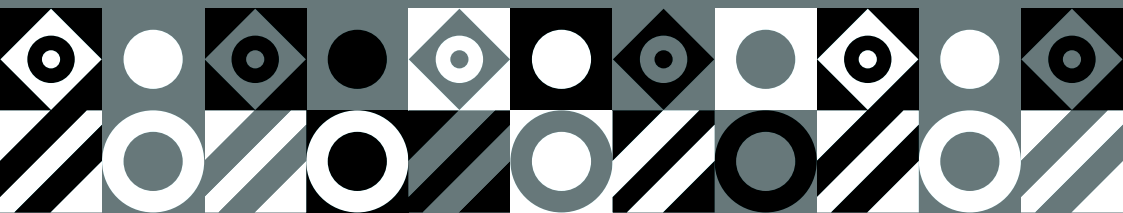


TRANSPORT AND CONNECTIVITY SCOPING REPORT



# CONNECTING THE DOTS

An Africa-Europe partnership  
for transport and infrastructure



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Publication Director: Yaya Yedan  
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Programme Manager: Rahul Chawla  
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# CONTENTS

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<b>INTRODUCTION</b> .....	2
<b>EXECUTIVE SUMMARY</b> .....	3
<b>OPPORTUNITIES</b> .....	4
<b>MAIN CHALLENGES</b> .....	4
<b>TRANSPORT AND CONNECTIVITY</b> .....	5
<b>STATE OF PLAY</b> .....	7
<b>ROADS AS THE DOMINANT MODE</b> .....	7
<b>RAILWAY'S NEW SPRING</b> .....	7
<b>AIR TRANSPORT: PROMISES IN SPITE OF TROUBLES</b> .....	8
<b>TRANSPORT, CONNECTIVITY AND DEVELOPMENT</b> .....	9
<b>IMPACTS ON THE PRODUCTIVE BASE AND DIVERSIFICATION</b> .....	9
<b>THE PROGRAMME FOR INFRASTRUCTURE DEVELOPMENT IN AFRICA (PIDA)</b> .....	9
<b>TRADITIONAL DOMESTIC AND EXTERNAL PUBLIC FUNDING</b> .....	10
<b>OPPORTUNITIES</b> .....	11
<b>GENDER EQUALITY</b> .....	11
<b>MOBILITY, SUSTAINABILITY AND RURAL GROWTH</b> .....	11
<b>AIR TRANSPORT</b> .....	12
<b>PUBLIC PRIVATE PARTNERSHIPS TO OVERCOME FUNDING GAPS</b> .....	12
<b>KEY CHALLENGES</b> .....	13
<b>SHORT-TERM</b> .....	13
<b>MEDIUM-TERM</b> .....	13
<b>LONG-TERM</b> .....	14
<b>CASE STUDIES</b> .....	17
<b>1. 2020/2021 CO2 TARGETS, EUROPEAN UNION</b> .....	17
<b>2. THE BIOMETHANE BUS SERVICE, UNITED KINGDOM</b> .....	17
<b>3. THE CONNECTING EUROPE FACILITY (CEF), EUROPEAN UNION</b> .....	18
<b>4. MOMBASA-NAIROBI RAIL CONNECTION, KENYA</b> .....	19
<b>5. THE MOTORWAY OF THE FUTURE, SENEGAL</b> .....	20
<b>6. GREEN TRANSPORT STRATEGY, SOUTH AFRICA</b> .....	20
<b>FOR THE STRATEGY GROUP'S CONSIDERATIONS</b> .....	22
<b>REFERENCES AND FURTHER READING</b> .....	24

# INTRODUCTION

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In the face of a climate emergency and as both continents come to terms with the realities of the COVID-19 pandemic, there is a new sense of urgency for Africa and Europe to come together to modernise and revitalise not only their formal relations, but also the underlying narrative.

Both have a shared interest in implementing Agenda 2030, tackling global health crises, combatting the climate emergency, ensuring food security and forging better connectivity.

While 2020 has opened up new space for Africa and Europe to reimagine their relationship and agree on areas for deeper cooperation, 2021 will see ideas turned to action, as the two forge ahead in revitalising their relationship.

This landmark year includes plans to hold the 6th African Union-European Union Summit, as well as to deepen the Africa-EU partnership across multilateral fora including COP-26, the UN Summit on Food Systems, the UN high-level dialogue on Sustainable Energy and the Global Health Summit.

As Africa and Europe embark on this renewed partnership, Friends of Europe and the Mo Ibrahim Foundation are delighted to play a role in driving an ongoing and

strategic conversation through the Africa Europe Foundation Strategy Groups. These independent fora will aim to influence decision-making, offer innovative proposals for impactful initiatives, and build inclusive networks with the will to create positive change.

Meant to advise and provoke the Strategy Group, this scoping report represents a starting point. It provides a state of play on the issue at hand, an overview of challenges and opportunities, and a selection of case studies from across both continents. It also includes initial recommendations of points for discussion and a list of guiding questions to drive debate.

The report also encourages the reader to keep in mind the cross-cutting themes which should underpin all Strategy Groups: climate, youth, gender, SMEs, governance and mobility.

We hope that you find the contents of this report informative, and that they help you to start thinking differently about the issues.

While extensive, the contents of this report are by no means exhaustive. We look forward to digging deeper into the issues with you in the months and years ahead.

# EXECUTIVE SUMMARY

From Franklin D. Roosevelt's New Deal to Xi Jinping's Belt and Road Initiative (BRI), governments often view infrastructure and connectivity projects among their most important legacies. As Africa and Europe seek to renew their relationship and forge a real partnership, transport projects will be key to meeting the regions' goals of building prosperity, opportunity and an equitable solution to the climate emergency.

The African Union and European Union can share transport successes and hard-learned lessons from initiatives as varied as the Connecting Europe Facility (CEF) or the Programme for Infrastructure Development in Africa (PIDA); from Senegal's 'autoroute de l'avenir' to the biogas buses of South East England.

Roads remain the dominant mode of transport for passengers and freight in Africa and Europe. Addressing their economic and environmental sustainability is a shared challenge. Seaports are essential for carrying freight between the continents and must also be targeted for sustainable development.

Handled properly, an enhanced connectivity partnership between Africa and Europe can bring major economic, social and environmental benefits for both continents.

## OPPORTUNITIES

- Improved connectivity provides opportunities for women and girls, particularly in rural areas. It reduces their transport burden, granting access to schools and health centres. The EU and United Nations' gender equality targets cannot be met without significant improvement to rural transport.
- Transport links give rural producers easier access to markets in towns and cities. Farmers are less likely to lose income on perishable products. Young people, women and the underprivileged will have more income-generating opportunities, reducing insecurity and migration pressures.
- Better mobility between smaller cities and rural areas reduces the growth of megalopolises, bringing economic benefits by diversifying the productive base. Slowing the growth of megacities also lessens the environmental costs of congestion.
- Making the Europe-Africa partnership work means overcoming critical economic and geopolitical challenges.

## MAIN CHALLENGES

- Europe has been slow to recognise the potential of Africa and lags behind as a partner for infrastructure investments. China has built maritime trade connections and the BRI has set up many projects in Africa.
- African infrastructure projects often face funding gaps. Governments cannot provide enough and external partners, including development banks, are unwilling to co-finance due to risk levels. Public-private partnerships (PPPs) are underdeveloped and need to be made more attractive for the private sector. Port infrastructure is an exception.
- The COVID-19 pandemic has caused many infrastructure projects to grind to a halt. It has severely impacted transport, particularly for passengers. Africa's economy has been hard hit. An infrastructure-led recovery may be the only solution to the global crisis.
- Transport and connectivity are vital in an ever-more globalised world. As Europe and Africa look to further integrate their internal markets, facilitating the movement of goods, services and people will be critical. Growth corridors are being mooted across Europe, Africa, and Asia. A partnership between Africa and Europe to support these will enable Africa to realise its full potential as a global player and ensure Europe is not left behind as the world enters a new era. The transport industry will play a key role in the fight against climate change. Africa and Europe must work together to ensure a transport transition that supports sustainability, equitability and progress.

# TRANSPORT AND CONNECTIVITY

Transport and connectivity in Africa and Europe are key for socio-economic life with strong gender and inclusive-growth implications. In Africa, roads carry 90% of passenger movements and trucking accounts for more than 80% of freight traffic. Europe has similar numbers. Roads account for 81% of inland passenger transport and 73% of inland freight. Across Africa, paved roads are about 25% of the total network. Overreliance on road transport is a major constraint on sustainable development. African railways are diversified and disconnected. Expansion could reduce congestion, pollution and accidents. Air transport presently faces huge financial troubles due to COVID-19, however its contribution to continental integration makes it a critical component in Africa-Europe relations.

International and domestic transport and logistics account for 15% to 20% of the Cost, Insurance and Freight (CIF) value of African imports and up to 25% of exports. That compares to 5.4% to 8.8% elsewhere, increasing the cost of business in Africa and discouraging investment. Reducing these costs would help diversify the productive base and boost household wellbeing. It could improve access to agricultural inputs and consumer goods at competitive prices, pushing economic growth and the empowerment of women and the poor. Europe's longstanding experience in this area offers opportunities for sharing best practices.

Medium-sized cities can be an efficient intermediate pathway between remote rural areas and congested megacities. In remote rural areas, regularly maintained, unpaved tracks that are useable all-year meet the

modest transport needs of passengers and goods. Linking rural areas to secondary towns provides an opportunity to better distribute populations by avoiding a concentration in coastal centres. The Programme for Infrastructure Development in Africa (PIDA) Priority Action Plan 2 (2020-2030) addresses spatial organisation through the concept of 'integrated corridors', which combine transport and other infrastructure assets.

Agglomeration growth creates a huge need for transport infrastructure and connectivity. Urban transport fares are often excessive and revenues difficult to collect. Combining accessibility with affordability is crucial. Public authorities must promote effective institutions and clarify investment priorities to balance expectations with budgetary constraints.

Public infrastructure investments must be transparent and match profitability with social returns.

The International Monetary Fund estimates countries on average lose 30% of returns on public investment through selection process inefficiencies. Another issue is the balance between increasing and maintaining infrastructure. It's estimated \$1 spent on regular road maintenance saves \$4 in rehabilitation. However, half the countries in Africa do not devote sufficient resources to maintaining the main road network and a quarter fail to provide even minimal maintenance. Countering this requires more money and stronger institutions.

The effectiveness of road agencies and funds is undermined by weak institutional frameworks in several countries. Road maintenance agencies seek to protect

structures from political interference but they often fail to take sufficient account of rural population needs. Resource transfers to decentralised services suffer from unreliable public revenues.

Europe's experience of timely road maintenance can provide useful lessons for third-generation road funds under consideration in Africa. Climate-related risks have increased the urgency of both continents devising climate resilient infrastructure approaches. A collaborative project to look into this could engender sustainable and mutually beneficial results.

The private sector role can be expanded through the delegation of toll infrastructure services. Concessions under the Build, Operate and Transfer (BOT) model require the mobilisation of significant financing with risks shared between the state and private operators. These sophisticated contracts have been implemented for ports, airports, motorways, bridges and railway lines. Toll roads are particularly interesting for short segments of motorway to reduce urban congestion or facilitate access to strategic sites. Concessions remove problems over the autonomy of public structures responsible for road infrastructure and maintenance.

The initial financial envelope to meet PIDA objectives was estimated at \$360bn from 2011 to 2040, including for 24 major transport infrastructure projects. That estimate has been revised upwards. For the second phase from 2020 to 2030, the AU now indicates \$130bn to \$170bn per year up to 2025. In most countries, national budgets are the main funding source, but states can increase their room for manoeuvre by mobilising more diverse domestic resources. International support, including from Europe, will remain important even as African countries look to new sources of project funding.

Between 2005 and 2013, PPPs made up for 64.1% of the financial needs. Transport accounted for 15% of that, broken down as: port infrastructure 9.6%, railways 4.2%, roads 0.8% and airports 0.2%. PPPs can be the solution to economic, financial, and institutional shortfalls in the public sector. However, because PPPs have a potential impact on public debts, they need finance ministry supervision.



# STATE OF PLAY

## ROADS AS THE DOMINANT MODE

Across Africa roads carry about \$200bn in goods every year, according to 2010 World Bank data. Reliance on roads generates widespread transport inefficiencies. In Europe, the external costs of transport are almost \$1tn per year, of which \$271bn can be blamed on congestion. The dominance of roads in Europe means that transport is the only sector where CO2 emissions are rising. Cars were responsible for 44.5% of these emissions in 2017.

European has serious regional connectivity inequalities. The EU has attempted to address them through trans-European Transport Networks (TEN-T) but the project still lags behind in eastern member states. Romania in particular has struggled to improve its motorway network. Despite promises from transport ministers, the country had only 870km of motorway in 2020.

Africa has the least extensive road network of any continent. Data is of limited reliability: the International Road Federation (IRF) only partially documents the classification of roads and in certain countries figures are not regularly updated. Unpaved main roads in some places may be equivalent in quality to roads classified elsewhere as secondary or tertiary.

Paved roads are about 25% of Africa's total road network. In low-income sub-Saharan countries, the density of the paved network is estimated at 31km per 1,000km<sup>2</sup> of arable land. That compares to 134km/1,000km<sup>2</sup> in other low-income countries.

African connectivity requires a highway network of 60,000km to 100,000 km, the World Bank estimated in 2010. Africa is far from these levels. The density of national roads is below 204km per 1,000km<sup>2</sup> of surface area, compared to the world average of 944km. However, the situation varies by region and country, with North Africa generally better connected than sub-Saharan regions.

## RAILWAY'S NEW SPRING

Rail networks in Africa and Europe are frequently as varied as road networks. They vary by the number of tracks, electrification levels, axle loads, country interconnections and gauge width.

Some African railway lines have been disused for decades, while new lines are planned or recently built, such as the Mombasa-Nairobi and Djibouti-Addis Ababa links. Some are being rehabilitated. Standard gauge railways are starting to replace older narrow-gauge lines across Africa, in line with PIDA recommendations. Similar undertakings are underway in the EU, notably in eastern Europe, Finland and the Iberian Peninsula. The electrified line between Djibouti and Addis Ababa is a component of China's BRI, replacing a single narrow-gauge rail that France completed in 1917.

Africa has 84,000km of rail track for a surface of 30mn km<sup>2</sup>. In 2008, 47 out of the 54 African countries had railway networks but only 32 were operational. Excluding South Africa, which has by far the most extensive network, Sub-Saharan Africa, has only 34,000km of regularly usable rail. In comparison, Germany alone has 38,416km.

All 27 EU member states, apart from Malta and Cyprus, have operational rail networks, but performance varies significantly. Europe's rail freight levels were rising as of 2018, but are still below pre-2008 levels, with a similar picture for passenger numbers.

Investment in rail freight can result in excess capacity, in turn triggering a decline in investor interest. That interest generally depends on distances from seaports and on the degree of specialisation in raw material exports. Until the 1990s, financing of development projects, for example by the World Bank or EU, focused on roads in line with liberal competition models. Railway monopolies were weakened by highly integrated service chains like ports and river transport. Now, railways are receiving more attention because of urban congestion, CO2 emissions and safety.

## **AIR TRANSPORT: PROMISES IN SPITE OF TROUBLES**

Air transport brings undoubtable economic and social benefits. It contributes to the integration of the world economy and stimulates regional exchanges, including by connecting medium-sized cities. Air transport enables trade in time-sensitive goods such as cut flowers, vegetables, fruit, meat and fish which are increasingly important foreign earners for African countries. Air connectivity can help turn the African Continental Free Trade Area (AfCFTA) into a single market for Africa. Aviation is particularly important for Africa where the scarcity and poor quality of road and rail make it the safest and easiest transport mode to operate. Their small footprint means airports are easier to secure and maintain than road or rail networks. Air transportation can be relatively cheap thanks to limited fixed and sunk costs. A 1,600-metre runway is sufficient for short- and medium-haul aircraft and although running costs per kilometre are high, low maintenance costs largely offset the difference. Despite such factors, Africa's air transport remains

expensive by international standards. This is due to constraints such as limited liberalisation, high passenger and airport taxes, safety and insufficient infrastructure.

Africa has several hundred airports classified according to frequency, number and origin/destination of flights. There are a few big airports playing a major role in inter-continental connectivity, around 40 medium-sized airports and 200 smaller airports. The latter are rarely financially viable and are intended exclusively for local traffic. Africa has five major airlines: Ethiopian Airlines, South African Airlines, EgyptAir, Royal Air Maroc, and Kenya Airways. The first three have similar passenger traffic levels. According to the International Air Transport Association (IATA), in 2015 Ethiopian Airlines was the leading continental carrier with 6mn passengers. Air traffic growth is considerably higher in Eastern and Southern Africa where the three main African hubs, Addis Ababa, Nairobi and Johannesburg are located; and in North Africa, with Cairo and Casablanca as the main hubs. In Western and Central Africa, air transport is relatively rudimentary. Continental connections are limited and regional travel difficult within reasonable flying times. African airlines lag behind in terms of technological upgrades, notably surveillance and fleet modernisation. The sector records the world's lowest safety standards.

The AU's adoption of the Single African Air Transport Market (SAATM), in 2018, and its related open skies agenda underscores African countries' commitment to developing competitive air transport.

Aviation in Europe is responsible for 2.1% of GDP, around €300bn per year. Before COVID-19, it was predicted to grow 5% per year up to 2030. The EU's air transport network includes over 100 airlines and 400 airports. It is underpinned by the single aviation market created in the 1990s which led to the rise of new business models,

such as budget airlines, greater connectivity and increased traffic. This creates its own problems: congested airports cost up to €52bn in lost GDP. Europe plans to further integrate through the Single European Sky initiative, which aims to cut air-traffic management costs by 50% and achieve a 10% reduction in environmental harm. Reducing aviation emissions by minimising fossil-fuel use is a common challenge for Europe and Africa. COVID-19 has also cast doubt on the sector's future path.

## **TRANSPORT, CONNECTIVITY AND DEVELOPMENT**

### **IMPACTS ON THE PRODUCTIVE BASE AND DIVERSIFICATION**

Measuring the impact of infrastructure projects on economic growth or societal wellbeing is an uncertain exercise. Increases in transport equipment stocks, for example, are frequently accompanied by energy sector developments with a cumulative impact on economic growth. The infrastructure corridor approach adopted by the AU in 2020 supports a holistic approach by organising groups of infrastructure assets to push social development along corridors. Benefits can work both ways: connectivity can stimulate economic growth, just as growth can drive infrastructure expansion.

Expensive but poor-quality transport services hinder Africa's international trade. In 1948, the continent accounted for 7.3% of world exports. By 2018 it had fallen below 5%. Premature deindustrialisation, including in the transport sector, risks further damage. International and domestic transport and logistics represent between 15% and 20% of the Cost, Insurance and Freight (CIF) value of African imports, three to four times higher than percentages observed elsewhere. The figure can be as high as 25% for exports compared to just 5.4% to 8.8% on other continents. Service provision failings and costs hurt landlocked

countries particularly hard.

Transaction and opportunity costs vary greatly depending on the nature of the product being transported. For hydrocarbons and minerals, multinational companies often carry out transport and logistics on their own account. Where there is infrastructure, rail transport is preferred. This is less costly, has little interaction with road traffic and causes less urban congestion. In the case of traditional agricultural products, small independent businesses can provide trucking. Deliveries are nevertheless subject to significant variance in lead times. Without reliable delivery, Africa loses the competitive advantage of its labour force.

Perishable fruit and vegetables are sensitive to transport and packaging. Poor bacteriological properties may lead to refusal of entry by importing countries applying hygiene standards. In agriculture, high transport and logistics costs can also cause problems for upstream production incentives. As prices are set by highly integrated world markets, transport and logistics costs constitute a levy on the farmers' incomes.

### **THE PROGRAMME FOR INFRASTRUCTURE DEVELOPMENT IN AFRICA (PIDA)**

PIDA was developed by the AU Commission in partnership with the UN Economic Commission for Africa (ECA), the African Development Bank (AfDB) and the New Partnership for Africa's Development (NEPAD) Planning and Coordination Agency. The aim of this continent-wide initiative is to promote regional projects that overcome handicaps to competitiveness and integration, spur inclusive growth and reduce poverty. The programme's focus on corridors is mirrored by its European counterpart, the Connecting Europe Facility (CEF) (see case study 3).

African leaders set up PIDA at a 2012 summit in Addis Ababa. By the time a progress

report was published in 2017, none of the planned 24 major transport infrastructure projects were fully operational but 19 were in the implementation phase, at least in terms of financing or procurement. Investments of \$81.6bn had been made. In one of the most advanced projects, several sections of the Algiers-Lagos highway were in service. As the second phase of PIDA (2020-2030) gets under way, the likelihood of tighter financing flows highlights the need to prioritise highest-impact projects.

PIDA's aim to increase trade and strengthen regional value chains mirrors Europe's approach (case study 3) and dovetails with the growing connections between African capitals and the goals of AfCFTA. However, the vision of continental integration must not conflict with bottom-up national approaches responding to citizens needs for concrete, rapid-outcome projects. Authorities must determine priorities and balance citizens' expectations with budgetary constraints. The Integrated Corridor Approach of the PIDA-PAP 2 is in line with these concerns. It aims for infrastructure projects that are multi-sectoral; employment-orientated; climate-friendly; gender-sensitive; connected to rural areas; economically viable; financially attractive; and based on smart and innovative approaches and technologies.

## **TRADITIONAL DOMESTIC AND EXTERNAL PUBLIC FUNDING**

Traditional financing means projects are funded by domestic budgets and official development aid. Financial constraints are generally strong, requiring strict prioritisation to manage scarce resources. International public aid is often earmarked for specific uses and not available to be redeployed. States must assert their priorities in dialogue with external partners to ensure that projects' social benefit is the driving factor, not the availability of funding.

In most African countries, the state budget remains the dominant funding source. Their financial room for manoeuvre increases with the level of fiscal effort and the mobilisation of resources via sovereign bonds and other external commercial financing. The ratio of public revenue to GDP varies greatly among countries. Efforts to widen revenue bases have been complicated by trade liberalisation leading to declines in customs income. In some countries, gains from high commodity prices – such as oil and gas – and new raw-material discoveries have compensated for such revenue losses. This has allowed a few African countries to set up stabilisation or sovereign wealth funds in good economic times which can smooth public revenue fluctuations.

Pension funds are limited: South Africa accounts for 85% of amounts collected in Sub-Saharan Africa. These resources could be connected to investments with expected returns over a long-term horizon. Instead of smoothing expenditure and long-term management of financial balances, African countries have often pursued pro-cyclical policies. Public investment has been amplified by sovereign bonds and external borrowing. As a result, more than a third of African countries are over-indebted. The COVID-19 crisis is forcing them to claim debt forgiveness. In the face of cash-flow tensions or solvency crises, there is a risk maintenance of infrastructure will be sacrificed.

In the tense financial context, states must assert their investment priorities and mobilise internal resources in a way that stabilises the macroeconomic situation. Smoothing of tax windfalls can avoid the propensity to pro-cyclical spending, price distortions and instability.

Official international funding is also important, although less dominant than it was. Under the influence of the World Bank and AfDB, support for infrastructure has increased in volume. The major innovation of the last 20

years is the increase in official Chinese aid. A significant part of this investment focuses on the risky infrastructure sector. Between 2005 and 2012, 53% of Chinese infrastructure financing in Sub-Saharan Africa went to transport, mainly road and rail. Official aid from other sources is spread more evenly among transport, energy, water and sanitation.

## **OPPORTUNITIES**

### **GENDER EQUALITY**

Connectivity affects the well-being of all citizens. Poverty is not an exclusively rural phenomenon, but it is in rural areas – where 60% of Africans live – that the effects of poverty are most acute. Only one-third of Africa’s rural population lives near an all-season road compared to 69% at the global level and almost 100% in Europe. Lack of accessibility undermines human capital, exacerbates gender inequalities and lowers income opportunities. Traditional women’s tasks – such as carrying water, fuel, farm produce and trade goods – impose a heavier transport burden. They often suffer from more limited access to available transport and may experience socially determined constraints on their ability to use them. Girls are more prone to school absenteeism. Lack of transport restricts visits to health centres even for pregnancy and maternity services. Transport policies often ignore these problems.

Transport and logistics progress can push female economic empowerment. In the Sahel, for example, women are sometimes leading stakeholders within the agricultural sector, gaining economic power within households through sales of gum Arabic, cashew nuts and sesame. Women shea nut producers sometimes have to walk up to 10km a day carrying heavy baskets. Improved mobility would bring them more wellbeing, income and leisure time.

## **MOBILITY, SUSTAINABILITY AND RURAL GROWTH**

Sub-Saharan Africa’s population grows 2.7% per year. Growth in food production and productivity does not keep pace, largely because of complications with the status and availability of land. Greater mobility would create opportunities and better mobilise the labour force, improving production and incomes. However, care must be taken to ensure that increased mobility does not lead to the concentration of activity in large conurbations draining other regions of their human resources.

Quality infrastructure is essential to promote rural economies. It is a factor of integration. Infrastructure also strengthens agro-industrial value chains. Information technology facilitates connectivity by improving telecommunications and underpinning transport modes. Regularly maintained all-season unpaved tracks can better meet the transport needs of rural areas than paved roads with regularly degrading surfaces.

Investment in infrastructure is important to stimulate agriculture and rural development. As rural producers are also consumers, they benefit doubly from improved connectivity which provides access to agricultural inputs and affordable good-quality goods. Lower transport times and production costs are vectors for inclusive growth. They facilitate wealth creation while reducing poverty and inequality.

Linking rural areas to secondary towns is an opportunity to better distribute the population, avoiding concentration in coastal megacities. There is a proliferation of ‘rural towns’ of 10,000 to 50,000 inhabitants that provide a midway between rural areas and large conurbations. They need infrastructure to develop as regional commercial hubs. Often, they lack storage facilities, urban roads and road or rail links with the rest of the country or neighbouring nations.

African exports are largely agricultural or mining commodities which could be transported more cheaply and efficiently by rail rather than road. Rail line development and investment in associated equipment such as rolling stock, logistics terminals and communications are investment opportunities that will be critical for development of the sector.

New mobility and accessibility challenges call for the setting up of smart combinations of all modes of transportation for sustainable services. This includes walking and cycling in inner cities and public buses close to city centres. Strategies involving energy-efficient mass public transport with dedicated traffic corridors have barely been tried in Africa. Public transport or efficiently regulated private operators could run buses and taxis to fix accessibility in congested inner suburbs. Such systems are supposed to be in place in several countries but they are poorly organised and suffer from ineffective public oversight.

## AIR TRANSPORT

Improving Africa's air transport network requires commitment from public and private, stakeholders at local and international level. The opening up of Africa's skies offers significant development opportunities. An airspace-opening agreement between South Africa and Kenya generated a 69% increase in passenger traffic and authorisation for low-cost flights between South Africa and Zambia led to a 38% rise. Complete air connectivity between 12 African countries would add \$1.3bn to GDP and create over 155,000 jobs, according to a study by Intervistas Consulting Ltd. commissioned by IATA in 2014. Air travel would become affordable for some 5mn new passengers as increased competition would cut fares by 25% to 35%.

## PUBLIC PRIVATE PARTNERSHIPS TO OVERCOME FUNDING GAPS

African leaders emphasised the role of PPPs within the PIDA framework. Telecommunications have historically been the main beneficiary of private participation in the financing of sub-Saharan infrastructure. Between 2005 and 2013, the sector raised 64.1% of this financing. Transport raised 15% with the following breakdown: ports (9.6%), railways (4.2%), roads (0.8%), and airports (0.2%). PPP financing from 2010 to 2019, went to 301 energy projects, 74 port projects and only 25 related to rail and 20 involving toll roads or bridges.

PPPs can be a solution to economic, financial and institutional problems facing public sectors. Under such arrangements, authorities call upon private operators to finance and manage public-service facilities. The last 20 years have shown the feasibility of private participation in bridges, motorways, ports and railways. Underlying risks are high but can be shared with the state to increase the likelihood of profitability. However, cost/benefit evaluation suggests private participation in financing rural tracks and secondary roads is unrealistic, leaving open the problem of investment and maintenance there.

Contracts with the private sector extend over long periods, in line with the concessionaire's financing volume and return on investment. PPPs can reduce underdevelopment in basic infrastructure but their role is not without risk. PPP arrangements are usually made in complex contracts between the state and project companies known as special purpose vehicles (SPVs), which are generally controlled by a national subsidiary of a foreign company. The SPV bears all the risks associated with the operation but may find itself in default and force the state to renegotiate or act as financier of last resort. Such risks highlight the need for PPP arrangements to be transparent and monitored by finance ministries.

## KEY CHALLENGES

### SHORT-TERM

COVID-19 has affected airlines severely. African carriers could lose \$6bn in passenger revenue compared to 2019. Job losses in aviation and related industries could reach 3.1mn, half of the continent's 6.2mn jobs in the sector. Worst-case scenarios show a 69% 2020 drop in Africa's international air traffic and a 59% decline in domestic traffic.

Europe's airlines have also been hard hit, leading them to request \$33bn in bailout funding. Aviation in Europe was already directly subsidised to the tune of \$3bn per year, as well as receiving indirect help through fuel-tax breaks.

It is too early to assess all implications of the pandemic but traffic in Africa will certainly lag behind the over 6% yearly growth of recent times. The International Civil Aviation Organization (ICAO) warns many airlines, including majors, risk bankruptcy. South African Airways already filed for bankruptcy protection in December 2019, suspended operations in September and received a \$640mn bailout in October. Financial distress across Africa could reduce flight punctuality, raise maintenance costs and even worsen accident rates. Africa already accounts for 25% to 30% of air accidents despite having just 4.5% of global air traffic. The hope is that the pandemic could lead to creative destruction that forces restructuring and leaves the sector more resilient and financially sustainable.

Even before COVID-19, the sector was hampered by political and financial problems. Government protection of flag carriers reduced competition, limited the number of routes and kept fares high. High airport taxes add to costs. Access to finance is another challenge. Most local banks lack capital to provide long-term acquisition finance for expensive equipment, and those that do

treat small airlines as very high-risk and charge exorbitant interest. Aircraft leasing companies are rare. Solving institutional and financial problems is crucial to improving Africa's air connectivity. An effective open-sky strategy requires political will. Building closer cooperation with Europe to relax budget constraints has become even more necessary since the pandemic.

### MEDIUM-TERM

#### **Expensive services and long delivery times**

The cost of inland transport and logistics is high. For landlocked countries, it can be particularly onerous due to transit costs from the use of international corridors. The 'trading across borders section' of the World Bank's Doing Business Report used to give a flavour of the problem by referencing costs related to moving cargo from seaports to warehouses in the main city of importing countries. Unfortunately, this continent-wide data source was discontinued in 2015.

Prices depend on distance from seaports and the quality of the land transport infrastructure. Poor infrastructure and the weakness of institutions in charge of maintaining it are a barrier to competitiveness.

Until recently, ports were mostly public monopolies responsible for a range of activities, including pilotage, towage, mooring, dredging, cargo handling and customs clearance. This integrated public monopoly model is declining; the state is increasingly acting as owner or regulator, rather than operating ports. That way it negotiates access to public facilities, then leaves it to private operators to finance investments and manage day-to-day operations. Despite these institutional changes processing times remain long and emphasis should be placed on improving ports' operational performance to streamline and automate processes. At the start of the last decade, Africa required 20 days of port storage compared to an international average of three to seven days.

Reforms have improved this performance, particularly in some regions. In 2015, the average storage time was six days in South Africa and 12 to 15 days in East and West Africa. There are indications that the situation continues to rapidly improve along certain East African corridors.

The price of road transport per tonne-kilometre varies from \$0.04 in Kenya and Zambia, which is close to European and Asian rates, to as much as \$0.15 in landlocked countries such as Burundi, Chad, Niger and the Central African Republic.

### **Urban growth**

Agglomeration growth creates huge connectivity and transport infrastructure challenges. Many capital cities initially lacked master plans for organising traffic flows around radial roads and bypasses. Densely populated residential areas have grown up along narrow and poorly maintained roads. Population displacement is a major problem. The growth of a car-owning middle class is increasing road network saturation and the need for efficient public transport. However, the history of public transport in African cities is marked by failure: companies face significant and recurrent operating deficits with little possibility to invest in new equipment.

Operators face a challenge to combine accessibility with affordability. Fares are often excessive and revenues difficult to recover: many passengers cannot afford to buy tickets. Round trips can cost \$0.60, out of reach to people on the absolute poverty line of \$1.90 a day. Inner cities are partly served by collective taxis, often old vehicles which contribute to rush-hour congestion and pollution. During off-peak hours, collective taxis can be more expensive than public buses. However, they are usually more comfortable and provide convenient connections to bus and train stations serving suburbs and secondary towns. Some capitals have suburban railway lines.

Africa's urban dwellers are projected to increase from 472mn in 2015 to 1.3bn in 2050, 56% of the population. In 2035, the continent will have more than 100 cities with over 1mn inhabitants, including four megalopolises of over 20 mn. Urban transport planning has favoured private individual solutions over public transport systems leading to high carbon emissions, severe congestion and efficiency losses from wasted time and fuel. Innovative approaches are urgently needed to promote sustainable and smart mobility.

### **LONG-TERM**

#### **The investment selection procedure**

Public infrastructure investments are often criticised for lacking clear objectives, transparency and well-defined social returns. Investments should clearly contribute to community welfare, with plans showing their impact on poverty levels; the social gains of competitiveness; ability to lower congestion and pollution; and potential to reduce accidents. Political considerations often influence investment decisions. Decision-makers know they can gain political advantage building airports or paved roads in areas where they influence ballots. The AU Commission recently reiterated the need to base projects on more efficient evaluation. About 80% of infrastructure projects fail because of insufficient early preparation, according to a 2020 McKinsey report. The AU Development Agency-NEPAD promotes good practice by rewarding feasibility studies and high-level preparation with a PIDA Quality Label.

The World Bank and IMF have outlined public investment management guidelines. Inefficiencies in selection, monitoring and assessment can lead to average losses of 30% of returns on public investments, according to the IMF. In line with the 'integrated corridor approach' and the AU's 2063 vision, PIDA Phase 2 establishes five-steps for evaluating projects: identification



of selection criteria; scoring methodology; scoring scale; score calculation; and listing projects to prioritise.

The Development Assistance Committee (DAC) works with development partners to promote competition and transparency. However, the sustainability of these efforts faces a challenge from emerging players such as China. Major Chinese infrastructure investments include the Addis Ababa bypass; railways linking Addis Ababa to Djibouti, and Nairobi to Mombasa (case study 4); road link improvements for Kinshasa airport; and connections between Port-Gentil and Libreville in Gabon.

China favours bilateral negotiations at the highest official level. This way of working is likely to weaken investment selection procedures, because the availability of financing may drive choices, rather than a project's utility. African countries generally welcome the speed with which contracts are finalised with China involving minimal procedures, while DAC procedures are seen as a burden by local administrations with limited expertise. Complex procedures can, indeed, delay much-needed infrastructure but rushed projects without proper oversight lead to inefficiency and corruption, especially where governance is weak.

### **Capital stock maintenance**

A balance must be established between maintaining existing infrastructure stock and new construction. In many low-income countries, new investment projects are implemented while existing stock is deteriorating. That means infrastructure spurs growth through an instantaneous demand effect but does not contribute to stimulating supply. Estimates suggest every dollar spent on regular road maintenance can save \$4 on rehabilitation.

Using transport infrastructure to promote female employment could be an interesting avenue to explore in the Africa-EU dialogue.

In Zambia, some donors require women to make up at least 50% of labour on road maintenance projects they finance. In Lesotho, females account for 60% of the road maintenance labour force. Women also have increasing opportunities to access administrative positions and jobs as toll collectors, taxi or bus drivers. On the downside, they are often paid less than male counterparts.

### **Securing road infrastructure maintenance**

Maintenance problems affect all infrastructure but roads provide the most acute challenges in Africa and Europe. While public-service fees charged to costumers at ports and airports support maintenance, roads often rely on insufficient state-budget financing. The EU's Connecting Europe Facility seeks to address bottlenecks caused by poor road maintenance but its efforts are complicated by varying member-state budget priorities.

About 30% of infrastructure is in need of rehabilitation, according to a study by the World Bank's Africa Infrastructure Country Diagnostic (AICD). Half the countries in Africa fail to devote sufficient resources to highway maintenance and in a quarter not even minimal maintenance is carried out. A 2015 IMF study estimates 40% of investment value in low-income countries is lost due to delays, cost overruns and poorly maintained equipment. Inadequate training, poor preparation, corruption and failure to properly evaluate tenders all have an impact. To reduce excessive road maintenance and construction costs, institutions must be strengthened and insulated from corruption.

Most African countries have established road maintenance funds (RMFs). Some are second-generation, making a break with previous dependence on general budget allocations. They aim to bring the cost of road maintenance closer to users who contribute through taxes on axle loads or fuel. Resources are allocated to targeted expenditure, reducing budgetary pressures

on maintenance needs. Operating efficiency depends on the effectiveness of tax collection and the transfer of revenues to road agencies, plus the autonomy and accountability of management. Independent road agencies protect against political interference. Their autonomy is greater when they don't have to rely on subsidies to top up road-tax shortfalls. Agencies can carry out maintenance work themselves or subcontract.

Road agencies often fail to take proper account of rural populations. Centralised agencies tend to overlook remote communities who lack a collective voice, while decentralised authorities suffer from unstable revenues and weak institutions. Payment arrears complicate the work of small private operators. Conversely, timely payments promote inclusive growth and the development of the rural productive fabric. Efficient rural connectivity demands regular transfers of resources from the centre to peripheries; mobilisation of local fiscal potential; and accountable local governance to generate tax consent. Securing all three is a big challenge.

## **Financing needs**

The World Bank has set four objectives for sub-Saharan road networks: connecting major cities to international borders by two-lane paved highways; connecting intermediate towns to provincial capitals by single-lane paved roads; making sure rural areas that generate 80% of agricultural value added are within two kilometres of all-season roads; and locating urban populations within 500 metres of an all-season road with a bus service. The financing requirement to achieve that amounts to \$9.6bn a year, about 10% of the \$93bn needed to upgrade Africa's basic infrastructure. There is some subjectivity in these objectives, but the costing has the merit of including maintenance of capital stock.

# CASE STUDIES

## 1. 2020/2021 CO2 TARGETS, EUROPEAN UNION

- **What:** Targets for total CO2 emissions from carmakers in the EU
- **Where and when:** Europe / 2020-2021
- **Partners:** EU

### THE NEED

Cars are responsible for almost half of EU CO2 emissions. Vehicle emissions have been growing for years so new emission-reduction targets are essential for European climate goals.

### THE OUTCOME

Driven by the new emission standards, sales of electric cars – both battery and plug-in hybrid – boomed in the first half of the year, reaching a market share of 8% (European

Economic Area, EEA). Some manufacturers have already reached their targets and by the end of the year electric cars are set to reach 9% of all car sales in the EU-27, treble 2019 levels.

### WHY IT MATTERS

The impact is clear: across the continent, CO2 emissions of new cars dropped dramatically as soon as the new regulations were in place. Continued growth in electric car sales creates greater competition, lower costs and less demand for petrol and diesel vehicles. To avoid 'dumping' of fossil-fuel cars by manufacturers, similar legislation is needed in Africa. National authorities, regional communities and the AU should work together to protect against the offloading of carbon-intensive vehicles.

## 2. THE BIOMETHANE BUS SERVICE, UNITED KINGDOM

- **What:** Reading Borough Council sought to increase air quality and reduce congestion by introducing new compressed natural gas (CNG) powered buses
- **Where and when:** Reading, United Kingdom / 2013-2014
- **Partners:** Reading Borough Council, Reading Transport Ltd, EU

### THE NEED

Reading is the regional centre of the Thames Valley in South East England, about 60km west of London. Reading Borough Council serves a population of around 150,000 and

co-ordinates a public transport operation including 47 bus lines, which carry 16.2mn passengers per year. Reading has England's fourth highest number of bus journeys per head of population, at 103.1 per year, outside London. In 2009, the Council adopted an air-quality action plan in response to high levels of nitrogen oxides (NOx).

### THE OUTCOME

Three public transport operators bid to provide bus services offering new vehicles powered by conventional diesel engines. However, Reading Transport Ltd, also put in a bid using eight compressed natural gas

(CNG) buses which won the tender. In 2013 the 'greenwave' buses were launched. The number of passengers using the services has increased at a rate of 20% per year so two additional CNG buses have been added and frequencies improved. The CNG buses were to be the first in the UK to be fuelled from the gas mains.

### WHY IT MATTERS

Introduction of the CNG buses drastically reduced noise pollution and NOx emissions. The uptick in use shows passenger appetite for clean public transport. Such local initiatives could be scaled up in African cities to provide public transport powered by renewables that ties into climate change and sustainability goals.

## 3. THE CONNECTING EUROPE FACILITY (CEF), EUROPEAN UNION

- **What:** CEF is an EU funding instrument for investment in transport, energy and digital
- **Where and when:** EU-wide / 2014-2028 (at least)
- **Partners:** CEF works with a variety of partners, including government departments and agencies. It is run by the EU's Innovation and Networks Executive Agency (INEA).

### THE NEED

In the transport sector, CEF is dedicated to the implementation of the Trans-European Transport Network (TEN-T) of planned roads, railways, airports and water corridors. It focuses on cross-border projects, removing bottlenecks and bridging gaps, as well as promoting sustainability and digitalisation.

### THE OUTCOME

From 2014 to 2019, CEF Transport awarded €23.3bn in grants to co-finance projects of common interest, including €11.3bn from the EU's Cohesion Fund. Over the next seven years, it will focus on the EU transition towards

connected, sustainable, inclusive, safe and secure mobility. That includes decarbonising transport through a European network of charging infrastructure, alternative fuels and prioritising environmentally friendly transport modes. The plan also has a dedicated budget for investment in high added-value projects in so-called cohesion countries, mostly in eastern and southern Europe. One example of projects co-financed by CEF is a highway extension between Vienna and the Czech city of Brno, which eliminated bottlenecks on the Baltic-Adriatic transport corridor significantly reducing journey times.

### WHY IT MATTERS

CEF supports initiatives that increase integration in the European single market, promoting a well-functioning, integrated economic area and its social and territorial cohesion. Like Africa's PIDA, it focuses on network corridors. This is an area for the EU and the AU to share best practice and deepen cooperation. CEF also supports transport innovation to improve infrastructure use, reduce environmental impacts, enhance energy efficiency and improve safety.

## 4. MOMBASA-NAIROBI RAIL CONNECTION, KENYA

- **What:** To replace the 1896 Mombasa-Nairobi for passengers and freight
- **Where and when:** Kenya / 2017
- **Partners:** China Road and Bridge Corp. (CRBC) was the primary contractor. China Exim Bank contributed 90% of the \$3.8bn cost, Kenya's government the remaining 10%.

### THE NEED

Mombasa is a major East African port. Until the inauguration of the Madakara Express in 2017, most cargo was transported there by road and was often delayed by jams. The new line replaced a narrow-gauge railway built in 1896. On the old line, disrepair and fragile equipment limited average speeds to 22kph. Journeys took 21 hours and the railway was frequently out of service.

### THE OUTCOME

The new Mombasa-Nairobi Standard Gauge Railway has cut passenger journey times along the 480km route to a little over four hours. Freight trains take eight. The investment has had a strong economic impact. About 25,000 workers were involved in its construction and several thousand direct and indirect jobs were created by the opening of the line. The long-term gain to annual economic growth could be 1.5%. According to Kenya Railways Corp., 40% of freight transport is expected to be carried on the new line by 2025, up from 5% on

the old line. Freight trains have capacity for 4,000 tons and can carry the equivalent of 108 standard shipping containers. The maximum speed is 80kph. Passenger trains can carry 1,096 people at a maximum speed of 120kph. In its first two years, the line transported 3mn passengers and 5mn tons of freight. It facilitates local travel by combining accessibility and affordability: economy seats cost just \$10 for a Mombasa-Nairobi trip.

Analysts have estimated each kilometre of track cost \$5.6mn, three-times the international norm and four times the initial estimate. The Kenyan government puts the high cost down to the large number of bridges and tunnels, plus compensation for land acquisition. In addition, significant modifications were made to the initial project to increase freight capacity. China now holds 72% of Kenyan bilateral debt. The Kenyan government has denied media reports that the state collateralised some public enterprises to avoid them sharing the fate of Sri Lanka's Hambantota port, which was placed under Chinese flag for 99 years after the country failed to honour its debt.

### WHY IT MATTERS

The new line has created jobs and improved long-term economic prospects. It reduces road congestion and cuts CO2 emissions from cars and trucks. The project demonstrates how China's quick-and-easy financing has seen Europe fall behind as an infrastructure investor in Africa.

## 5. THE MOTORWAY OF THE FUTURE, SENEGAL

- **What:** West Africa's first PPP toll road
- **Where and when:** Dakar-Diamniadio, Senegal / 2009-2013, 2014-present
- **Partners:** Eiffage, Government of Senegal, World Bank, Agence Française de Développement (AFD), African Development Bank (AfDB)

### THE NEED

Dakar's congestion was estimated by the World Bank in 2008 to be costing around \$86mn per year. The PPP aimed to minimise risks to the state budget.

### THE OUTCOME

The PPP transferred design, construction and operational risks to private partners. The tender process took about three years before the contract was awarded to French civil engineering company Eiffage in 2009, granting a 30-year concession. The first stretch of motorway opened in 2013. An additional contract was signed in 2014 for

Eiffage to extend the motorway to Dakar's Blaise Diagne International Airport. The Autoroute de l'Avenir is seen as the first link of a proposed highway to the Malian capital Bamako. With travel time for the 25km drive from Dakar cut from two hours to less than 30 minutes, the project has boosted development of Diamniadio's special economic zone. About 70,000 vehicles make the trip every day, far more than the 40,000 initially forecast. That generates income of \$100,000 per day from cars alone and the high frequency has made it possible to reduce tolls.

### WHY IT MATTERS

The project is a success story among PPPs in West Africa. Its scale is big enough to cause widespread impact but small enough to be seen as a model to be repeated by players such as the Africa-EU Partnership's Task Force on Transport and Connectivity. Granting the additional airport road contract demonstrated confidence in the project.

## 6. GREEN TRANSPORT STRATEGY, SOUTH AFRICA

- **What:** A strategy to reduce greenhouse gas emissions from South Africa's transport sector
- **Where and when:** South Africa / 2018-2019
- **Partners:** Government of South Africa (Department of Transport)

### THE NEED

In 2018, transport was identified as South Africa's fastest-growing source of greenhouse gas emissions, around 10.8% of the total. Of that, 91.2% was caused by road transport.

### THE OUTCOME

The Department of Transport developed a Green Transport Strategy (GTS) to minimise the impact on the environment, while addressing growing transport demands. The strategy promotes green mobility to ensure the sector contributes to national efforts to combat climate change. It promotes behavioural shifts towards sustainable mobility and engages the sector in a low-carbon, climate-resilient transition. The Strategy aims to convert 5% of the public and national sector fleet to cleaner-fuel and efficient-technology vehicles by 2025; secure a 30% shift of freight from road to rail; and get

20% of passengers to switch from private cars to public and eco-mobility transport.

### **WHY IT MATTERS**

Government strategies for sustainable transport are key in tackling climate change and South Africa can be a model for others in Africa and Europe. The emphasis on changing energy sources and encouraging shifts in transport modes can serve as an example for the Task Force on Sustainable Energy and the wider European drive for cleaner road transport (see case studies 1 and 2).

# FOR THE STRATEGY GROUP'S CONSIDERATIONS

## POTENTIAL ACTION AREAS

- Transport and Trade Facilitation Observatories should be set up at national, regional and continental level, using standardised data to develop a consolidated overview of needs and priorities. The EU could assist the financing of such instruments over a three-to-five-year period using Eurostat databases as a guideline. The mechanisms could leverage big-data potential through innovative collection and processing tools. Comparing characteristics with standardised information would enable greater integration of connectivity projects and provide clarity on where funding and project planning is most needed.
- The integrated corridor approach of PIDA-PAP2 (2020-2030) should be supported. It links infrastructure development with gender and environmental concerns to achieve sustainable, inclusive growth. This holistic approach is particularly useful in relation to the growth of medium-sized cities, to counter concentration of populations in coastal megalopolises. It can promote regional approaches to road rehabilitation and maintenance along strategic corridors which are of particular benefit to landlocked countries.
- The EU and AU should work together to implement a pan-African visa as a complement to the AfCFTA. This would facilitate intra-African mobility and boost demand for international connections by making travel easier, quicker and cheaper.



## GUIDING QUESTIONS

- How can Africa and Europe put gender equality at the core of the connectivity dialogue? Is linking funding to gender equality the right approach?
- Can the Africa-Europe Alliance improve local governance and ensure funds and agencies take better account of rural populations?
- How can Europe and Africa reduce supply-chain burdens that increase logistics and transport costs, particularly in ports and on roads?
- How can the AfCFTA reduce the need for load breaks and cut rail-freight costs?
- Can increased use of inland waterways lower Africa's freight costs?
- Can the Single European Sky initiative serve as a guide for an African open sky strategy? Can European banks bridge the investment gap to support it?
- How can we ensure long-term, regionally scaled projects do not crowd out smaller national investments that have a more rapid social return for local populations?
- How can smart, green transport reduce the negative impacts of urbanisation?
- How can relationships between cities and surrounding countryside promote intermodal collective transport?
- Can improved connectivity between rural areas and medium-sized cities slow megalopolis growth?
- How can Africa and Europe ensure the application of professional and safety standards, such as compliance with axle-loads, regular truck inspections and withdrawal of unsafe vehicles?
- What role can the Africa-Europe Partnership play in improving the selection of investment projects?
- How can social profitability be measured?
- What role should PPPs play in connectivity infrastructure? Is the Build, Operate, Transfer model the best way forward?
- How can PPPs be managed more transparently?
- How can Europe and Africa increase freight and passenger connectivity for island states.
- How can Africa and Europe support transport's green transition, particularly for the air and road sectors?

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## Contact Information

### **Brussels Office**

Treesquare  
De Meeûsquare 5/6  
1000 Brussels  
Belgium

### **Cape Town Office**

The Oval  
1st Floor Oakdale House  
1 Oakdale Road, Claremont  
Cape Town 7708  
South Africa