UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

The G20 Initiative on "Supporting Industrialization in Africa and LDCs"

Review of progress

2 October 2019

Contents

Abstract

The G20 Leaders' Summit in Hangzhou, China, in September 2016, launched the 'G20 Initiative on Supporting Industrialization in Africa and Least Developed Countries'. This voluntary initiative on industrialization addresses a core development challenge. All G20 members surveyed for this report argued that the initiative has been 'somewhat effective'. Unfortunately, there is also a lack of awareness of the initiative. More generally, G20 members acknowledged it is very difficult to establish a direct link between the G20 initiative and subsequent actions to help countries industrialize. Awareness is a challenge in the recipient's side too. While industrialization was confirmed to be among the respective national development priorities, only four out of 19 respondents of the surveyed African countries, and one Asian LDC, stated they had some awareness of the initiative.

Encouragingly, the initiative is well conceived and tackles crucial gaps in the development challenge, such as the low level or even falling levels of industrialization as measured by the share of manufacturing in GDP. However, the theory of change behind the G20 initiative shows some weaknesses in crucial areas. For example, the initiative could have led to more and better global discussions or could have raised more awareness of the industrialization challenges in Africa and LDCs. On the positive side, the initiative has been consistent with the increased attention given to industrialization by some donors recently, including from G20 members. This specific initiative may also have contributed to the development of other G20 initiatives in the area of industrialization such as the Compact with Africa. The initiative has not been accompanied directly by specific additional measures, implying that there is little evidence that African countries and LDCs have been supported by this G20 initiative. That being said, several related G20 measures may have had direct and indirect effects.

G20 members need to be aware that business as usual is not going to reverse the decline in industrialization (share of manufacturing in GDP) currently happening in many of the poorest countries. Of course, low income countries need to make a step-change in implementing stated industrialization policies to reach their ambitions. But importantly, this report suggests three low cost actions by the G20 and its members to support implementation of industrialization measures. First, the G20 could put a greater spotlight on industrialization, particularly when focusing on Africa and LDCs. Second, the G20 agenda could continue to report on progress on the initiative and link it more systematically to other G20 initiatives and the G20 2030 Agenda Action Plan. And third, there could be stronger collaboration between G20 Members and beneficiaries around practical measures for industrialization and the development of toolkits around such practical measures.

1 Background

1.1 Introduction and background on the G20 initiative

Industrialization is a critical component in economic transformation, job creation and the achievement of the Sustainable Development Goals (SDGs). This report reviews progress on a voluntary initiative introduced by the Hangzhou G20 Summit to support industrialization in African and Least Developed Countries (LDCs). It provides background to the initiative, discussing how it is expected to support industrialization and reviewing the actions that G20 countries are undertaking to support industrialization in Africa and LDCs. The G20 Initiative on Supporting Industrialization in Africa and LDCs, which we refer to as "the G20 initiative" or "the G20 initiative on industrialization" in this report, has put forward an important concept which is meant to encourage voluntary policy action in G20 areas related to industrialization.

Unfortunately, industrialization has not advanced much in recent years in Africa and LDCs, though with notable variations, and hence further policy attention is required. Encouragingly, there appears to be evidence that G20 countries have put in place further measures to support industrialization in Africa and LDCs, which is consistent with the Hangzhou statement and the SDGs, and particularly SDG 9. A renewed and focused attention at the G20 could consolidate such efforts further.

The declaration of the G20 leaders' summit in Hangzhou, China, in September 2016, launched the 'G20 Initiative on Supporting Industrialization in Africa and Least Developed Countries'[1]. Specifically, paragraph 35 states

> *"We launch the G20 Initiative on Supporting Industrialization in Africa and LDCs to strengthen their inclusive growth and development potential through voluntary policy options including: promoting inclusive and sustainable structural transformation; supporting sustainable agriculture, agri-business and agro-industry development; deepening, broadening and updating the local knowledge and production base; promoting investment in sustainable and secure energy, including renewables and energy efficiency; exploring ways to develop cooperation on industrial production and vocational training and sustainable and resilient infrastructure and industries; supporting industrialization through trade in accordance with WTO rules; and leveraging domestic and external finance and supporting equitable access to finance - with a focus on women and youth; and promoting science, technology and innovation as critical means for industrialization."*

[1] http://www.g20.utoronto.ca/2016/supporting-industralization.html

This initiative came at the request of the Chinese Presidency. The United Nations Industrial Development Organization (UNIDO) facilitated a range of discussions and drafted a report on the challenges and opportunities in Africa and LDCs for the G20 Development Working Group[2] 'Industrialization in Africa and Least Developed Countries. Boosting growth, creating jobs, promoting inclusiveness and sustainability.'

Appendix A includes the outcome text of the G20 initiative. It concludes that "the Development Working Group (DWG) will follow up on this initiative with relevant work streams and ask UNIDO and relevant International Organizations to report back to the DWG in 2018 for a review of actions taken to address the above policy options". This process started and this progress report in three sections forms part of it. The rest of Section 1 contains background on the initiative, and how it is expected to support industrialization in Africa and LDCs, followed by a discussion on progress in industrialization and factors affecting it. Section 2 includes a stock taking of actions in support of the G20 initiative by G20 members. Section 3 concludes and discusses suggestions for the future, informed by a survey conducted among G20 members as well as African countries and LDCs.

1.2 The G20 initiative and industrialization: expected pathways

From the outset in 2016, the G20 initiative on industrialization was designed to be a voluntary initiative, which was meant to inform other future initiatives in the G20. The statement argues that "[i]ndustrialization plays an important role in eliminating absolute poverty and promoting sustainable development" and also that industrialization faces a range of barriers including poor infrastructure, weak logistics, lack of integration and absence of accreditation systems. To address these constraints, the initiative suggests that the G20 will consult and consider the following voluntary policy options:

- Collaborate in promoting inclusive and sustainable structural transformation and industrialization in Africa and LDCs through knowledge sharing;
- Support sustainable agriculture, agri-business and agro-industry development and their linkages with other sectors;
- Strengthen skills development for youth;
- Promote investment in sustainable and secure energy, renewables and energy efficiency, and sustainable and resilient infrastructure;

[2] https://www.unido.org/news/unido-publishes-report-industrialization-africa-and-least-developed-countries-g20-summit

- Industrialise through trade and public-private partnerships (PPPs) in sustainable infrastructure;
- Support equitable access to finance for women and youth; and
- Promote science, technology and innovation.

Appendix A, which presents the whole initiative, provides more details and clarifies that these policy options are aimed specifically at industrialization. This targeted focus distinguishes the initiative from many other economic policy initiatives, which tend to be of a more general economic nature.

An assessment of the initiative would consider the following steps:

- Has the initiative led to global discussions and awareness of industrialization in Africa and LDCs?
- Has it inspired new G20 measures directly (either collectively or individually)?
- Has it directly influenced individual policies in G20 countries, or global policies?
- Has it had any other, indirect influences?
- And finally, have industrialization patterns in Africa and LDCs improved?

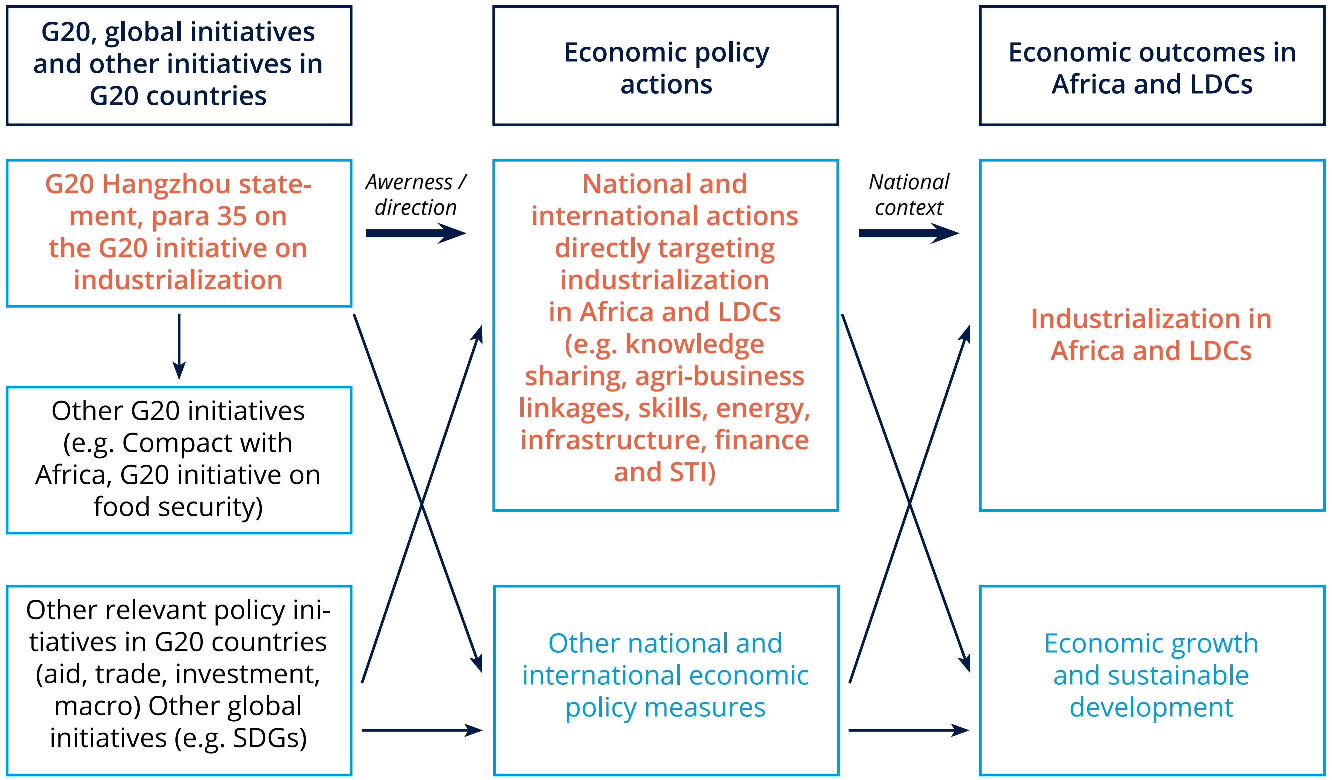
Figure 1 presents the proposed theory of change for the initiative. The G20 Initiative on Industrialization contains a range of voluntary aspirations (red box in the first column) and these are expected to trigger policy action in areas beyond, but related to, industrialization, other G20 policy actions or other global initiatives and national economic initiatives in G20 countries.

Initiatives in and by G20 countries may inspire economic policy actions. The G20 initiative on industrialization could lead to new and better actions to promote industrialization in Africa and LDCs (the orange arrow between the first and second column) as well as other economic development policy actions. Of course, many initiatives in the G20 (collectively and individually) may play a role, and these could have been inspired by the G20 Initiative on industrialization.

Economic policy actions (second column) can lead to economic policy outcomes, mediated by the national context (which is crucial, but which this report does not tackle in much detail). Policy actions specifically targeting industrialization as envisaged by the G20 Initiative on industrialization could have direct effects on industrialization in Africa and LDCs (the orange arrow between the second and third column). They can also have impacts on economic progress generally. There are also other economic policies which can affect industrialization and economic development more generally.

Whilst the ultimate objective is industrialization, a key driver of development, the G20 Initiative on industrialization should be assessed on how it has been able support policy actions directly aimed at this, through the orange arrows in figure 1, in addition to any indirect pathways.

Figure 1 Assessing the G20 Hangzhou initiative on industrialization



Source: Authors.

1.3 Current trends in industrialization in Africa and LDCs

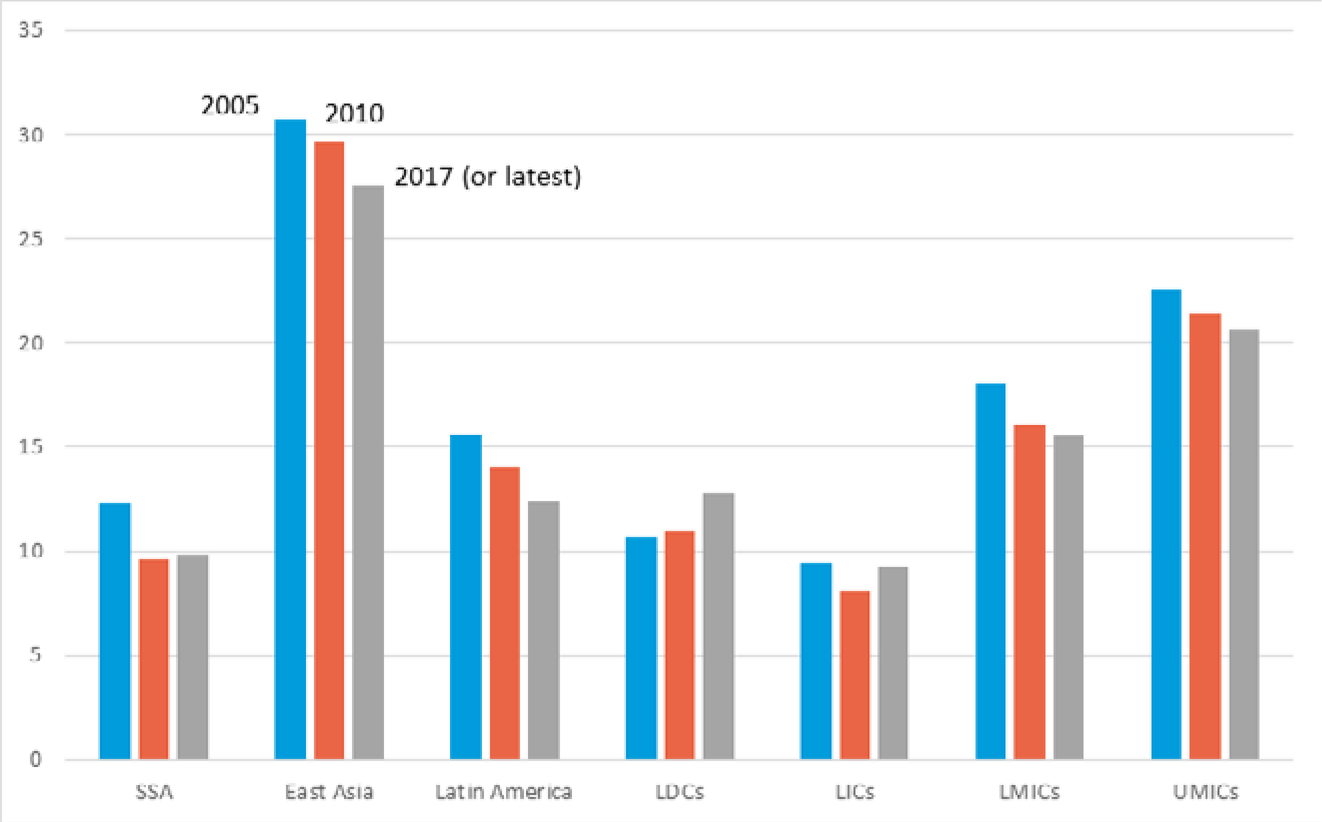
Moving labour out of low-productivity agriculture and into higher-productivity manufacturing is crucial for economic transformation in Africa (McMillan et al., 2017). Expanding manufacturing production and exports, and increasing their sophistication, can drive industrialization and create much-needed jobs. Export-led manufacturing has so far been the only proven model to drive economic transformation and boost employment in a sustained way (Balchin et al., 2016). This is evident in the experiences of many Asian countries, which have shown that export-intensive manufacturing can generate significant numbers of jobs. Countries such as Bangladesh, China, Malaysia and Viet Nam have developed light manufacturing – by building textiles and garment industries – to kick-start industrialization.

The lessons from successful experiences of economic transformation, such as those of East and South East Asian countries, are more subtle than is perhaps commonly thought. Ansu et al. (2016) argue that the form of the institutional arrangements behind economic transformation did not follow a single pattern. As the institutional forms have been quite varied, it is better to think about performing core functions that are central to development and transformation everywhere. **The Asian and African countries that have implemented economic transformation strategies successfully have focused on four characteristics:** (i) establish economic transformation as a nation-building project; (ii) provide leadership and co-ordination within government; (iii) establish effective mechanisms for public-private sector collaboration; and (iv) facilitate explicit experimentation, feedback and correction.

Economic transformation and industrialization have been crucial factors behind development progress. A clear example is that of Ghana and Korea which had a similar gross domestic product (GDP) per capita in the 1960. Now, Korea is a high-income country having transformed its production structures and reduced poverty substantially, whilst Ghana still is a lower middle income country, with a lack of industry or high productivity services and high poverty rates. More generally, many Asian Tigers have transformed whilst most of Sub-Saharan African countries (SSA) have not.

Industrial development is often measured by its share in GDP. Figure 2 shows the share of manufacturing (which is one component in industry) in GDP. Africa's share is lowest amongst region, particularly in SSA. The share of LDCs is much lower than lower and upper middle income countries. In many countries the share has declined. Interestingly, the share in LDCs has increased and is higher than in Low Income Countries (LIC), which can be explained mainly by the strong manufacturing performance in Asian LDCs such as Cambodia, Bangladesh and Laos, on the basis of garment exports.

Figure 2 Manufacturing share in GDP, by region and income group, 2005-2017



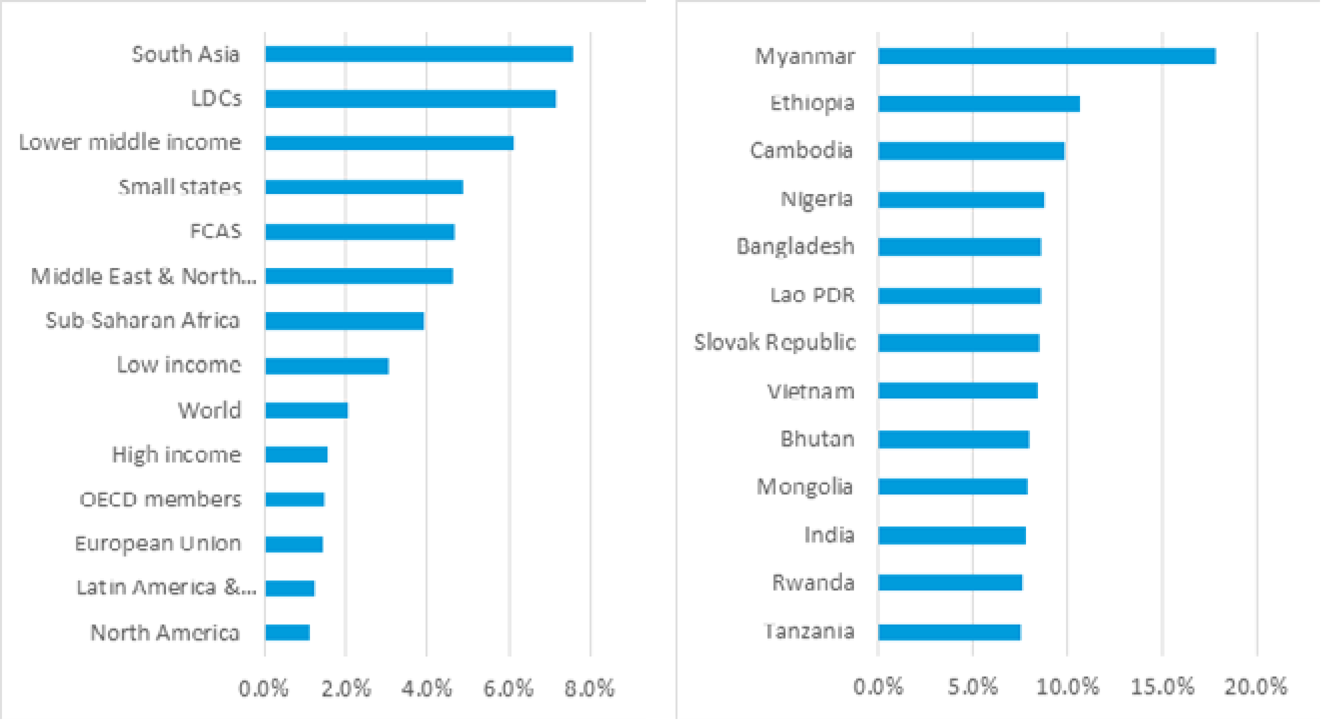
Source: World Development Indicators

Several regions and countries have seen their share of manufacturing in GDP decline, and earlier in their development path than was previously the case. Rodrik (2015) pointed to the concept of premature deindustrialization. Normally, countries increase their manufacturing share in GDP as they develop and reduce the share of agriculture but at some point decrease it when the services sector takes over. That manufacturing peak was reached at above 25% pre-1990, but post-1990 is happening faster than previously. Countries are reaching their peaks at an earlier point in time, and it is more difficult for later developers to enter into manufacturing production which has become more capital intensive. The production process has also become more specialised with many services activities undertaken outside the manufacturing firms or sector. On the other hand, the share of services in traded goods is increasing rapidly throughout developing countries.

Even if premature deindustrialization exists in Africa (an alternative view is that Africa never had a good start), **there is still scope for increases in both the share and volume of manufacturing.** Even if the future peak suggested by the empirical literature would be much lower than in the past, the share of manufacturing in African GDP is currently only around 10%.

Whilst the share of manufacturing may have decreased in many economies, and manufacturing will look different in the future, being increasingly part of value chains or combined with a highly digitized service sector (see Section 1.6), we should also note that **real manufacturing production has increased at a faster rate in Africa and LDCs than in many other groupings,** pointing to some progress, albeit starting from a low base. Figure 3 shows that LDCs and SSA have witnessed faster growth in manufacturing since 2000 than High Income Countries (HIC) or Latin America. Several LDCs and African countries feature in the top 13 fastest growers, achieving remarkable growth over 7.5% per annum.

Figure 3 Annual growth in manufacturing 2000-2017 (groups, left, and top 13, right)



Source: World Development Indicators (no data for China)

While the share of manufacturing in GDP in sub-Saharan Africa declined from 18% in 1975 to 11% in 2015, manufacturing production has nearly doubled since 2000, from $85 billion in 2000 to more than $160 billion in 2015 (in constant 2010 prices). African manufacturing has grown at 3.5% annually in real terms over the past decade, more than in developed countries. Some African countries have done better than others (figure 3). Successful examples of manufacturing production include automobile assembly and production in South Africa, garments in Mauritius and East Africa and consumer goods across the continent. African exports to the US under AGOA has reached around US$ 1 billion in recent years, led by Kenya, Lesotho, Madagascar and now also Ethiopia.

Annual average growth in manufacturing exports between 2005 and 2014 was highest in Asia (8.3%), followed by Africa (7.4%), and much lower in Europe (4.3%), the Americas (3.9%) and Oceania (2.7%). Africa's manufacturing share increased marginally from 0.8% to 0.9%. Manufacturing foreign direct investment (FDI) rose in a group of nine African countries between 2003–2006 and 2010–2014, apart from Nigeria. Greenfield FDI in African textiles, clothing and leather increased from $1bn in 2016 to $4bn in 2017. The food and beverages sector is the dominant manufacturing sector, followed by textiles and clothing.

1.4 Experiences in Africa and LDCs

The Agenda 2063 of the African Union (AU) is highly consistent with the G20 Initiative on Industrialization through its prioritization of economic transformation and industrialization There are a range of regional industrialization strategies completed or in the making in the East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC), see OECD (2018).

Triggering and maintaining the momentum for the development and implementation of industrialization plans at the national level has been difficult. The following discusses a range of different national industrialization models and the implementation challenges they face to clarify the importance of national context in driving industrialization. International initiatives can support but never replace national efforts.

The Government of **Ethiopia** has taken serious steps to move away from an agricultural-led development strategy towards a manufacturing-led strategy. In recent years, it has built a number of industrial parks and the ambition is to have up to 20-30 parks by the end of 2020, building on the success of the Hawassa Industrial Park. Thanks to a focused approach to investment attraction and an infrastructure push supported by donors such as China, the UK, and Italy, and international organizations and institutions such as the European Investment Bank (EIB), the World Bank and UNIDO, Ethiopia's exports of garments have increased dramatically, doubling in the past year albeit from a low base. However, manufacturing and exports still have a very low share in GDP and challenges for trade facilitation and skills persist.

The Government of **Kenya** has developed a range of policies, strategies and measures to promote industrialization as part of President Kenyatta's 'Big Four' agenda, which prioritises manufacturing, building on past strategies such as Vision 2030 and the Kenya Industrial Transformation Programme (KITP). The KITP and the Big 4 agenda aims to create 1 million jobs, grow domestic and Foreign Direct Investment (FDI) fivefold and increase the contribution of manufacturing to 15% of GDP in 2022 (it is currently less than 10%). Whilst there is new attention to the role of SMEs, the implementation of SEZs appears much slower than in Ethiopia. Donor agencies such as the Trade Mark East Africa are supporting the reduction in trade costs and enhancing industrial capabilities.

The government of **Rwanda's** second Economic Development and Poverty Reduction Strategy (EDPRS2), which outlined its economic strategy for 2012-2017, initially had a strong emphasis on services, mostly in the form of electronics assembly, and paid little attention to manufacturing. However, the current five-year plan discussed in Rwanda's first National Strategy for Transformation (2017-2024) puts less faith in leapfrogging and is more explicit about promoting industrialization, job creation and exports, while maintaining the ambition to become a service-led economy.

There is some momentum behind **Tanzania's** ambitious industrialization agenda, but national implementation challenges persist. The government published its action plan for implementing the National Five Year Development Plan 2016/17-2020/21 (FDYP II), which prioritizes industrialization to drive economic transformation and human development. Implementation and further prioritization have often lagged. Plans have been constrained by a lack of coordination within the government and weak institutional conditions for implementation. Inadequate financing, and a lack of clarity on how to source the necessary finance, present persistent challenges. Little progress has been made in several areas accorded priority in the FYDP II, including the establishment of special economic zones and industrial parks.

Asian LDCs such as **Bangladesh, Cambodia, Myanmar and Laos** all have relatively large garment sectors built up on the back of attracting investors and contacts with global buyers making use of trade preferences in the European Union and the United States. These Asian LDCs have been much more successful in taking part in regional and global value chains compared to African countries. But these countries now face graduation but also challenges of diversification,

1.5 Conceptual interlinkages with other G20 initiatives and SDGs

The Developing Working Group of the G20 began in 2010 with a Seoul Consensus for Shared Growth. However, there was no mention of industrialization. The Chinese Presidency of 2016 made industrialization a core component of the G20's agenda. The Hangzhou G20 initiative on industrialization put the spotlight on industrialization in Africa and LDCs for the first time. However, a range of policy initiatives at G20 member states' national level as well as global initiatives directly or indirectly support industrialization. In particular, there were a range of policy announcements that contribute to industrialization such as on infrastructure (French Presidency in 2011), green growth (Mexican Presidency in 2012) or Food Security[3].

The German G20 Presidency of 2017 initiated the G20 Compact with Africa to promote private investment in Africa[4]. The primary objective is to increase attractiveness of private investment by improving the policy, business and financing frameworks. It co-ordinates a range of actors including African policy makers, international organizations and bilateral partners around country-specific policy agendas. Since its launch in 2017, twelve African countries have joined the Compact: Benin, Burkina Faso, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guinea, Morocco, Rwanda, Senegal, Togo and Tunisia. Whilst the focus seems to be on policy frameworks, it is interesting to note that some country action plans emphasize industrialization in a more targeted way, such as through the establishment of Special Economic Zones (SEZs) in Ethiopia. A high-level Compact with Africa meeting was held in Germany in late 2018 which further maintained the momentum, whilst an in-country visit to Ethiopia was followed by new investment commitments by G20 companies.

While the 2018 G20 Communique of the Argentinian Presidency paid little attention to industrial development, the priorities of the Japanese G20 presidency included free trade, science and technology, infrastructure, health, climate change, ageing, and SDGs. The resulting G20 Osaka leaders' declaration of 2019 clearly reiterated its "continued support to the G20 Africa partnership, including the Compact with Africa (CwA), with strengthened bilateral engagement by G20 members and enhanced roles for WBG, African Development Bank, and IMF in implementing the CwA, and the G20 initiative on supporting the industrialization of Africa and other relevant initiatives that contribute to the realization of the African vision as set out in the African Union's Agenda 2063." This is an important continuation of G20's support for industrialisation. Japan has also organised the Seventh Tokyo International Conference on African Development (TICAD VII) in August 2019, a meeting between Japanese and African leaders, continuing the focus on industrialization.

[3] *This item to develop with IFAD*
[4] *https://www.compactwithafrica.org/content/compactwithafrica/home.html*

The G20 has supported the process and outcome documents of the Sustainable Development Goals and the 2030 Agenda Action Plan. There are direct conceptual links between the G20 Initiatives, including the Initiative on Industrialization and the Agenda 2030. While industrialization notably can be linked to the Agenda as a whole, it is worth highlighting some particular examples. SDG 8 aims to promote inclusive and sustainable economic growth, employment and decent work for all. This includes work on innovation, productivity, diversification, job creation and growing enterprise. Even more specifically, SDG 9 aims to build resilient infrastructure, promote sustainable industrialization and foster innovation[5]. This includes inclusive and sustainable industrialization, upgrading of industrial technologies, and support for technology development and industrial diversification, which is at the core of UNIDO's programmatic activities and its mandate to support inclusive and sustainable industrial development.

Science, technology and innovation (STI) are key means of implementation of the SDGs and these issues have been at the forefront of the 2019 G20 presidency[6]. The G20 initiative on industrialisation is directly related to this.

1.6 Opportunities and challenges of Industry 4.0 and other mega trends for Africa and LDCs

Digitalization may shift the basis for competitiveness of manufacturing away from the cost of labour to factors such as connectivity and digital readiness. Over 1980-2010, African manufacturers faced strong competition from Asian manufacturers (especially in Bangladesh, Cambodia, China and Viet Nam), which mostly benefited from similar or lower wages, higher productivity, better infrastructure, access to a more skilled labour force and greater integration into global value chains (Balchin et al., 2016). Over the recent decade, many Asian countries have seen wages rising much faster than African countries, offering new opportunities for African countries at present.

The emergence of the fourth industrial revolution or digitalization involves rapid deployment of advanced technologies – such as 3D printing and robotics – with great potential to change the landscape of manufacturing. The firm level examples from Kenyan manufacturing in Banga and Velde (2018b) show that digital technologies and robotics help firms create efficiencies in production, which can increase their total factor productivity, leading to higher output and exports as well as creation of new jobs linked to these exports though the value chain.

However, Banga and Velde (2018a) also highlight that African countries are facing a two-pronged challenge in the digital era. Firstly, there is **a significant digital divide between SSA countries and the rest of the world, across a range of technologies** – from something as sophisticated as robotics and artificial intelligence to something as basic as having access to internet. The internet penetration in SSA in 2016 was 10% lower than that in South Asia, and in terms of robots, the share of Africa in the number of robots sold in the year 2015 was more than 15 times lower than its share in the global GDP of that year.

Secondly, even if African economies were to have the same access to internet and digital technologies as other parts of the world, **they will still not be able to derive similar productivity gains from the internet.** New empirical evidence suggests that a doubling of internet penetration boosts manufacturing labour productivity in middle-income economies by roughly 11%, but the impact on low-income countries is only around 3%. This digital divide in terms of 'use of internet' can, to some extent, be reduced through skills development: an increase in the average skill level of a country increases the impact of internet penetration on manufacturing labour productivity by 9%.

If appropriate actions are not taken by African countries to prepare for the digital future, and the digital divide persists in the context of growing global digitalization levels, then there will be an increased threat of re-shoring of manufacturing tasks from Africa, or the threat that production will never be transferred to Africa in the first place (e.g. China itself is digitalising fast). Whilst the cost of capital is declining rapidly in developed countries – the cost of 3D printers and robots have, on average, declined by 5% annually – wages in developing countries are rising (Banga and Velde, 2018a). This indicates that there may be a future increase of an already occurring trend of firms in developed economies finding it more efficient to re-shore production from developing countries (which are major offshoring hubs) back to the technologically advanced factories in the developed parts of the world. It is therefore crucial for Africa to prepare and to put in place policies to adapt to the digital future, and the challenges it may bring, and to create jobs including in a more digitally oriented manufacturing.

A significant part of this policy agenda is well trodden, but there are also new elements which require urgent attention. Manufacturing firms face well-known challenges to digitalization, including (i) high cost of capital, (ii) high cost of electricity and unreliable power supply, (iii) lack of available credit, (iv) high prices of raw materials, (v) lack of relevant skills, and (vi) poor customs and logistics procedures. However, **to achieve digital transformation, national policies need to not only address these challenges but also build digital capabilities and manage inclusive digital transformation in manufacturing through targeted actions**. Banga and Te Velde (2018b) discuss 10 policy options. The G20 work on digital economy can support this.

[5] *https://www.unido.org/2030-agenda-and-sustainable-development-goals#start*
[6] *See e.g. https://sustainabledevelopment.un.org/content/documents/19009STI_Roadmap_Background_Paper_pre_STI_Forum_Final_Draft.pdf*

More generally, AUC/OECD (2018) discusses how the **context for structural transformation is changing rapidly, with at least five "megatrends" shaping the future of Africa's integration into the global economy in the coming decades.** Three megatrends occur at the global level (a process of geo-economic rebalancing of global wealth from OECD to non-OECD countries; digitalization; and climate change) and two megatrends at the continental level (Africa's demographic and urban transitions):

- The **"shifting wealth"** process - the gradual rebalancing of global wealth from OECD to non-OECD countries – is offering African countries the opportunity to diversify their partners, upgrade in global value chains (GVCs), and find additional sources for technology transfer and finance for development. During its two first phases (1990-2000 and 2001-08), the shifting wealth process accelerated Africa's integration into the global economy, notably by diversifying partnerships with China, India, Brazil, Turkey and other emerging partners. On the other hand, **global imbalances** in the form of excessive current account balances in the world's key economies pose significant risks to global stability and to Africa. These deficits are aggravating trade tensions and could further constrain global growth.
- As discussed above, a new **production revolution,** brought about by digitalization may reshape countries' comparative advantages and industrialization potential. Digitalisation offers new promise for African entrepreneurs and SMEs. Africa has registered nearly 300 million mobile banking accounts. Digital innovation and E-government mechanisms are also enhancing the effectiveness of public service delivery in many countries (AfDB/OECD/UNDP, 2017). But there are also risks.
- **Climate change poses significant challenges to Africa's development but offers the opportunity to transition to a green growth model.** The continent contributes less than 4% to global greenhouse gas emissions, but 27 of the 33 countries most at risk from climate change are in Africa (Maplecroft, 2016). Africa has enormous potential for renewable energy, which can help address its energy shortage. Half of sub-Saharan Africa's growth in electricity generation will likely come from renewable energy by 2040 (OECD/IEA, 2014). African countries can "green" existing economic activities, such as farming and aquaculture, and capitalise on their rich biodiversity, for instance by becoming eco-tourism destinations.
- **Africa's rapid demographic growth could bring "demographic dividends"** if countries implement strong policies to improve human capital, create jobs, and facilitate savings. Between 2015 and 2050, Africa's working age population (defined as 15-64 year olds) will increase by 902 million people, about 69% of the total increase across the world. This presents opportunities in terms of expanding domestic markets and increasing domestic savings for investment, as well as risks such as higher pressure on existing supply, in particular of jobs, infrastructure, services, and on the environment. Not meeting this demand may heighten social pressures due to insufficient jobs creation and development opportunities.
- **Africa's rapid urban transition brings many opportunities for industrialisation, increased productivity and well-being.** Africa is the second fastest urbanising continent after Asia, increasing from 14% in 1950 to 42% at present. By 2035, 50% of African people will reside in urban areas, bringing them closer to jobs, ideas, and social amenities if governments provide enough public goods in urban areas. However, rapid urbanisation risks increasing urban poverty and congestion, if urban development is unplanned. Today, about 62% of Africa's urban population is considered poor.

Within the rapidly changing context, the report takes stock on how G20 and local actions are supporting industrialization in African countries and LDCs.

2. Stock taking of actions in support of the G20 initiative

Within the context of weak industrialization and the challenges posed by digitalization, initiatives that overcome the constraints to industrialization in African and LDCs are important. This section examines G20 related actions to supporting industrialization, both in terms of what G20 countries are reporting (Section 2.1) and how African countries perceive or are aware of these interventions (Section 2.2). This analysis, guided by a survey of key stakeholders, will help us understand the impact of the G20 initiative.

2.1 G20 and related actions: experiences and impacts

A range of related G20 collective actions support industrialization in Africa and LDCs and some are within the scope of the G20 Development Working group. One G20 member listed the following initiatives since the launch of the 2016 G20 initiative on supporting industrialization in Africa and LDCs, which appear relevant or related to supporting industrialization:

- 2016 New Industrial Revolution Action Plan
- 2016 Blueprint on Innovative Growth
- 2017 Climate and Energy Action Plan for Growth
- 2017 G20 Africa Partnership
- 2017 Initiative for Rural Youth Employment
- 2017 Initiative #eSkills4Girls
- 2017 Women Entrepreneurs Finance Initiative
- 2018 Call on Financing for Inclusive Business
- 2018 High Level Principles on Sustainable Habitat through Regional Planning
- 2018 Roadmap to Infrastructure as an Asset Class
- 2018 Principles for the Infrastructure Project Preparation Phase
- 2018 Policy Guide: Digitisation and informality: harnessing digital financial inclusion for individuals and MSMEs in the informal economy
- 2018 Country Experiences on Climate and Energy
- 2018 Climate Sustainability Working Group Adaptation Work Program (2018-2019)
- 2018 Business Women's Leaders Task Force.

While only a few of these initiatives directly target industrialization, several aim to support the complementary factors listed in the G20 initiative (Appendix A). These experiences and initiatives by individual G20 member countries effectively address key issues to support industrialization in Africa and LDCs.[7] However, many of these may have happened regardless of the G20 initiative. It is not easy to cite evidence of the catalytic or coordinating effect of the G20 initiative on the actions above. We have undertaken a survey among G20 member countries to gain a better understanding of the potential impact of the initiative. We asked them how they contributed to the G20 initiative, how they perceived its effectiveness, and whether there are any suggestions for the future. We reviewed some of the outcomes here. Eight G20 members responded and gave written answers.

G20 support to industrialization. Some G20 members have been actively involved in the G20 initiative on supporting industrialization in Africa and LDCs. This is hard to assess because some involvement may not be related to the G20 initiatives, or some activities spurred by the G20 may not be reported as such. For example, G20 members have enabled African and LDCs to boost growth, create jobs and promote inclusiveness and sustainability through policy and programming support, and have actively been engaged through the Compact with Africa which covers some of the issues mentioned in the industrialization initiative such as investment climate and (youth) employment opportunities. Several G20 members attended the Experts' Meeting in preparation for this Progress Report to discuss priority areas under the Japanese G20 presidency and the 7th Tokyo International Conference on African Development (TICAD 7). Members also argue that they fulfill the commitment of the initiative by implementing ODA projects and some non-ODA contributions for industrialization in Africa and LDCs, including knowledge sharing, skills development, and infrastructure development.

Has the G20 initiative on industrialization been effective in encouraging other initiatives? Five G20 members (out of eight who responded) argued that the initiative has been "somewhat effective", the middle option between "not effective" and "very effective". For example, they argue that the initiative has been "somewhat effective" in furthering the voluntary policy options that were put forward in the Initiative, as demonstrated by the list of subsequent G20 initiatives above. While these initiatives have advanced inclusive and sustainable structural transformations,

[7] *Finally, there are a number of multilateral actions financially supported by G20 member countries to support industrialization in Africa and LDCs.*

sustainable agriculture and agro-industry, improved local knowledge and skills, sustainable and secure energy, sustainable infrastructure, equitable access to finance, and science and technology capacity development, they have not always focused on or mentioned the particular needs or impacts in Africa and LDCs.

In this context, putting Africa on the G20-Agenda in 2016 helped increase awareness and visibility with references to further initiatives such as the Compact with Africa in 2017. The report on industrialization in Africa and LDCs prepared by UNIDO in September 2016 was useful to grasp the whole context of industrialization around Africa and LDCs and what the G20 should do as collective actions. Hence, the evidence suggests that there is some indirect link between the G20 initiative on industrialization and other initiatives. One G20 member suggests that the initiative helpfully links to other important areas such as building resilience to shocks, clean energy, and women's empowerment.

Has the G20 initiative been effective in promoting industrialization? Eight G20 countries responded by arguing that the G20 was "somewhat effective" in promoting industrialization, but the responses also imply that the links are indirect and very difficult to establish. For example, one G20 member states that it had encouraged other working groups to promote their own initiatives that may have an indirect impact on promoting industrialization. Another member states that the G20 Initiative helps eradicate poverty, strengthen the international financial system and promote the stability and sustained growth of the global economy, but does not elaborate further. Another member finds that the G20 Initiative has highlighted the importance of SDGs 8 and 9 in the G20. At the same time, it was put forward that whilst the documents relating to the initiative state what needs to be done, albeit on a voluntary basis, this does not mean the activities are actually being implemented or that proposed actions are explicitly aligned with other G20 initiatives. The G20 initiative is found to be a good initiative but it lacks commitment for effective implementation.

Do G20 members prioritize industrialization? Some G20 members actively support and target industrialization directly, or consider their support more as indirect. For example, while industrialization may not be listed as a development priority in one of the member's development assistance policy, the policy does actively commit to promoting inclusive and sustainable transformation, sustainable agriculture and agri-business, improved local knowledge and skills, sustainable and secure energy, equitable access to finance, and science and technology capacity development, which directly support industrialization as highlighted by the G20 Initiative on Supporting Industrialization in Africa and LDCs.

Similarly, another member launched a specific Strategy with Africa already in 2007, which sets out to move beyond a donor/recipient relationship to a partnership of jointly identified, mutual and complementary interests. The strategy does not identify industrialization as a core priority, however relates to it by committing to supporting partnerships of stakeholders in the labour market with a focus on sound industrial relations and social dialogue. It also takes note of the challenges arising from the fourth industrial revolution and the consequences it has on employment, and recognizes the opportunities presented by promoting creative industries as a means to foster cross-cultural dialogue and to enhance economic and social development. The Strategy is in line with the Member's priority on supporting regional integration, including through the creation of common markets for goods, people, capital and services.

Another member held an Africa Cooperation Forum in 2018 at which President Xi Jinping announced that China would implement the "Eight Major Initiatives" to promote the cooperation with African countries and to support their industrialization process. Similarly, industrialization is amongst the priorities of a members' development cooperation with Africa, more specifically, through its cooperation with UNIDO to support industrial policy development and the implementation of the joint toolbox for development cooperation, "Enhancing the Quality of Industrial Policies" (EQuIP), and its cooperation with UNIDO and the World Bank on setting and implementing an international framework for eco-industrial parks.

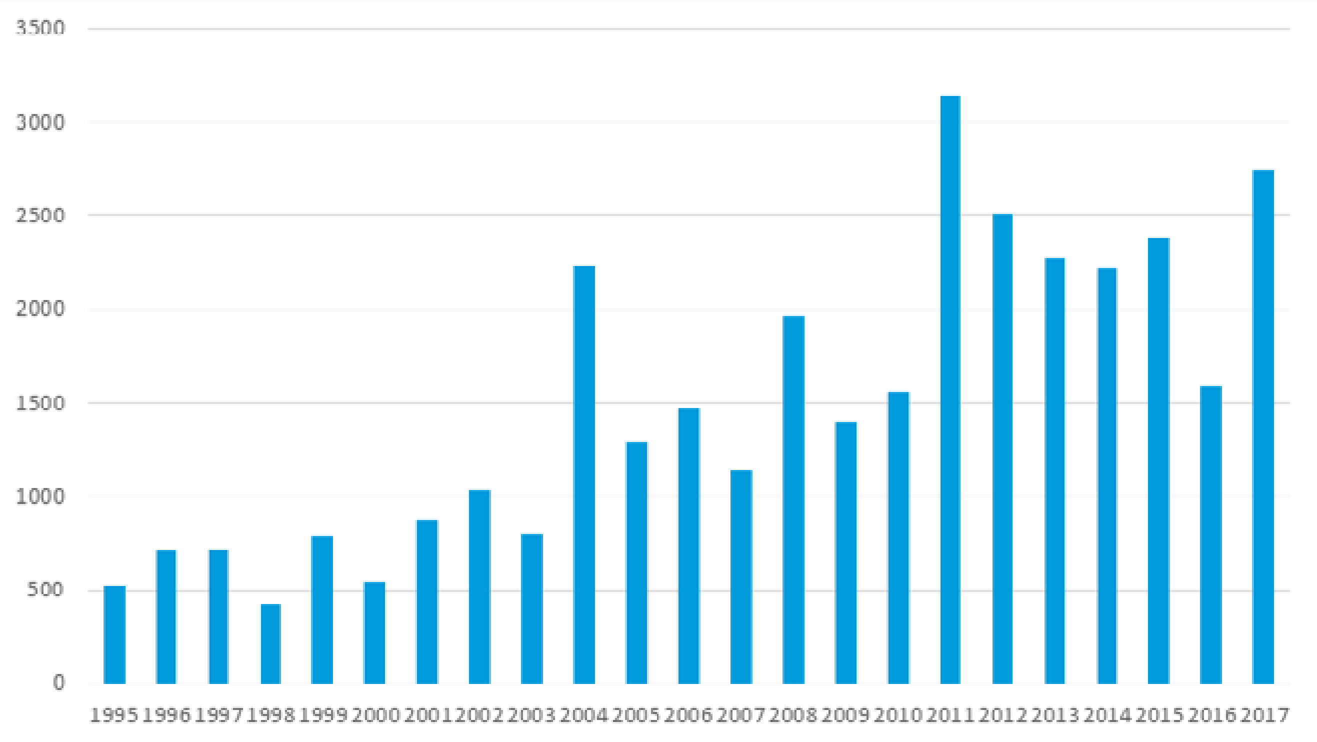
On G20 member also supported African industrialization by chairing the 37th South African Development Community (SADC) summit, which led to a SADC industrialization Strategy and Road Map and by contributing to the SADC free trade area and the Tripartite negotiations between SADC-COMESA-EAC.

G20 members also provide technical cooperation, capacity building and financial instruments (soft loans, including recent increases to the African private sector from development finance institutions) to support the private sector, particularly SMEs and MSMEs, or they provide assistance necessary to secure the foundations and the driving force for economic growth including through the development of industrial infrastructure and industries. Others prioritize industrialization, putting emphasis on SDG9: one member devoted 11% of the total number of projects in its 2019 annual implementation plan to the topic.

Many donor agencies have recently intensified their support for the manufacturing sector, although this is not reported through the questionnaire. These activities are unlikely to be linked to G20 initiatives, but are nonetheless very important for industrialization in the poorest countries (see box 1).

Aid towards industry has increased but only slowly. Figure 4 shows how aid has increased from $500 million annually in the 1990s to $1.5 billion annually in the 2000s and more than $ 2 billion in the 2010s (half is bilateral spending, and half multilateral spending).

Figure 4 Aid spending to industry ($ million), 1995 – 2017, by OECD DAC members



Source: OECD.stat aid database . Includes OECD DAC members.

Future suggestions for the G20 initiative. Three members provided suggestions to enhance the effectiveness, relevance and palatability of the initiative for African countries and LDCs. Interestingly, the members highlighted that the initiative recognizes the important transformational impacts that sustainable industrialization can have on women as highlighted by the following text: "Industrialization offers ample opportunities to empower women to take control of their economic futures and to maximize their contribution to their countries' wealth." However, it must be noted that industrialization can equally reinforce gender inequality, if not delivered in a gender-transformative way. The initiative should also recognize that women, when they are not hindered in their access to economic opportunities, can help to accelerate sustainable industrialization. The initiative could be strengthened by highlighting the importance of applying gender-based analyses when considering any of the suggested voluntary policy options.

It is also important to include the African private sector in development programs and to integrate support to clusters and industrial areas, including their framework conditions, with investment promotion, and strengthen the African "Mittelstand" into a comprehensive program in each of the countries in Africa. It would be useful to have a comprehensive analysis on achievements made and challenges to be tackled (the UNIDO report plays a role in that context) so that G20 member countries and international organizations can focus on the key challenges to support and promote G20 initiative, or industrialization of LDCs and Africa in general.

Box 1: Donor support for manufacturing in Africa and LDCs, illustrative examples

The UK Department for International Development (DFID) recently reviewed donor initiatives in support of manufacturing. DFID has implemented 83 manufacturing and manufacturing-related programs since 2008, with 23 three out of 33 DFID country offices and five central departments currently implementing manufacturing and manufacturing-related programs. Country offices in Bangladesh, Ethiopia, Rwanda and Uganda implement programs with a primary focus on manufacturing. The total amount spent explicitly on manufacturing in 72 live programs is £835 million. Support includes capability building through technical assistance for technology and innovation; advice on higher-level policy and institutional regulatory frameworks; grants or loan financing; value chain and linkage programs; and infrastructure such as SEZs and energy provision programs. Programme examples include a the manufacturing share of the contributions to CDC and PIDG, the £100mn InvestAfrica program and £35 million worth of manufacturing in the private enterprise program in Ethiopia.

A related review on other donors provided further examples of other donor support for manufacturing, including:

- JICA support for Kaizen improves firm level management capabilities through for example the Ethiopian Kaizen Institute;
- Chinese funds for industrial co-operation ($10 billion) or improvement of imports from Africa ($5 billion) announced at FOCAC;
- South Africa's case studies to implementing industrial policy in the SADC region;
- GIZ and UNIDO work together on EQuIP (enhancing the quality of industrial policies);
- Dutch support for the Centre of the Stimulation of Imports;
- IFC's investment in tea processing in Kenya;
- UNIDO's country programs for industrialization;
- Germany/BMZ support for the Compact with Africa, with actions and meetings in countries such as Ghana and Ethiopia;
- ILO's better work program in Jordan, Lesotho and Vietnam; and
- USAID East Africa Trade and Investment Hub.

Source: DFID review of donor portfolio manufacturing

2.2 Perspectives from African countries and LDCs

Nineteen African countries from East, West, North and Southern African and one Asian LDC responded to the questionnaire on their priorities on industrialization and on their suggestions for the role of the G20 in this. We summarize the responses in Appendix B.

Do countries prioritize industrialization? Perhaps not surprisingly, all countries responded that industrialization is a development priority. Industrialization is usually included as a key component of forward-looking strategies. Whilst many countries have struggled to industrialize, with the share of manufacturing in GDP declining (as detailed in Section 1), nearly all respondents also have very ambitious industrialization plans for the future, often to double the share of manufacturing and industry by 2030 (in one case the aim is to quadruple the share to 40% by 2030). Whilst it is encouraging to see such ambition in the targets, such targets are unlikely to be achieved without a significant step-up in action and support. Some of the stated targets seem impossible to reach. Cambodia as an interesting non-African LDC example has already reached 18%, far ahead of the African countries.

What activities are African countries undertaking to support industrialization? Appendix C provides a categorization of policies. All countries are undertaking a number of such steps to support industrialization, as indicated in Appendix B (4th column). For example, most state that they have legislations or policies in place detailing fiscal and non-fiscal incentives and other measures to boost investment towards industrialization, including towards infrastructure development, business development, capacity building, technology transfer and upgrading, etc. Most countries also state that they have a policy on special economic zones, and are actively building zones, industrial parks or pursuing similar concepts, such as industry villages. Several countries also mention developments in the area of public-private partnerships and emphasize horizontal areas that are critical for industrialization, such as vocational training and infrastructure (as recognized in the G20 initiative).

Are you aware of the G20 industrialization initiative? Only four out of 19 African countries and one Asian LDC stated clearly that they were aware of the G20 initiative. The main message is that African countries were unaware of the initiative.

However, most countries also expressed clear interest in **further support from the G20 for industrialization.** They provided detailed suggestions that the G20 can support their industrialization efforts by:

- Raise visibility of G20 initiatives;
- Sharing more information with ministries responsible for industrialization;
- Coordinating with Ministries of Industry (or relevant, as applicable) in African countries and LDCs in partnership with UNIDO to discuss practical modalities for support;
- Responding to the specific needs and challenges of certain country typologies, such as Small Island Development States;
- Financially supporting and monitoring implementation of action plans;
- Establishing an investment/industrialization bank for the development of industry;
- Capacity building and transfer of knowledge, technologies and skills;
- Investing in human capital, education and training, including in the upgrading of vocational training;
- Supporting the development of green industry and the environmental sustainability of industry;
- Promoting new opportunities such as innovation, the digital economy and the new Industrial Revolution;
- Supporting science, technology and innovation associated with the Fourth Industrial Revolution;
- Investing to enhance competitiveness, including through the upgrading products manufactured in African countries and LDCs to meet international quality standards;
- Providing seed funds for feasibility studies of industrial projects; and
- Investing in /supporting the improvement of transport and energy infrastructure;
- Providing better access to affordable land and infrastructure.

As part of the data gathering for this report, UNIDO organised a meeting with African representations in Geneva in March 2019. Box 2 presents the findings of the meeting. There was strong engagement by African countries. The meeting clarified that there is lack of awareness of the G20 initiative, but equally that African countries were able to articulate concrete roles for the G20. Preliminary findings of this work were presented and discussed by the G20 Development Working Group in April 2019 in Japan. The presidency indicated it the possible use of this exercise to inform the next DWG accountability frameworks.

Box 2: Meeting on the G20 initiative with African representatives

UNIDO organized a targeted meeting in Geneva with African representatives to source comments on the G20 initiative on industrialization. Representatives of 11 African countries (Algeria, Angola, Cameroon, Djibouti, Ethiopia, Malawi, Morocco, Nigeria, Rwanda, Sudan, and Tanzania) generally agreed that industrialization is crucial for Africa and that it fits with the AU2063 agenda. The G20 initiative is to be welcomed, as industrialization lies at the heart of development and poverty reduction. Unfortunately, much of Africa suffers from premature deindustrialization and weak industrialization in practice.

Despite the importance of G20 initiative, awareness of it amongst African countries appears low. Very few countries were aware of the initiative, but many others were unaware. Several countries argued that governments are already supporting industrialization themselves through selected development corridors and industrial parks and other measures. However, African countries do consider there to be a useful role for the G20 through a range of activities:

- Better co-ordination of G20 initiatives and improve implementation of various G8/G20/BRICS initiatives which so far appear low.
- Address a range of specific issues around energy, digital industrialization, technology transfer, IP protection, trade, financing, and involving the private sector.
- Improved financing opportunities including ODA support for industrialization programs;
- Maintain political space for industrialization, such as subsidies for infant sectors, which are currently constrained under the WTO;

Overall, there was much willingness to work on concrete initiatives by the G20.

Source: Meeting with African representatives in Geneva, 6 March 2019

3 Conclusions and recommendations

Conclusions

G20 members as well as African and Least Developed Countries agree that the G20 initiative on industrialization addresses a core development challenge presented by the low level of industrialization.

However, there is a lack of awareness of the initiative. G20 members acknowledge that it is very difficult to establish a direct causal link between the G20 initiative and subsequent action to support countries in their journey towards structural transformation and industrialization. Yet, they also argue that the initiative has been ‘somewhat effective’ rather than ineffective.

In addition, only four of the 19 African countries interviewed had some awareness of the initiative. The lack of awareness is not surprising; there is only a handful of resources available publicly (after the launch in September 2016) and there have been only limited outreach activities, events or projects, beyond those currently organized by UNIDO (and a meeting with the African Development Bank).

G20 countries as well as African countries and LDCs have put in place a range of actions to spur industrialization and most actions are likely to have been developed independently from the G20 initiative even though most are clearly in areas consistent with the G20 initiative.

One related challenge is that the considerable ambition of African countries does not match the actual level of support measures provided from the G20. A further challenge is that whatever measures have been put in place, they have not been enough to reverse the decline in manufacturing share in GDP in Africa. This is typically not because of the lack in ambition by African governments, but rather due to a lack of implementation on the ground, as well as to often unrealistic, long-term target-setting.

Whilst the initiative is well-conceived, the theory of change is weak in some crucial areas. For example, by itself, the initiative has not sufficiently led to new global discussions and has not sufficiently raised new awareness of industrialization in Africa and LDCs. While it has been consistent with the increased attention given to industrialization by some donors, such as China and the UK, inter alia, and may have contributed to other G20 initiatives in this area, the initiative has not been accompanied directly by specific measures. And there is also little evidence that African countries and LDCs have been supported by the G20 initiative, although several G20 measures may have had direct and/or indirect effects.

Recommendations

Having reviewed progress on industrialization and taken note of the considerable ambition in country specific plans to develop the industrial sector, it is clear that business-as-usual is not going to deliver the required results. African countries and LDCs need to make a step-change to successfully and effectively implement policies that are meant to promote industrialization, either directly or indirectly.

There is a very important role for the G20 and its members to support countries. Building on the 2016 initiative, further action by the group to support industrialization may draw important lessons from the analysis of current levels of implementation. Consultative approaches with African countries and LDCs at design and implementation stage would ensure relevance and contextualization, as well as visibility, ownership and accountability for the G20 members.

Should the G20 DWG decide to launch further actions to support industrialization in Africa and LDCs, we recommend three actions that can be taken relevantly easily and at low-cost to improve effectiveness of the G20 initiative.

First, the G20 could leverage its convening power to put a greater spotlight on industrialization in Africa and LDCs, referring to the G20 initiative and other related initiatives. Accentuating global issues is one of the key comparative advantages of a network such as the G20. Putting the spotlight on an issue could have snowball effects on countries and organizations who can then be spurred to action. This could continue from the Japanese Presidency.

Second, going forward, the G20 should continue to have an item on the agenda and successive communiques that relates to industrialization in the poorest countries, at least until the initiative reaches its sunset. By maintaining this item on the agenda, it could aim to provide a framework for actions going forward, and subsequent G20 meetings could report on progress and link more systematically to other G20 initiatives. In this way, the G20 can become a coordinating and steering body in the area of industrialization in a sustained way, which is not dependent on the incumbent Chair to highlight issues.

And finally, the G20 should also harness its comparative advantage in producing toolkits, by consolidating the know-how of the G20 Membership in a harmonized set of tools for developing countries, and leverage existing tools, for example the Production Transformation Policy Reviews (PTPRs) or equivalent tools in operation at UNECA, World Bank, and elsewhere such as ACET (2014) or McMillan et al (2017). There needs to be stronger collaboration between G20 countries and beneficiaries. Some African countries suggested further G20 meetings that could be convened by UNIDO. Such meetings can cover two issues. First they could share lessons and update toolboxes on industrialization by G20 countries in partner countries. And second, such meetings could help to turn ambition into actual progress on the ground.

The G20 initiative can increase its effectiveness with these three actions.

Box 3: OECD tools around Production Transformation Policy Reviews

PTPRs are a policy assessment and guidance tool developed in the framework of the OECD Initiative for Policy Dialogue on GVCs, Production Transformation and Development, in partnership with United Nations entities, such as UNCTAD, ECLAC and UNIDO.

The PTPRs rely on an in-depth multi-stakeholder dialogue process and provide a guiding framework to policy makers to identify options and actionable policy responses to promote structural transformation, based on the comparative assessment of countries' assets, upgrading potential and priorities.

The PTPRs provide lessons learned on how to promote effective economic transformation and identify a roadmap ahead based on in-depth domestic consultations, dialogue with the business community and international peer-assessment.

The OECD Initiative for Policy Dialogue on GVCs, Production Transformation and Development, hosted by the Development Centre, stands ready to mobilize the PTPR tool, in cooperation with the G20, to support economic transformation in Africa.

Sources: OECD staff based on OECD (2017), OECD/UN (2018)

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Appendix A The G20 Initiative on Supporting Industrialization in Africa and Least Developed Countries (2016 Hangzhou Summit)[8]

Background

Industrialization plays an important role in eliminating absolute poverty and promoting sustainable development. However, in Africa and Least Developed Countries (LDCs), it confronts major challenges, which becomes a bottleneck in their economic development. There is growing consensus on the need for renewed efforts to facilitate sustainable industrialization as one of the main drivers of economic growth and structural transformation in Africa and LDCs.

Against this background and upon the proposal by the Chinese Presidency, the G20 held discussions on supporting industrialization in Africa and LDCs. The G20 had put forward an initiative to invite UNIDO to take the lead, with wide participation of relevant international organizations (IOs), to draft a report on the challenges and opportunities Africa and LDCs are facing in the process of industrialization and propose policy recommendations for the G20 to take actions in the future to extend their support to Africa and LDCs.

The G20 members welcome the UNIDO report, Industrialization in Africa and Least Developed Countries: Boosting growth, creating jobs, promoting inclusiveness and sustainability. The report presents challenges and policy recommendations to lay a foundation for promoting G20 cooperation and providing G20 "value added" in this area in the future.

Challenges

It is a harsh fact that Africa and LDCs remain on the margins of industrialization and face structural weaknesses such as poor infrastructure, weak logistics and trade facilitation, slow regional integration and the absence of accreditation frameworks. These structural factors have contributed to the relative isolation of LDCs, low levels of private investment in industrial production and low levels of trade among the LDCs, particularly in Africa, which consequently leaves huge potential market not fully utilized. Without industrialization, it is unlikely that Africa and LDCs can meet the Sustainable Development Goals by 2030.

Poor infrastructure

In most African countries, road, rail and freight transportation systems date from colonial times

[8] *http://www.g20.utoronto.ca/2016/supporting-industrialization.html*

and focus on moving unprocessed raw materials from extraction zones to coastal areas for shipment to international markets. Even if the continent has in recent years invested hugely in transportation and logistics, infrastructure capabilities in these areas are still low. The lack of secure energy and ICT infrastructure further constrain development. Only 290 million of 915 million people in Sub-Sahara Africa have access to electricity, and the number without the access is rising.

Weak logistics and trade facilitation systems

Poor trade facilitation undermines industrial competitiveness. According to the Doing Business survey, the average cost of shipping a container for African exporters was $1,990 in 2012, compared with $1,268 in Latin America. And the cost for many landlocked countries, such as Niger, Rwanda and Zambia, was more than 50 percent higher than average. Africa still has much to do to catch up with other regions on both the time and cost of trade indicators. To reduce these costs, countries should ratify and implement the WTO's Trade Facilitation Agreement.

Slow regional integration

Africa is one of the world's least regionally integrated continents. Trade barriers among African countries are often higher than those between them and the rest of the world. Africa's intra-regional trade is more diversified than that with the rest of the world, and some two-thirds of it is in manufactures. Yet its real potential remains untapped. The share of intra-African trade, at 16.3 per cent in 2013, is the lowest among global regions.

Absence of accreditation frameworks

The lack of proper accreditation frameworks crimps African firms' entry into international markets. This is a major impediment for exporters of products within the scope of targeted markets' technical regulations. Many governments also restrict testing to domestic public (often non-accredited) laboratories and do not accept certificates of conformity from internationally accredited laboratories.

Socioeconomic costs of tardy structural transformation

Slow structural transformation and industrialization in African and other LDCs carry heavy economic, social and environmental costs, preventing large segments of the population, including women and youth, from benefiting from the better jobs that economic growth and created wealth can bring. That hampers the opportunities for promoting social justice and equality, with possible political repercussions. It makes it harder to provide decent and adequate jobs for the increasing numbers of jobseekers. It often leaves economies heavily dependent on job creation in the informal sector, even though formal manufacturing is typically not only the most dynamic sector, but also the main driver of technological development and innovation and a major engine of broader sector productivity and growth.

Opportunities

African and other LDCs are well placed to industrialize. They have the right mix of natural resources, favorable demographics, urbanization, an emerging middle class, and a highly educated Diaspora. But they are diverse and need strategies and policies to leverage their specific endowments and characteristics.

Africa alone has 16 per cent of the world's arable land and is rich in minerals, including oil, copper, gold, diamonds, coal, iron, uranium, nickel, chrome, tin, and platinum. Adding value to this natural wealth and creating new wealth could create millions of jobs a year.

Africa and LDCs have latent comparative advantage in tourism, mining, such pharmaceuticals as generic drugs, and such manufactures as garments, leather goods, agro-food, and automotive parts and components. Upgrading these industries and exploring their potential nexus such as agriculture, agrifood, culture, tourism, energy, water, food, could initiate rapid, substantial and potentially self-propelling waves of rising output, employment, productivity and exports.

Major solar, hydro and gas resources are untapped. In East Africa, natural gas off the coasts of Mozambique and Tanzania is a huge opportunity. The cost of renewable energy is becoming equivalent to that of fossil fuel-generated energy, which is an advantage that no other regions enjoyed during their industrialization. The opportunity for sustainable and inclusive industrialization is enormous for Africa and LDCs. Africa has already decided to increase its access to renewable energy and must be supported in this regard (eg. African Renewable Energy Initiative).

Demographic trends in African and other LDCs offer further promise. A moderate population growth is an opportunity to generate inclusive growth and reduce extreme poverty, and eliminate hunger. If the necessary efforts on education, health, professional qualification and sustainable urbanization are implemented, a fast-growing youth population increasingly urbanized will help to drive growth in formal sectors of the economy and strengthen the middle class. Although the middle class is now small as a proportion of total population, it is growing fast, particularly in cities. Industrialization offers ample opportunities to empower women to take control of their economic futures and to maximize their contribution to their countries' wealth. By 2050, half of Africans will live in cities, where infrastructure spending is highest and consumers are concentrated. If highly educated individuals return from the Diaspora, they may return to urban centers in African and other LDCs, and can support local economic growth with their skills, knowledge and investment.

Voluntary Policy Options

Based on the UNIDO report and in close cooperation with other relevant international organizational organizations, the G20 will further study and consider taking actions on the following fronts to support structural transformation and industrialization in African and other LDCs, in accordance with the capabilities of the members and the development priorities of African and LDC:

1. Collaborate in promoting inclusive and sustainable structural transformation and industrialization in Africa and LDCs through knowledge sharing and peer-learning for good practices, policies, measures and guiding tools for capacity development, taking into account different national circumstances. Engage in multi-stakeholder discussions with Africa and LDCs to improve the environment for investment and development in accordance with diverse national conditions, development needs and WTO rules to facilitate the involvement and contributions of both women and men to the industrialization process.
2. Support sustainable agriculture, agri-business and agro-industry development and their linkages with other sectors in Africa and LDCs, and promote labour productivity in agriculture to ensure food security, better nutrition and increased rural income. Facilitate technology transfer to Africa and LDCs, under mutually agreed terms and conditions in line with national and international laws and commitments, as agreed in the 2030 Agenda, in areas such as irrigation systems, water harvesting and conservation techniques, and sustainable agriculture technologies. Promote training and skill upgrading for rural people, including smallholders, women and youth in order to enhance employment on sustainable production in Africa and LDCs, and support them in developing and harmonizing science and risk assessment based technical and food standards which are in accordance with WTO rules.
3. Support the efforts to deepen, broaden and update the local knowledge and production base in Africa and LDCs, including through strengthened skills development particularly for youth and encourage dissemination of good practices, policies and programs of IOs and bilateral partners on the provision of technical vocational education and training (TVET) for women and men. Explore ways to develop North-South, South-South and triangular co-operation with Africa and LDCs in vocational training and industrial production, and investigate the funding and filling of specialised academic chairs with special respect to applied research within key manufacturing systems and related higher education institutions as an effective means to diffuse technical know-how.
4. Promote investment in sustainable and secure energy, renewables and energy efficiency, and sustainable and resilient infrastructure and industries in Africa and LDCs, in line with the 2030 Agenda and Paris Agreement's objectives and the countries' Nationally Determined Contributions. Explore ways to promote joint research and diffuse sustainable and environmentally sound technologies in Africa and LDCs, and mobilize greater investment and increase transparency in managing energy infrastructure, taking into consideration the G20 action plans on energy. Help countries and communities predict and prepare for the risks posed by climate change.
5. Support Africa and LDCs to industrialise through trade in accordance with WTO rules and identify infrastructure gaps, needs and funding requirements for sustainable infrastructure including regional and rural infrastructure along with opportunities to promote public-private partnerships (PPPs). Investigate mechanisms to improve the financial and technical support for feasibility and project preparation to support infrastructural and industrial projects to attain bankability. Facilitate the leveraging of multi-stakeholder resources for investment in trade, connectivity, transport and industrial corridors, and support local development of special economic zones, industrial parks and science and technology parks to attract investment and talent.
6. Leverage domestic and external finance and support equitable access to finance in Africa and LDCs with a focus on women and youth to encourage SMEs, micro businesses and smallholder producers development in non-commodity industries, including building awareness of the G20 Action Plan on SME Financing. Encourage development banks to mobilize resources in infrastructure and industries through partnerships and to build institutional management capacities to strengthen country systems, for example, for loan guarantee programs targeted at industries with high-growth potential.
7. Promote science, technology and innovation as critical means for industrialization in Africa and LDCs by contributing to the capacity development of science and technology personnel, including women and youth, strengthening the innovation systems, and nurturing innovative and inclusive entrepreneurship through technological social ventures. Provide incubating services for Africa and LDCs in order to generate a virtuous cycle of industrialization and sustainable development.

The Development Working Group (DWG) will follow up on this initiative with relevant work streams and ask UNIDO and relevant IOs to report back to the DWG in 2018 for a review of actions taken to address the above policy options.

Appendix B A summary of responses to a UNIDO-led survey of African countries (and Cambodia)

	Are you prioritizing industrialization in your country's development plan? If so, how?	What is the share of manufacturing in GDP and what are the plans for 2020, 2025, 2030	What activities are you undertaking to support industrialization?	Are you aware of G20 initiatives that help your industrialization efforts?	What suggestions do you have to strengthen the G20 initiative or support industrialization more generally?
Burkina Faso (Originally in French	Yes, it is prioritized in the 2016-2020 National economic and social development plan	Declined from 6.5% in 2012, to 5.2% in 2018 and future target of 8%		Yes, UNIDO's Country Partnership Program; AfDB's Ten-Year industrialization Strategy 2016-2025; "Third Industrial Development Decade for Africa (IDDA III 2016-2025).	Increase funding to African countries, including to develop their industrialization policies and strategies Financially support and monitor the implementation of action plans. Development of tools.
Comoros (Originally in French)	Revised Accelerated Growth Strategy for Sustainable Development industrialization requires sustainable growth through enterprise creation	No data, but it aims for local manufacturing in consumption and exports.	AfDB assistance to develop the industrial strategy adopted in 2017	No	
Cote D'Ivoire (Originally in French)	Willingness clearly displayed in the 2016-2020 NDP	5.9% of GDP in 2017	2018 Industrial Infrastructure Management and Development Agency (AGEDI) and the 2014 Infrastructure Development Fund Industrials (FODI). Rehabilitation of industrial areas, 940 Ha industrial cone, industrial parks project part of Competitiveness of the Cashew Value Chain. New industrial zones. New Investment Code 2018. Start-up sector. Creation of Commercial Court. Quality and anti-counterfeiting. National Restructuring and Upgrade Programme (PNRMN).	Yes, including innovation initiatives and the digital economy	That the G20 promotes the transfer of technology and knowledge to African countries
Congo (Originally in French)	Yes through Special Economic Zones, Agro-Industrial Parks, Business Climate reforms. Promotion of SMEs	From 10.6% in 2019, to 19,7% in 2020, 30,3% in 2025 and 40% in 2030.	Tax reform, promoting PPPs; value chain participation	No contact	A meeting with LDCs in partnership with UNIDO to discuss practical modalities of support.

Egypt	Yes, it is crucial in Egypt's SDS and Industry and Trade Development Strategy 2016-2020	2020: reaching 8% growth rate, more contribution of industrial sector to GDP from 18% to 21% 2030.	Industrial development; MSME and entrepreneurship development; exports development; upgraded TVET training; governance and institutional development.	Yes. Especially G20 initiative on supporting industrialization in Africa and Least Developed Countries	Carrying out the initiative to increase the added value of the domestic industry- example of the National Industrial Localization Programme
Gabon (Originally in French)	Yes, industry one of pillars in Gabon Strategic Plan; adopting National **industrialization Strategy (2013); Law on industrial activities (2016); Strengthening legal framework of Directorate General of Industry and**	From 3.5 % of GDP in 2018, to 5% in 2020, 8% in 2025, and 10% in 2030	New investment law, new special economic zones (two already created), infrastructure to support industrialization (hydroelectric dams, deep-water port, fiber optic)	No	Support fund for industrialization; capacity building; transfer of technologies and skills; development of green industry.
Gambia	Yes, government updated MSME policy 2008 and national entrepreneurship policy	Currently 5%, National Development Plan aims to increase it to 10% by 2020	Trade Strategy and Industrial Development Policy developed in 2018. Action plan being implemented	No	Technical support for implementation of projects (e.g. capacity building/financial assistance)

Guinea (Originally in French)	Yes through the PNDS from the identified priority axes.	Relatively low, previously 5/6%, see the INS for years to come.	ZES, technology and innovation, human capital	No	The construction of hospitality infrastructure for industry, the strengthening of human capacity, standardization and product quality.
Kenya	The Ministry of Industry, Trade and Cooperatives has developed the Kenya's Industrial Transformation Programme which is a strategic, comprehensive and integrated programme to guide Kenya on its journey to industrialization. The programme is aligned to the Kenya Vision 2030, Medium-Term Plan III, The "Big Four Agenda" and the Sustainable Development Goals (SDGs).	Manufacturing sector's contribution stagnated at around 10% of GDP and was around 8.4% in 2017. Currently renewed interest in manufacturing sector through the Big 4 Agenda, aiming to increase GDP contribution of the sector to 15% by 2022. Projection of additional 10% annually to GDP in 2030.	Activities regarding SEZs, investment climate, trade logistics, technology and innovation, human capital, finance, oil and mining, iron and steel, ICT, blue economy, and other.	No	Work through UNIDO, Nairobi and the Ministry of Trade, Industry and Cooperatives to support industrialization efforts.

Liberia	Legal and regulatory reforms, Infrastructure development, innovation and technology and Investment in human capital. The above mentioned sectors as captured within the Liberian draft national industrial policy need to be improve. Yes. However, we have concluded a drat National Industrial Policy framework that is expected to address industrialization activities in Liberia	Increasing by 1% between 2006 and 2009, and the government of Liberia plan for the respective years is to invest in the manufacturing sectors and promote partnership between the public and private sectors.	Trade Logistics; manufacturing of cement, beverages, paints, varnishes, mattresses, industrial oxygen, bakeries, woodworking, metal working, plastic, rubber products and clothing. Technology and Innovation, Human Capital, finance, SEZs, and investment climate Sectors need improvement.	Support sustainable agriculture, agri-business and agro-industry development, Facilitate technology transfer to Africa and LDCs, training and skill upgrading for rural people, including smallholders, women and youth in order to enhance employment on sustainable production in Africa and LDCs, and support them in accordance with WTO rules and Invest in renewable and energy efficiency. Japanese Project, MSMEs	Support for infrastructure development; like the Monrovia development park, investment in human capital (skills and vocational training) and support for special economic zone.

Madagascar (Originally in French)	Industrialization is a national priority including through a law on the Development of Industry	Secondary sector is currently 13.1% of GDP, plans for 25% in 2025	Law on the Development of Industry (2018) including Industrial Investment Zone; aw on the development of vocational training (2018)	At G20 summit in 2016, the UN SG General said there would be increased investment in infrastructure and industry, access to finance, sharing and technology transfer, facilitation trade, capacity building and the improvement of enabling environments that can support the necessary transformation.	Technology transfer; promotion of new opportunities such as innovation, the digital economy and the new Industrial Revolution; Improvement in transport and energy infrastructure
Mali (Originally in French)	One of the priorities set out in the Strategic Framework for Economic Recovery and Sustainable Development (CREDD (2019-2013)	Currently share of industry in GDP is 11.3%, manufacturing 5.7%	Investment Code; industrial development policy; public-private partnership; one-stop shops; Special Economic Zones and of industrial zones; scientific research; environmental management; vocational training; guarantee and investment fund;	No	Support programs for investment (energy and transport infrastructure, industrial zone development, etc.) Investment bank for the development of industry

Mauritius	Yes, government proposed a number of support measures for manufacturing sector	13.3% as of 2017. 15%, 16,5%, and 18% each for 2020, 2025, 2030	A series of government measures including policy reforms, fiscal support, setting up high-tech parks, etc.	Yes, G20 development agenda and G20 Framework, etc.	G20 should adopt technologies associated with the Fourth Industrial Revolution.
Mozambique (Originally in Portuguese)	Yes, the PQG defines as one of the strategic objectives for the development of the industry sector. The National Development Strategy (NDS). The Industrial policy and Strategy 2016-2025.	The manufacturing industry is the third most contributing sector in GDP, with an average annual stake of 9.0%. The plan is to develop this sector on the basis of the implementation of the PEI.	Government working with the National Investment Bank. Industry-specific incentive package with electronic platform for PEI, creation of National Committee for Industrial Development, two strategies of cotton and forestry value chains. The SPX program, customs and ICT rates, Local content law proposal, MoU with Chinese for industrial parks.	No	

Niger (Originally in French)	Industrialization is one of the priorities and includes in the Sustainable Development and Inclusive Growth Strategy (SDDCI-Niger 2035), The Economic and Social Development Plan (PDES 2017-2021)	Currently 4% of GDP	Modernization of industrial infrastructure., development of agribusiness and promotion of modern processing units for agro-processing and fish.		
Senegal (Originally in French)	New model of economic and social development which emphasis structural transformation of the economy. Industry is one of the priority sectors for growth, jobs and foreign investment.	The manufacturing share in GDP is 11.8% in 2018, aiming for industry's contribution of 21.8% in 2020 and 25% by 2035.	Law on Special Economic Zone (2017); Decree on Public-Private Committee; Investment and tax codes; doing business; industrial logistics hub; customs union; R&D and innovation support; vocational training centers; financial support system for SMEs, attracting industry-oriented DFIs. The country partnership program signed between Senegal and UNIDO in 2015 is key instrument.		Funding to implement SDGs; strengthening competitiveness; investment in education and training; Infrastructure development; support for science, technology and innovation, including the 4th IR; access to energy; upgrading African manufacturers to international standards; seed funds for feasibility studies of industrial projects

Seychelles	Yes, government departments are tackling constraints on the industrialization process of the country	Currently 15%, aiming for 30% by 2030	Promotion of locally manufactured products and strengthening their intl. outreach	No	Provide 1) further access to affordable land and infrastructure,
Zambia	**Yes, government is developing and implementing policies and strategies aimed to boost the industrialization agenda**	4.4% (2017), 20% (2020),	New investment law, new special economic zones (two already created), infrastructure to support industrialization (hydroelectric dams, deep-water port, fiber optic)	No	Support fund for industrialization; capacity building; transfer of technologies and skills; development of green industry.
Zimbabwe	Yes, it is a main objective in Transitional Stabilization Programme 2018 and the national development policy	Manufacturing value added growth of 16% pa to increase GDP share to level in the 1990s by 2020	Special economic zone, business environment reforms, fostering macroeconomic and political stability, etc.	No	Improve visibility

Non-African LDCs: **Cambodia**	Yes, it is being prioritized through the Cambodia Industrial Development Policy 2015-2025 (IDP), moving from labor-intensive industry to skills driven industry by 2025	The plans for the share are 18% in 2020, 20% in 2025 and 22% in 2030	Drafting law on investment, attracting FDI and domestic investment in SEZs, modernizing SMEs, revising the regulatory environment for competitiveness, and coordinating supporting policies. Organizing private sector forum, transport corridors and others.	Yes, aware of G20 initiative to support industrialization since 2016	G20 should have an effective mechanism to disseminate G20 initiatives, G20 should support industrialization without conditions attached, areas include human resource development, infrastructure, energy and science and technology

Appendix C Policies for industrialization and economic transformation

McMillan et al. (2017a) classify a range of public policies for economic transformation (ET), summarized in the Table below. It is important to consider complementarity between policies when implementing business environment reform (BER) with an intended ET outcome. For example, Rodrik (2013) calls for complementary policies that improve both 'fundamentals' such as education, infrastructure or regulatory BER policies – and policies that target growth in high-productivity sectors. International Monetary Fund (IMF, 2014) illustrates the importance of horizontal policies. For example, supporting education and improving access to export markets, infrastructure, the institutional environment and the regulatory environment has resulted in product quality upgrading, shifting resources to more productive activities and diversification. The effects of these reforms become stronger when partnered with structural reforms such as financial deepening and trade liberalization.

	General enabling interventions	Targeted interventions
Public actions to support structural change	• business environment reforms (e.g. registration, land, tax, contracts) • financial sector development • strengthening state business relations	• export push policies • exchange rate and tariff protection • selective industrial policies • spatial industrial policies • national development banks
Public actions to support within-sector productivity growth	• building fundamentals (e.g. infrastructure, education) • investments in basic production knowledge • managerial good practices as public goods • innovations • promoting competition	• management training • attracting foreign direct investment (FDI) • export diversification • developing global value chains (GVCs) • increasing agricultural productivity

Source: McMillan et al. (2017)