actors and agency in institutional studies of organizations* (pp. 31–58). Cambridge University Press. https://doi.org/10.1017/CBO9780511596605.002

Beegle, K., and L. Christiaensen (Eds.). 2019. *Accelerating Poverty Reduction in Africa*. Washington, DC: World Bank.

Berkhout, F., Angel, D., & Wieczorek, A. J. (2009). Asian development pathways and sustainable socio-technical regimes. *Technological Forecasting and Social Change, 76*, 218–228.

Bhorat, H., Rooney, C., & Steenkamp, F. (2019). *Building Economic Complexity in Africa*.

Bigger, P. and Webber, S., 2021. Green structural adjustment in the World Bank's resilient city. Annals of the American Association of Geographers, 111(1), pp.36-51.

Bosworth, B and Susan M. Collins (2003), "The Empirics of Growth: An Update", Brookings Papers on Economic Activity, 2:2003, p. 10 (122). Online at: https://www.brookings.edu/wp-content/uploads/2003/06/2003b_bpea_bosworth.pdf.

Boyd, E (2017) Can climate change fuelled loss and damage ever be fair? http://civilsocietyreview.org/report2019/

Boyd, E. (2017). Climate adaptation: Holistic thinking beyond technology. *Nat. Clim. Chang.* 7, 97–98. doi:10.1038/nclimate3211.

Branch, A., & Mampilly, Z. (2015). *African Uprising: Popular protest and political change*. Zed.

Brown, E (2010) Artisanal and small-scale miningandagriculture: friend or foe. https://acetforafrica.org/publications/policy-briefs-and-discussion-papers/artisanal-and-small-scale-mining-and-agriculture-friends-or-foes/

Buckley, T. (2019). *Over 100 Global Financial Institutions Are Exiting Coal, With More to Come. February*, 1–35. http://ieefa.org/wp-content/uploads/2019/02/IEEFA-Report_100-and-counting_Coal-Exit_Feb-2019.pdf

Burns, C. (2021). *Tech-driven start-ups deliver a boost to Angola's economy*. Euronews. https://www.euronews.com/2019/12/19/tech-driven-start-ups-deliver-a-boost-to-angola-s-economy

Castan-Broto, V. (2017). Energy landscapes and urban trajectories towards sustainability. *Energy Policy* 108, 755–764. doi:10.1016/j.enpol.2017.01.009.

Climate Action Tracket (CAT) (2021) https://climateactiontracker.org/countries/gambia/

Christophers, B., 2017. Climate change and financial instability: Risk disclosure and the problematics of neoliberal governance. Annals of the American Association of Geographers, 107(5), pp.1108-1127.

Cloete, B.; Kaziboni, L.; Ramkalowan, Y.; Iddrisu, A.M.; Ohemeng, W. (2019) *The macro-economic impact of two different industrial development pathways in Ghana.* Report commissioned by the African Centre for Cities and the Coalition for Urban Transitions.

Colenbrander, S., Gouldson, A., Roy, J., Kerr, N., Sarkar, S., Hall, S., et al. (2016). Can low-carbon urban development be pro-poor? The case of Kolkata, India. *Http://Dx.Doi.Org/10.1177/0956247816677775* 29, 139–158. doi:10.1177/0956247816677775.

Damania R, Wheeler D. 2015. Road improvement and deforestation in the Congo Basin countries. Policy Res. Work. Pap. 7274, World Bank, Washington, DC

De Oliveira, R.S. (2007) Oil and Politics in the Gulf of Guinea. Hurst Publishers.

Eberhard, A., Gratwick, K., Morella, E., and Antmann, P. (2016). *Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*. doi:doi:10.1596/978-1-4648-0800-5.

Elbehri, A. (2015). *Climate Change and Food Systems: Global assessments and implications for food security and trade*. Food and Agriculture Organization of the United Nations Available at: http://www.fao.org/3/a-i4332e/index.html.

Evans, P. (1995). *Embedded Autonomy: States and Industrial Transformation*. Princeton University Press.

Fischer-Kowalski, M. & Harbel, H. (2007). *Socioecological transitions and global change: Trajectories of social metabolism and land use*. Cheltenham, UK: Edward Elgar Publishing.

Fotso, A (2014), "The potential effects of the ECCAS Free Trade Area on Trade Flows", Trade Policy Training Centre in Africa, Arusha, Tanzania, p. 24. Available online at: https://mpra.ub.unimuenchen.de/59863/1/MPRA_paper_59863.pdf

Fraym. 2021. Economic Opportunities Along the Central African Road Corridor. Report prepared for UNECA.

Freymann, Eyck. "The Sponge Revolution." The Wire China, July 18, 2021. https://www.thewirechina.com/2021/07/18/the-sponge-revolution/.

Fuenfschilling, L., & Truffer, B. (2016). The interplay of institutions, actors and technologies in socio-technical systems—An analysis of transformations in the Australian urban water sector. *Technological Forecasting and Social Change*, *103*, 298-312.

Gallerotti, G (1995) It pays to be green. Columbia Journal of World Business. Winter: 38-57.

Geels, B. F. W., Benjamin, K., Schwanen, T., and Sorrell, S. (2017). Sociotechnical transitions for deep decarbonization. Science (80-.). 367, 4–7.

Geels, F. W., and Kemp, R. (2007). Dynamics in socio-technical systems : Typology of change processes and contrasting case studies. Technol. Soc. 29, 441–455. doi:10.1016/j.techsoc.2007.08.009.

Guterres, A (2021) UN Secretary General on launching the IPCC's Sixth Assessment Report 9 August 2021. https://www.reuters.com/business/environment/what-they-said-about-code-red-un-climate-science-report-2021-08-09/

Hajer, M (1995) The politics of environmental discourse. Oxford University Press.

Hajer, M. et al. (2015) Beyond cockpit-ism: four insights to enhance the transformative potential of the sustainable development goals. Sustainability 7, 1651–1660.

Hertwich, E. G., Gibon, T., Arveson, A., Bayer, P., Bouman, E., Bergesen, J., Heath, G., de Larderel, J. S., Ramirez, A., & Sun, S. (2015). *Green Energy Choices: The Benefits, Risks, and Trade-Offs of Low Carbon Technologies for Electricity Production - Technical Summary: Vol. Report for*. UNEP.

Hoare A. (2015). Tackling Illegal Logging and the Related Trade: What Progress and Where Next? London,UK: Chatham House, R. Inst. Int. Aff.

IISD (2021) https://sdg.iisd.org/news/wto-report-highlights-programmes-to-strengthen-africas-trade-capacity/

ILO (1989) Evaluation de programmes spéciaux de travaux publics. Evaluation de programme élargi dans lespréfectures de Ruhengeri et Gitarama. Evaluation finale des infrastructures routières dans le préfecturede Gitarama (ILO, Geneva, 1989).

Inkoom et al., (2019). Half a Decade of Implementation of Ghana's Urban Policy. Background Paper for the Revision of Ghana's National Urban Policy.

International Energy Agency (IEA) (2019) Renewable (2019) Market Analysis and Forecaste. https://www.iea.org/reports/renewables-2019

International Energy Agency (IEA) (2021) Net-Zero by 2050 https://www.iea.org/reports/net-zero-by-2050.

International Resource Panel. (2019). Global resources outlook: Natural resources for the future we want. Nairobi: UNEP

IPCC (2018) Glossary: Special Report: Global Warming of 1.5 °C. https://www.ipcc.ch/sr15/chapter/glossary/

IPCC, (2018). Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R.

Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (Eds).

IPCC, (2021). Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

IRENA (2020) Global Landscape of Renewable Energy Finance https://irena.org/publications/2020/Nov/Global-Landscape-of-Renewable-Energy-Finance-2020

Jacobs, M. (2021) "Western economies can't return to business as usual after the pandemic." Guardian op-ed. https://www.theguardian.com/commentisfree/2021/aug/31/western-economies-business-as-usual-pandemic-free-markets

Jaglin, S. (2014) Regulating service delivery in Southern Cities. In Parnell et al (eds) Rethinking urban heterogeneity. Routletdge Handbook of Southern Urbanism.

James R, Washington R, Rowell D. (2013). Implications of global warming for the climate of African rainforests. Philos. Trans. R. Soc. B 368:20120298

Jennings, R., and Oldiges, C. (2020). Understanding Poverty in Africa. Oxford Poverty Hum. Dev. Initiat., 1–20. Available at: www.ophi.org.uk.

Kallis, G. (2011). In defence of degrowth. Ecol. Econ. 70, 873–880. doi:10.1016/j.ecolecon.2010.12.007.

Kebede, G. 2019. Sustainable urban development in Africa, in Mebratu, D. & Swilling, M. (Eds) Transformational Infrastructure for development of a Wellbeing Economy in Africa. Stellenbosch: Africa Sun Media.

Kelsall, T. (2013). *Business, Politics and the State in Africa*. Zed Press.

Khan, M. (2004). State Failure in Developing Countries and Institutional Reform Strategies. In B. Tungodden Stern, N. and Kolstad,I. (Ed.), *Toward Pro-Poor Policies: Aid, Institutions and Globalization*. Oxford University Press.

Kidmo, D. K., Deli, K., and Bogno, B. (2021). Status of renewable energy in Cameroon. *Renew. Energy Environ. Sustain.* 6, 2. doi:10.1051/rees/2021001.

Langley, P. and Morris, J.H., 2020. Central banks: Climate governors of last resort?. Environment and Planning A: Economy and Space, 52(8), pp.1471-1479.

Langley, P., Bridge, G., Bulkeley, H. and van Veelen, B., 2021. Decarbonizing capital: Investment, divestment and the qualification of carbon assets. Economy and Society, pp.1-23.

Lawrence, T. B., & Suddaby, R. (2006). Institutions and Institutional Work. *The Sage Handbook of Organization Studies*, 215–254. https://criticalmanagement.uniud.it/fileadmin/user_upload/lawrence-suddaby-2006.pdf

Leftwich, A. (1995). Bringing Politics Back In: Towards a Model of the Developmental State. *Journal of Development Studies*, 31(3).

Lin, J, Y. (2010) New Structural Economics : A Framework for Rethinking Development. Policy Research Working Paper;No. 5197. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/19919 License: CC BY 3.0 IGO.

Massink, L. (1991) Promoting Popular Participation and Women's Involvement in Rural Infrastructure. Construction. Experiences from the ILO SPWP in Kordofan, Sudan (ILO, Geneva, 1991).

Mazzucato, M and Dibb, G (2019). Missions: A beginner's guide. *UCL Institute for Innovation and Public Purpose*. https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/iipp_policy_brief_09_missions_a_beginners_guide.pdf

Mazzucato, M., Qobo, M., and Kattel, R. (2021). Building state capacities and dynamic capabilities to drive social and economic development: The case of South Africa.

Mebratu, D. (2019) Indicators on transformational infrastructure for a wellebing economy, D. Mebratu & M. Swilling (eds). 2019. Transformational Infrastructure for Development of a Wellbeing Economy in Africa. Stellenbosch: African Sun Media.

Mebratu, D. (2019). Transformational Leapfrogging for Wellbeing Economy in Africa, in Mebratu, D. & Swilling, M. (Eds) Transformational Infrastructure for development of a Wellbeing Economy in Africa. Stellenbosch: Africa Sun Media.

Mebratu, D. & Swilling, M. (Eds). (2019) Transformational Infrastructure for development of a Wellbeing Economy in Africa. Stellenbosch: Africa Sun Media

Milner, J., Davies, M., and Wilkinson, P. (2012). Urban energy, carbon management (low carbon cities) and co-benefits for human health. *Curr. Opin. Environ. Sustain.* 4, 398–404. doi:10.1016/j.cosust.2012.09.011.

Mkandawire, T. (2001) Thinking About Developmental States in Africa. *Cambridge Journal of Economics*, 25, 289–313.

Mkandawire, T. (2011) Institutional Monocropping and Monotasking in Africa. In N. Akbar, K. Botchwey, H. Stein, & J. Stiglitz (Eds.), *Good Growth and Governance in Africa: Rethinking Development Strategies*. Oxford Scholarship Online. https://doi.org/10.1093/acprof:oso/9780199698561.003.0003

Nem Singh, J., & Chen, G. C. (2018) State-owned enterprises and the political economy of state–state relations in the developing world. *Third World Quarterly*, *39*(6), 1077–1097.

Niang, I., O.C. Ruppel, M.A.Abdrabo, A. Essel, C. Lennard, J. Padgham, and P. Urquhart, (2014) 'Africa'. In Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (ed.). Intergovernmental Panel on Climate Change (IPCC) and Cambridge University Press, Cambridge, United Kingdom and New York, pp. 1199-1265. https://ipccwg2.gov/AR5/images/uploads/WGIIAR5-PartA_FINAL.pdf.

Nkomo, S. M. (2011). A postcolonial and anti-colonial reading of "African" leadership and management in organization studies: Tensions, contradictions and possibilities. *Organization* 18, 365–386. doi:10.1177/1350508411398731.

Noman, A., Botshwey, K., Stein, H., & Stiglitz, J. (2011). *Good Growth and Governance in Africa: Rethinking Development Strategies*. Oxford Scholarship Online. https://doi.org/10.1093/acprof:oso/9780199698561.001.0001

Oppong, N., Patey, L., & de Oliveira, R. (2020). Governing African oil and gas: Boom-era political and institutional innovation. *The Extractive Industries and Society*, *7*, 1163–1170.

Ouma S, Johnson L, Bigger P. Rethinking the financialization of 'nature.' *Environment and Planning A: Economy and Space*. 2018;50(3):500-511. doi:10.1177/0308518X18755748

Ovadia, J., & Wolf, C. (2018). Studying the developmental state: theory and method in research on industrial policy and state-led development in Africa. *Third World Quarterly*, *39*(6), 1056–1076. https://doi.org/10.1080/01436597.2017.1368382

Oyewole, B. (2016) Strengthening development linkages from the mineral resource sector in ECCAS countries. New York: UN (https://unctad.org/meetings/en/Presentation/Congo_28092016_R1_Babafemi_Oyewole_En.pdf)

Paller, J. (2019) Democracy in Ghana. Everyday Politics in Urban Africa. Cambridge University Press.

Petrou, A and Thanos, I. (2014) The "grabbing hand" or the "helping hand" view of corruption: evidence from bank foreign market entries. J. World Bus., 49 (3) (July 2014), pp. 444-454

Pitcher, A., Moran, M. H., & Johnston, M. (2009). Rethinking Patrimonialism and Neopatrimonialism in Africa. *African Studies Review*, *52*(01), 125–156. https://doi.org/10.1353/arw.0.0163

Ramdoo, I; Cosbey, A; Geipel, J and Toledano, P. (2021) New tech; new deal: mining policy options in the face of new mining technology. https://www.iisd.org/system/files/2021-09/new-mining-technology-policy-options.pdf

REN21 (2021) Renewables 2021. Global Status Report. https://www.ren21.net/gsr-2021/

Rifkin, J. (2011). *The third industrial revolution: How lateral power is transforming energy, the economy and the world*. New York: St. Martin's Griffin.

Rock, M., Murphy, J. T., Rasiah, R., van Seters, P., & Managi, S. (2009). A hard slog, not a leap frog: Globalization and sustainability transitions in developing Asia. *Technological Forecasting & Social Change*, *76*, 241–254.

Rozenberg, J., and Hallegatte, S. (2015). The Impacts of Climate Change on Poverty in 2030 and the Potential from Rapid, Inclusive, and Climate-Informed Development. doi:10.1596/1813-9450-7483.

Rwanda Development Board. (2021). *ICT infrastructure*. Visit Rwanda. https://www.visitrwanda.com/investment-opportunities/ict/

Sachs, J., G. Schmidt-Traub, C. Kroll, G. Lafortune and G. Fuller. 2019. *Sustainable Development Report 2019*. New York: Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN).

Salinas, G. (2021) Proximity and Horizontal Policies: The Backbone of Export Diversification and Complexity. IMF Working Paper 21/64.

Samson, L. (2019). *This Angolan innovation hub is helping to transform the nation's creative sector*. Design Indaba. https://www.designindaba.com/articles/creative-work/angolan-innovation-hub-helping-transform-nation%E2%80%99s-creative-sector

Schwab, K. (2018). *Shaping the fourth industrial revolution*. Geneva: World Economic Forum.

Smith, A., Voβ, J.-P. & Grin, J. (2010) Innovation studies and sustainability transitions: the allure of a multi-level perspective and its challenges. Res. Policy 39, 435–448 (2010).

Sovacool, B. K. (2020). Is sunshine the best disinfectant? Evaluating the global effectiveness of the Extractive Industries Transparency Initiative (EITI). *Extr. Ind. Soc.* 7, 1451–1471. doi:10.1016/j.exis.2020.09.001.

Steg, L., Perlaviciute, G., and van der Werff, E. (2015). Understanding the human dimensions of a sustainable energy transition. *Front. Psychol.* 6, 1–17.

Sub-Regional Office for Central Africa of the United Nations Economic Commission for Africa (ECA/SRO-CA) (2017) Made in Central Africa: from the vicious circle to virtuous circle – Yaounde, Cameroon.

Sullivan, S. (2018) Making nature investable: from legibility to leverageability in fabricating "nature" and "natural capital". Science and Technology Studies, 31(3): 47-76.

Swilling, M. 2020. The age of sustainability: Just transition in a complex world. Routledge Publishers.

Swilling, M. (2016a). Africa's game changers and the catalysts of social and system innovation. *Ecology and Society*, *21*(1), 1–37.

Swilling, M. (2016b). Africa's game changers and the catalysts of social and system innovation. *Ecology and Society*, *21*(1). https://doi.org/10.5751/ES-08226-210137

Tahari, A; Dhaneshwar Ghura, Bernardin Akitoby, and Emmanuel Brou Aka (2004) "Sources of Growth in Sub-Saharan Africa", International Monetary Fund, Working Paper N° WP/04/176, September 2004. Online at: https://www.imf.org/external/pubs/ft/wp/2004/wp04176.pdf

Tafirenyika, M. (2011). Information technology super-charging Rwanda's economy. Africa Renewal. https://www.un.org/africarenewal/magazine/april-2011/information-technology-super-charging-rwandas-economy

Terheggen, A. 2011. The Tropical timber industry in Gabon: a forward linkages approach to industrialisation. Centre for Social Science Research (PRISM), University of Cape Town. Online at https://mpra.ub.uni-muenchen.de/37976/ MPRA Paper No. 37976, posted 10 Apr 2012 14:47 UTC

Umulisa, A; Bower, J; Siwale, T; Masubo, V; Asare, J; Imbert, C (2020) Jobs in a crisis: Principles of effective public employment programmes. RWA 2021/2. https://www.theigc.org/wp-content/uploads/2020/11/Bower-et-al-2020-Policy-Brief-1.pdf

United Nations, 2015, Transforming our World: 2030 Agenda for Sustainable Development, New York: UN.

United Nations. General Assembly resolution 70/293 on the Third Industrial Development Decade for Africa (2016–2025), adopted on 25 June 2016.

United Nations (2020). Roadmap for digital cooperation. 1–37. Available at: https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf.

United Nations (UNCTAD and UNIDO) (2011) Economic Development in Africa Report 2011, "Fostering Industrial Development in the New Global Environment".

UNCTAD (2004) World Investment Report. The Shift Towards Services. https://unctad.org/system/files/official-document/wir2004_en.pdf

UNCTAD (2021) UNCTAD Stat. Available at: https://unctadstat.unctad.org/wds/TableViewer/summary.aspx

United Nations Conference on Trade and Development. (2012). *Economic Development in Africa Report 2012: Structural Transformation, Decoupling and Sustainable Development in Africa*. United Nations Conference on Trade and Development.

UNDESA (United Nations Department of Economic and Social Affairs). 2014.World urbanization prospects, 2014 Revisions. New York: UNDESA.

United Nations Development Program (UNDP). 2021. Human Development Report 2020: The next frontier: Human development and the anthropocene. New York:United Nations.

UNECA (United Nations Economic Commission for Africa). Urbanization and industrialization for Africa's transformation, Addis Ababa: UNECA

United Nations (ECA), 2015 Economic Report on Africa: "Industrialization through Trade", p. 103.

United Nations Economic Commission for Africa. (2016). *Greening Africa's Industrialization: Economic Report on Africa*. United Nations Economic Commission for Africa.

UNECA (2017) Made in Central Africa. https://www.uneca.org/sites/default/files/SROs/Central-Africa/Economic-opportunities-CA-road-corridor/Economic-Opportunities-Along-the-Central-African-Road-Corridor_21April2021.pdf

UNECA (United Nations Economic Commission for Africa). 2018. *Financement de l'industrialisation en Afrique Centrale*. Addis Ababa: UNECA.

UNECA. (2019). *Digital Transformation and Economic Diversification in Central Africa: Issues, Challenges and Opportunities*. ICE 2019.

UNECA. 2020. Economic Report on Africa 2020: Innovative Finance for Private Sector Development in Africa Development in Africa

UNECA. 2021. Economic Opportunities along the Central African Road Corridor. Addis Ababa: UNECA

United Nations. Economic Commission for Africa. Subregional Office Central Africa (SRO-CA) (2017). Report of the thirty-third Session of the Intergovernmental Committee of Experts for Central Africa. UN. ECA Intergovernmental Committee of Experts for Central Africa (ICE) Meeting (33rd Session:2017), Sep. 26-29:Douala, Cameroon. Addis Ababa.

United Nations (ECA) and African Union Commission (AUC), Economic Report on Africa (ERA) 2013: "Making the Most of Africa's Commodities: Industrializing for Growth, Jobs and Economic Transformation", p. 132.

United Nations Economic Commission for Africa & African Union. (2014). *Dynamic Industrial Policy in Africa*. United Nationsl Commission for Africa.

United Nations Environment Programme. 2012. Responsible resource management for a sustainable world: Findings from the International Resource Panel. Nairobi: UNEP.

United Nations Environment Programme (UNEP). 2014. Managing and conserving the natural resource base for sustained economic and social development: A reflection from the International Resource Panel. Nairobi: UNEP.

UNEP. 2016. *Sixth Global Environment Outlook (GEO 6) for Africa*. Nairobi: UNEP

United Nations Environment Programme (2020). *Emissions Gap Report 2020*. Nairobi.

United Nations Industrial Development Organization (UNIDO). 2021. Joint Roadmap for the Implementation of IDDA III. Vienna: UNIDO.

UNFCCC (2016) "The concept of economic diversification in the context of response measures." Technical paper by the secretariat (FCCC/TP/2016/3).

UNIDO and GGGI (2015), Global Green Growth: Clean Energy Industry Investments and Expanding Job Opportunities. Volume I: Overall Findings. Vienna and Seoul. Available online at:

https://www.unido.org/fileadmin/user_media/Services/PSD/GLOBAL_GREEN_GROWTH_REPORT_vol1_final.pdf.

UNU-INRA (2019). Africa's Development in the Age of Stranded Assets. United Nations Univ. Institite Nat. Resour. Africa. Available at: https://i.unu.edu/media/inra.unu.edu/publication/5247/DIscussion-paper-Africas-Development-in-the-age-of-stranded-Assets_INRAReport2019.pdf.

Van den Bergh, J. C. J. M. (2011). Environment versus growth - A criticism of "degrowth" and a plea for "a-growth." Ecol. Econ. 70, 881–890. doi:10.1016/j.ecolecon.2010.09.035

Way, R., Ives, M., Mealy, P. & Farmer, J.D. (2021). 'Empirically grounded technology forecasts and the energy transition'. INET Oxford Working Paper No. 2021-01.

Whitfield, L., Therkildsen, O., Buur, L., & Kjaer, A. (2015). *The Politics of African Industrial Policy*. Cambridge University Press.

World Bank (2020) "The African Continental Free Trade Area: Economic and Distributional Effects." Available at: doi:10.1596/978-1-4648-1559-1

Zelleke, G; Abdulwahab Sraiheen and Keshav Gupta (2013) "Sources of Economic Growth in 31 Sub-Sahara African Countries for the Period 1975–2008: A Growth Accounting Approach", International Journal of Economics and Finance; Vol. 5, No. 10; 2013. Online at: http://ccsenet.org/journal/index.php/ijef/article/download/30652/18068