



Key messages

CDKN has identified the following key ways to promote green urban industrialisation in Ethiopia¹.

- **Identify catalytic projects** that can catalyse change, and which connect local and national priorities. Look for opportunities beyond single parks, towns and cities.
- **Build institutional effectiveness:** Many institutions, particularly those at regional and city levels, often lack capacity and financial resources. To overcome this:
 - work with existing institutions and the prevailing policies
 - build institutional 'effectiveness' incrementally focusing on policy measures, institutional adjustments and regulatory changes that can be implemented within existing capacities and build from this initial base
 - promote collaborative working among institutions.
- **Get the planning 'right':** Make sure that national (e.g. national urban development spatial plans) and local urban plans (e.g. city land-use and master plans) are connected and current; that local development plans reflect local resource conditions and that they reflect the national climate strategy. The identification and development of industrial parks also needs to be integrated into these local and national plans.
- **Build a supportive policy environment:** A favourable policy, regulatory and institutional environment is essential to attract private investment and successfully deliver catalytic projects. Enforcement also needs to be strengthened.
- **Take a more integrated approach to industrial clusters:** Infrastructure bottlenecks that constrain urban productivity need to be identified and business models developed to overcome these constraints. Investments should also be packaged with green growth at the centre, which suggests reviewing existing ways in which industrial parks and cities are planned and managed.

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Promoting green urban industrialisation in Ethiopia

African economies are looking to achieve high levels of economic growth in the next few decades, predominantly in growing urban centres. By 2035, roughly half of Africa's population will live in its rapidly expanding cities.² This transition presents significant opportunities for development: supporting structural transformation, job creation, poverty alleviation and increasing quality of lives. Indeed, no country has ever reached middle-income status without urbanising.³

However, many countries have so far struggled to take full advantage of the opportunities offered by growth and urbanisation. Current trends indicate that development in most African economies is unlikely to generate sufficient decent and productive jobs to accommodate the expected significant population increases. The African Development Bank maintains that, for nearly all African economies, growth is not leading to structural change, and more often than not is associated with the expansion of low-productivity, low-return activities in the informal sector. These are often undertaken in degraded, deteriorating and life-threatening environmental conditions.⁴ If not properly managed, growth and urbanisation threaten to lock African economies into carbon-intensive development pathways and place huge demands on communities, infrastructure, services and the environment.

Industrialisation is seen as one of the most efficient pathways to achieving rapid growth⁵ and job creation,

and many countries are developing industrial parks to attract and accelerate investment in designated areas, agglomerating investment in specific industries around the country while decreasing the dominance of capital cities. Ethiopia is one example of where this is happening, with a focus on 10 urban 'clusters' and a programme of industrial park development.

A recent CDKN study across the towns of Kombolcha and Mek'ele in Ethiopia, both of which host new industrial parks, investigated the hypothesis that taking a corridor approach to urban-industrial development can support more sustainable patterns of urban growth. It is, however, noted that the proposed corridor approach is complementary to the nationally adopted 'cluster' based development approach. As recommended in Ethiopia's National Urban Development Spatial Plan (NUDSP),⁶ the corridor approach is a pathway to achieve the creation of economically competitive urban clusters over time.

Box 1. 'Green industrialisation'

'Green industrialisation' reflects the importance of having policies, plans and programmes in place that yield **sustainable and inclusive growth while safeguarding natural resources**, and crucially to secure "patterns of production, and [to] build system-wide infrastructure in order to ensure secure supplies of water, food and energy".⁷

This represents a significant challenge for developing countries and their

governments, and the context of a changing climate adds another dimension as they now need to respond by "developing plans to adapt their economies and infrastructure to future changes in climate and weather patterns".⁸

There is an increasing number of successful examples of green urban-industrial development⁹ (Table 1), including measures to improve

environmental performance, the provision of green spaces, integrating waste and water collection systems, appropriate resource pricing, the introduction of circular economy practices and energy efficiency standards, and developing connected infrastructure across a spatial corridor.

Urbanisation as envisaged in the NUDSP is expected to become a major driver of Ethiopia's economic growth and transformation and the basis of more equitable and balanced development across the country.

National Urban Development Spatial Plan (2016)

Box 2. Corridors and clusters: Spatial approaches to urban-industrial development

An urban corridor approach connects urban growth clusters, initially connected by transportation infrastructure upon which economic corridors can be developed through integrated networks of infrastructure. This can include transport, communications, utilities and housing within a geographical area. The corridor approach is designed to stimulate economic growth, connecting urban clusters, and integrating services and value chains.

The corridor approach views regional transport routes not only as a means of transporting goods and services, but also as a tool for stimulating social and economic development in the areas surrounding the route. Economic corridors accomplish this principally by promoting the integrated management of resources, infrastructure and services between institutions, starting with those in the two growth clusters that anchor the corridor. For example, creating industrial and distribution facilities in conjunction with shared transport infrastructure.

A corridor approach that connects secondary cities can be instrumental in decreasing urban primacy in national

spatial forms. The productive value of big cities tends to decrease once they reach a certain size, when congestion, sprawl and competition for well-located land tends to erode the productive benefits of agglomeration economies. One of the comparative advantages of secondary cities is that they tend to be better connected with their surrounding rural hinterland, specialised in particular sectors of production and offer cheaper inputs than the capital city. Secondary cities can be even more competitive when they develop economies complementary to those of nearby urban centres.¹² Urban clusters supported by their surrounding areas and connected to nearby clusters with complementary economies and services can support a more diverse and healthier urban form across the country.

Both corridors and clusters of urban spatial development require coordination of national and regional policy. A regional strategy to promote investment in a particular sector will not be successful unless it is aligned with the overall national growth strategy, or if it targets a sector in which a neighbouring region has a comparative advantage.

Table 1. Selected examples of green industrialisation

Example	Location	Operational date	Sector	Examples of green urban-industrial development
Green industrial parks	Hawassa, Ethiopia	2016	Textiles and apparel	<ul style="list-style-type: none"> • Policy of zero liquid discharge and recycling of 85% of sewerage disposal • Hydropower main energy source
	Sino-Swiss Zhenjiang Ecological Industrial Park, China	2015	Clean-tech and high-tech products	<ul style="list-style-type: none"> • Regional high-speed rail services to three major business centres: Nanjing, Shanghai and the Yangze River Delta business area • Innovation hub for clean-tech industries
City-level green urban-industrial development	Modjo Leather City, Ethiopia	2018 (TBC)	Tannery and leather, shoes, shoe accessories	<ul style="list-style-type: none"> • Green buffer zone between residential and industrial areas • Common waste water treatment plant serving leather city to reduce environmental impacts
	Masdar, Abu Dhabi, United Arab Emirates	2006	Services: Consulting, training and education	<ul style="list-style-type: none"> • Passive low-energy design and cooling of buildings • Passive microclimate control strategies creating a year-round walkable city • Car-free development • 90% water recovery and solar thermal absorption for cooling
	Suzhou Industrial Park, China and Singapore	1997		<ul style="list-style-type: none"> • First industrial park to pilot circular economy and eco-industrial park programmes: Environmental infrastructure sharing mechanism and waste-to-energy recycling system • Coordinated urban-industrial integration: Industrial park incorporated into urban planning, enabling strategic design of infrastructure, transport and public utilities
	Maputo Development Corridor, Mozambique and South Africa ¹⁰	1994	Mining, aluminium-based manufacturing	<ul style="list-style-type: none"> • Rehabilitation of primary infrastructure along the corridor: Road, rail, port and border posts • Integration of regional markets and economies • Policies that ensure a holistic, environmentally sustainable approach to development
Green growth corridors	Chennai–Bengaluru Industrial Corridor, India	2035 (TBC)	Information and communications technology, automobiles, machinery, food processing, pharmaceuticals, textiles, apparel	<ul style="list-style-type: none"> • High-speed rail to be established along the corridor • Smart cities to be created along the industrial corridor
	Iskandar, Malaysia	2006	Electronics, petrochemicals, oil and gas, food and agro-processing, logistics, tourism	<ul style="list-style-type: none"> • Recycling and upcycling programmes with universities; improved and enhanced public transportation, including Bus Rapid Transit • Increased use of renewable energy • Green Accord Initiative Award to reward business organisations that contribute to sustainable design

Source: PwC et al.¹¹



An integrated approach to green urban-industrial development: Ethiopia's Kombolcha–Mek'ele corridor

The Government of Ethiopia aims to achieve the triple win of lower-middle-income status, carbon neutrality and climate resilience by 2025. Its NUDSP¹³ sets out a development pathway focused around 10 urban 'clusters' (Figure 1), and its industrialisation strategy includes the development of a number of industrial parks. These parks (run by the Federal Government Industrial Parks Development Corporation, together with the more numerous regional, city and private industrial estate areas) have the potential to catalyse growth in cities, promote structural economic change, and create a significant number of jobs. However, they can also increase demand on, and competition for, infrastructure and resources such as power, water and transport, and, if poorly or inadequately managed, can place huge strains on an urbanising economy, including air and water pollution, traffic congestion, and shortages of housing and other basic social services.

CDKN, funded by the UK Department for International Development in Ethiopia, supported a study to explore the hypothesis that by connecting two

urban clusters with their industrial parks and each other, it is possible to create a green urban-industrial ecosystem and maximise green growth potential.

The concept of a corridor approach is not new in Ethiopia. The NUDSP models the spatial form of the country's urban centres as clusters of secondary cities and towns, to develop a diverse hierarchy of urban centres rather than entrenching the primacy of Addis Ababa. The NUDSP highlights the importance of connecting urban clusters along trade and transport routes, so that they can further capitalise on the opportunities to integrate their economies with neighbouring urban clusters. The corridor approach is a pathway to achieve the creation of economically competitive urban clusters over time.

The study focused on the Kombolcha–Dessie and Mek'ele urban clusters, and the towns along the transport corridor connecting them (the K–M corridor). There has already been significant investment in capital infrastructure, primarily the Kombolcha and Mek'ele industrial parks. The construction of the north–south corridor of the railway network, which will link Mek'ele and Kombolcha–Dessie to the main line at Awash and to the port of Tadjoura in Djibouti via Hara Gebeya, is creating a

major transport link between the two growth clusters.

After consultation with city-level authorities and the regional government, the study recommended a fundamental shift towards green urban industrialisation (Box 3), and recommended three specific shifts to support green urban industrialisation in the K–M corridor:

- **Shift 1: Identify catalytic investments.** The study recommended that catalytic investments – i.e. investments that have the potential to accelerate green industrialisation – be identified. Three priority projects were identified in the K–M corridor, based on analysis and consultation with federal and regional stakeholders. The projects cover three inter-dependent sectors – 'green' housing, waste management and water resources management. They were conceptualised by looking at the challenges and needs across the whole K–M corridor, rather than the clusters in isolation. The projects were considered to be replicable and scalable within these towns, along the corridor and in other parts of Ethiopia. The three projects were further developed in terms of actions required and their potential scale of benefits

The NUDSP 2035 spatial framework highlights the importance of major economic corridors in the country and envisages significantly improved transport connectivity between secondary cities their rural hinterlands, as well as the transformation of existing large rural settlements into towns and the formation of new urban settlements associated with large or 'mega' projects in the industrial, agriculture, mining and energy generation sectors.

National Urban Development Spatial Plan (2016)

and costs. Most importantly, the design of these projects highlighted the need to effectively implement and 'green' many of the national policy and regulatory reforms previously advocated or adopted. The Government of Ethiopia has indicated that the green housing project will be included in a forthcoming funding proposal to the Green Climate Fund.

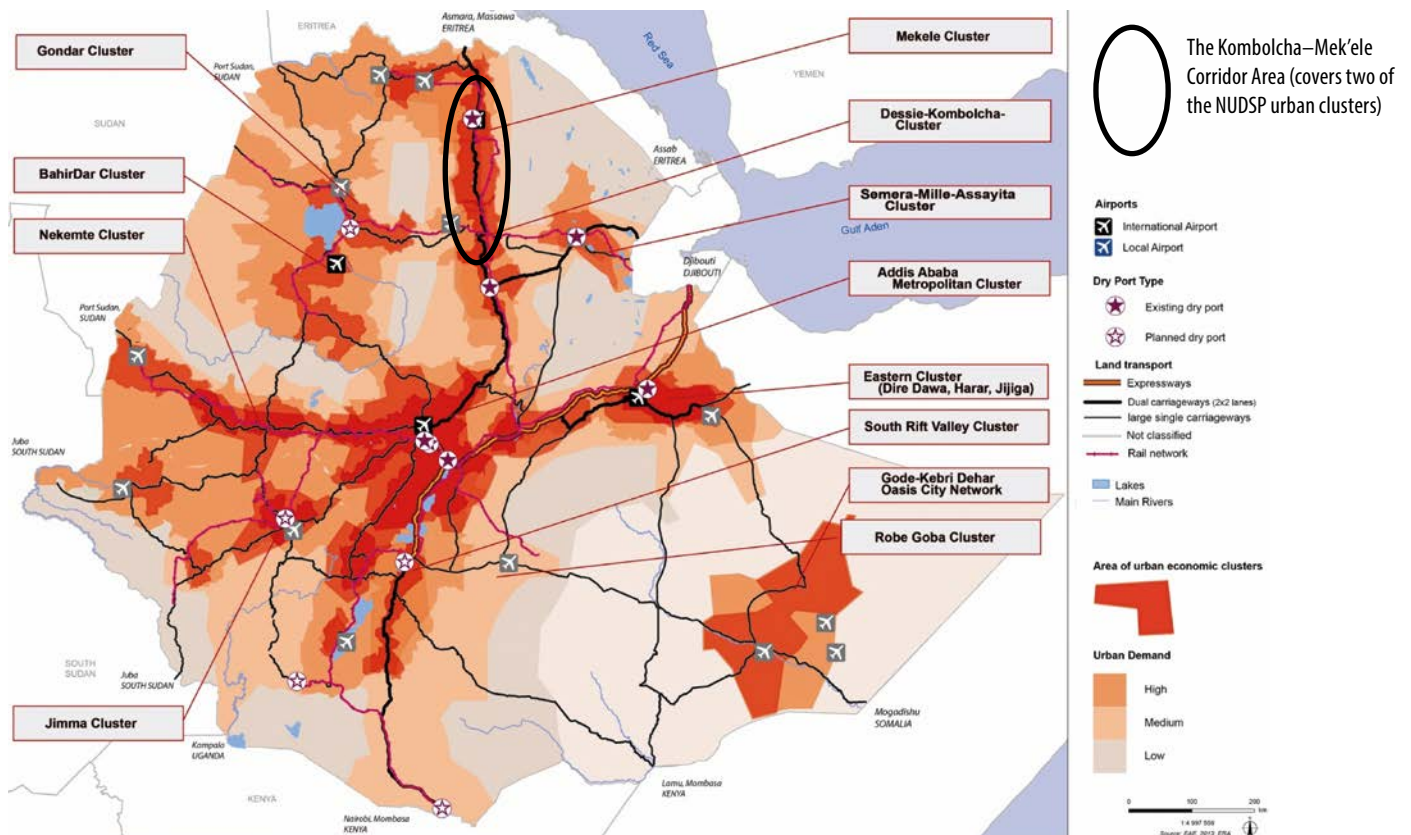
- **Shift 2: Institutional innovation.** Collaboration and coordination among federal, regional, city and local institutions is vital to ensure that issues in common (e.g. water management, transport infrastructure) are effectively

managed and that potential opportunities are maximised. This is even more critical when – as in the case of the K–M corridor – a number of different regions and therefore different political administrations and institutions are involved. The study recommended that a K–M Corridor Area advisory group be established to bring together the different parties. However, other mechanisms could also achieve this objective while working within existing governance structures; new groups are not necessarily the solution. Nevertheless, finding ways to better coordinate across often complex institutional and regional boundaries is key.

- **Shift 3: Strengthened policies.** Continuous **improvement of the policy and regulatory frameworks** guiding growth and structural change is critical, including reworking the planning process to ensure the effective implementation of holistic cross-sector integration at the relevant local level (e.g. structural plans, local development plans), and the **correct pricing of resources**. There also needs to be increased **implementation and enforcement capacity**, and barriers to new climate-friendly technologies need to be removed.

The study concluded that the **primary benefit of a corridor approach is**

Figure 1. The urban clusters of Ethiopia and the Kombolcha–Mek’ele Corridor Area



Source: NUDSP (2016)¹⁴

likely to arise from the adoption of an integrated approach to transport planning to maximise the utilisation, and consequently the utility, of the rail investment. To be cost-effective for manufacturers, there must be a regular rail freight service, but for the rail company to provide a cost-effective regular service there must first be sufficient demand from users. To achieve this will require coordination of efforts: at the federal level, to create incentives to switch to rail freight to increase demand, or subsidies to the rail company to

increase supply, in the early stages; at the city and/or regional levels, to increase the efficiency of rail transport by improving access between industrial parks and freight terminals; and between regional governments, maximising utilisation of the railway will be beneficial for both regions, so it is important for them to coordinate and collaborate in their efforts.

Further benefits of the corridor approach will arise from shared management of scarce resources that traverse administrative

boundaries, such as groundwater sources, as well as the neighbouring regional governments **adopting complementary rather than competing inward investment strategies**, based on the comparative advantages of the two primary growth clusters. Greater cooperation between regional governments will also promote **knowledge transfer and the sharing of best practice** solutions to address common challenges, such as affordable housing and waste management.

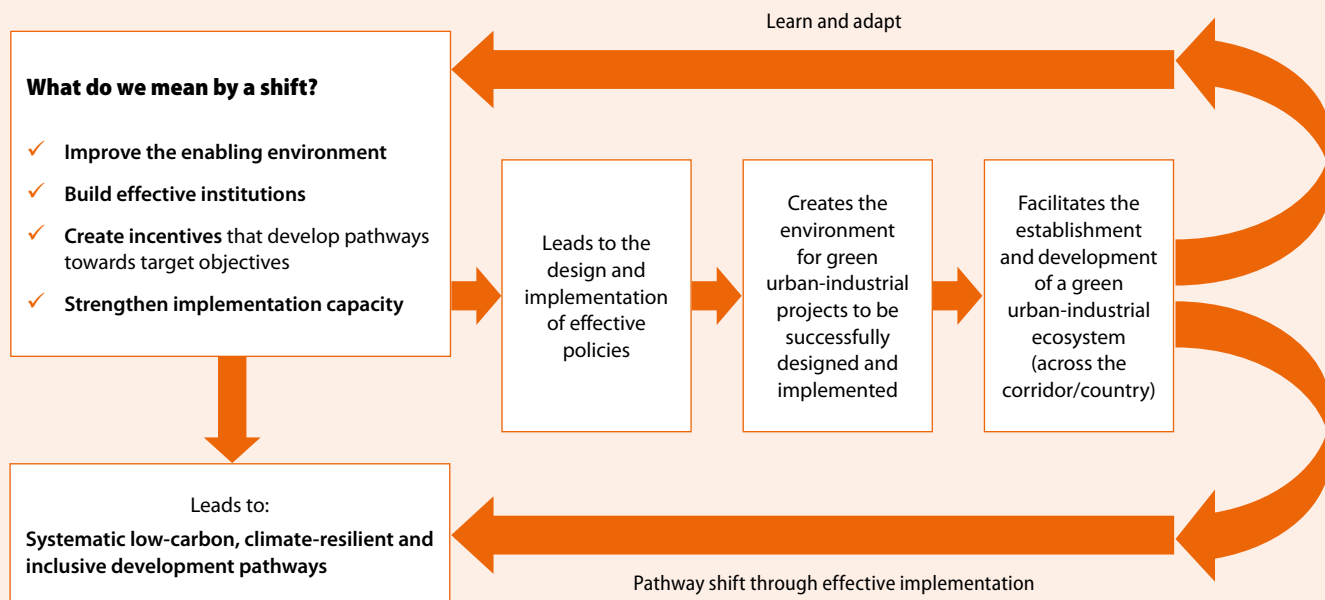
Box 3. Accelerating the shift towards a climate-resilient green economy

Growing economies will need to do things differently to secure green urban-industrial growth. One approach that can be taken (and which was used

in the CDKN Ethiopia study) focuses on achieving a fundamental shift in the implementation of urban-industry strategies (Figure 2) within the context

of neighbouring or connected towns and cities.

Figure 2. Creating a shift towards a climate-resilient green economy



Source: PwC et al. (2017)¹⁵

Additional resources

Ethiopia's New Climate Economy Partnership (2015) *Unlocking the power of Ethiopia's cities*. Washington, DC: The New Climate Economy (<http://static.newclimateeconomy.report/wp-content/uploads/2015/03/Unlocking-the-Power-of-Cities-in-Ethiopia.pdf>).

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Endnotes

1. This policy brief's content, including key messages, is based on: PwC, IPE Global Triple Line and Ethiopian Development Research Institute (2017) 'Green climate compatible urban industrial development in Ethiopia: Strategy and projects for the Kombolcha–Mek'ele industrial corridor'. Study commissioned by CDKN, available from www.cdkn.org
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5. UNECA (2017) Op. cit.
6. Egis International in association with IAU-IdF&Urba Lyon (2016) *National Urban Development Spatial Plan (NUDSP). Ethiopia's urban development scenarios. Final report*. Addis Ababa: Ministry of Urban Development and Housing, Federal Democratic Republic of Ethiopia (www.mudho.gov.et/c/document_library/get_file?uuid=2e582efd-8cd9-43d7-a49f-fed059ec800a&groupId=10136).
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11. PwC, IPE Global Triple Line and Ethiopian Development Research Institute (2017) Op. cit.
12. UNECA (2017) Op. cit.
13. Egis International in association with IAU-IdF&Urba Lyon (2016) Op. cit.
14. Ibid.
15. PwC et al. (2017) Op. cit.

About CDKN

The Climate and Development Knowledge Network (CDKN) aims to help decision-makers in developing countries design and deliver climate compatible development. We do this by providing demand-led research and technical assistance, and channelling the best available knowledge on climate change and development to support policy processes at the country level.



Funded by:



Ministry of Foreign Affairs of the Netherlands

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This document is an output from a project commissioned through the Climate and Development Knowledge Network (CDKN). CDKN is a programme funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. The views expressed and information contained in it are not necessarily those of or endorsed by DFID, DGIS or the entities managing the delivery of the Climate and Development Knowledge Network, which can accept no responsibility or liability for such views, completeness or accuracy of the information or for any reliance placed on them. This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, the entities managing the delivery of CDKN do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it. Management of the delivery of CDKN is undertaken by PricewaterhouseCoopers LLP, and an alliance of organisations including Fundación Futuro Latinoamericano, LEAD Pakistan, the Overseas Development Institute and SouthSouthNorth.