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Executive summary

Landlocked developing countries are amongst the most vulnerable countries in the world, and they are at a significant economic disadvantage due to geographic remoteness, lack of direct access to the sea, higher than average transport costs for both exports and imports, and limited integration into the world economy.

This report identifies the persistent common challenges that the 32 landlocked developing countries face in their ambition to enhance economic growth, overcome poverty, and achieve sustainable development through greater international trade and business cooperation. Improved transport infrastructure and services are key to cope with these challenges, as they enable economic growth and structural transformation in landlocked developing countries.

National and local policies and projects have been implemented in all landlocked developing countries to improve transport sector operations, capacities, efficiency, and/or sustainability. This report points out some selected good and best practices on sustainable transport with a view to potentially encouraging replication elsewhere.

The report highlights the continuing shortage of financial and technical resources available to close the infrastructure gap in the landlocked developing countries. It assesses the challenges of sustainable urban transport in the rapidly growing towns and cities of landlocked developing countries. It shows how continued lack of access to transport perpetuates poverty in remote as well as deprived rural areas. The report reflects on the needs and options for enhancing transit transport systems for economic growth and greater participation of landlocked developing countries in global trade, and it emphasizes the need for more effective trade facilitation not only at global, but also at regional and bilateral levels.

The report reviews the means of implementation available to landlocked developing countries to enhance their sustainable transport development, and calls for participation of all stakeholders, including public and private sectors, and greater international cooperation and solidarity, to ensure that landlocked developing countries are not left behind in the continuing rapid globalization process. The report concludes with selected recommendations on policy options and possible new collaborative project initiatives.
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1.0. Introduction

At the special session of the United Nations General Assembly in September 2015, world leaders adopted The 2030 Agenda for Sustainable Development, which provides the world community with a global framework of action to end poverty, fight inequality and injustice, and tackle climate change by 2030.

The 2030 Agenda spells out seventeen crucial universal Sustainable Development Goals (SDGs) and multiple related targets, thus laying out a roadmap for a better future through economic, social and environmental policy development and transformation. The universally agreed SDGs that are most relevant to the objective of achieving sustainable transport in landlocked developing countries (LLDCs) include, among others: Ending poverty in all its forms everywhere (SDG 1), ensuring access to affordable, reliable, sustainable, and modern energy for all (SDG 7), promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8), building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation (SDG 9), and reducing inequality within and among countries (SDG 10). The 2030 Agenda also calls for action to make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11) and combat climate change and its impacts (SDG 13).

Landlocked developing countries are amongst the most vulnerable countries in the world. They are at a significant economic disadvantage, due to their geographic remoteness, lack of direct access to the sea, higher than average transport costs for both exports and imports, and limited integration into the world economy. Around 90 per cent of the world cargo by volume is transported by sea. LLDCs have no option but to transport their exports and their imports via land, by road, rail or inland waterways, crossing the territories of transit developing countries. In impoverished rural areas of landlocked developing countries, access to transport services is often not available. Air pollution has become a major environmental and public health concern in cities of landlocked developing countries. Moreover, their resilience is further undermined because of the environmental degradation that is taking place in these countries. Additionally, a growing number of developing countries, including landlocked developing countries, are increasingly affected by advancing desertification, deforestation, land degradation, biodiversity loss, and more frequent serious droughts or floods, including glacier melting, often associated with climate change and its impacts.

For LLDCs to increase prosperity, overcome poverty, and more effectively participate in global sustainable development, improved integration in the world economy and more beneficial participation in global trade are urgently needed. Efficient, cost-effective, affordable, reliable and sustainable transport systems and infrastructure, including better roads, more railway links, and transport corridors with unimpeded border-crossings, are thus keys to further progress toward sustainable development. The Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024 (VPoA) adopted at the Second United Nations Conference on Landlocked Developing Countries in 2014 identifies transport infrastructure development, together with energy and information and communication technology infrastructure, as crucial preconditions for accelerating sustainable socio-economic development in LLDCs.

The present report identifies persistent common challenges that the 32 LLDCs face in their ambition to enhance economic growth, overcome poverty, and achieve sustainable development, including through greater international trade and business cooperation. It analyses the status of transport systems and infrastructure development, and the connectivity of LLDCs’ economies with regional and international markets, including the function and importance of road and rail land transit transport corridors. The report highlights the continuing shortage of financial and technical resources available to close the infrastructure gap between LLDCs and other developing countries. It assesses the challenges of achieving sustainable urban and rural transport in the rapidly growing towns and cities of landlocked developing countries, as well as in some of their remote and deprived rural areas. In nearly all of the LLDCs, national and local policies and projects have been implemented to improve transport sector operations, capacities, efficiency, or fuel consumption. The report thus also highlights some selected case studies and best practice examples on sustainable transport with a view to potentially encouraging replication elsewhere.

The report seeks to contribute to the review of the implementation of the Vienna Programme of Action for Landlocked Developing Countries 2014-2024. It points to initial progress on transit transport corridor performance, infrastructure development and maintenance, international trade facilitation, and bi- and pluri-lateral cooperation
involving landlocked developing countries and their transit neighbours.

The report concludes with some selected recommendations on policy options and practical suggestions on possible new collaborative project initiatives to be considered by participants attending the upcoming High-Level Meeting on Sustainable Transport of Landlocked Developing Countries (13-14 October 2016, Santa Cruz, Plurinational States of Bolivia), the United Nations Secretary-General’s Global Sustainable Transport Conference (26-27 November 2016, Ashgabat, Turkmenistan) and other meetings related to transport.

2.0. Sustainable transport as a key enabler of sustainable development in landlocked developing countries

Sustainable transport and mobility is a fundamental precondition for all economic activities, prosperity and development. People and ideas, raw materials and products, all need to move or be transported from where they are to where they are needed. Without mobility, mankind cannot even meet its most basic needs, such as food, shelter or clothing. People need mobility and transport to commute to places of work or education, access markets, health services, offices, public institutions or places of worship, and take part in other productive, social, recreational or cultural activities. Hence, the recently adopted Global Sustainable Development Agenda includes SDG Target 11.2, which envisages that all countries, including landlocked developing countries, will be able, by 2030, to “provide access to safe, affordable, accessible and sustainable transport systems of all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.”

Transport is indispensable and has emerged as a significant economic sector. Transport is literally needed everywhere and for everything. The World Trade Organization (WTO) estimated the value of world trade in transport services at US$ 955 billion in 2014, equivalent to 20 per cent of global trade in commercial services. (WTO, 2015a) The transport sector makes a significant contribution to national GDP, including in LLDCs. In developed as well as in developing countries, transport related businesses directly or indirectly employ a large portion of the workforce, typically between 8 and 12 per cent. Transport businesses also generate significant contributions to local and national tax revenues.

Modern global trade relies on increasingly sophisticated and integrated transport logistics and supply chains, in which road, rail, shipping and aviation transport operators come together. In the context of high global competition, emerging new technologies, and a constantly changing economy, cost effective and environmentally sustainable transport systems are becoming increasingly important, benefitting both producers and consumers.

Transport is a key precondition and enabler of sustainable development. However, all modern forms of motorized transport require resources, consume fuels, and generate emissions, including air pollutants that can be harmful to human health. Transport policy makers have many choices, but also regularly face serious trade-offs. Greater mobility and better access often also mean greater fuel consumption and higher levels of local air pollutants, if not properly planned in an integrated manner. Indeed, as transport infrastructure is costly and typically has a long life time, decisions of today will predetermine future development trends, including future environmental impacts. Thus, decision making on sustainable transport needs to be based on long term planning, participation of all concerned stakeholders, and an integrated consideration of all relevant economic, social and environmental aspects.

Recognizing the importance of the transport sector for sustainable development, the United Nations Secretary-General formed a High-Level Advisory Group on Sustainable Transport (HLAG-ST) in 2014, which presented its Global Sustainable Transport Outlook Report to the public in October 2016. The Secretary-General also convened the First Global Conference on Sustainable Transport on 26-27 November 2016 in Ashgabat, Turkmenistan. In conjunction with the conference, the Government of Turkmenistan and the Global Partnership for Sustainable Transport also convened the Ashgabat Transport Business Forum on 27 November 2016. Given the increased level of international attention and the current focus on the need to enhance sustainability of transport, it is particularly essential to recognize the special challenges faced by LLDCs in these global fora and their follow-up processes.

1 The Global Partnership for Sustainable Transport (GPST) was launched in 2015 to provide a global, business and industry-led, multi-modal, strategic, action-oriented, multi-stakeholder platform to promote implementation of UN Resolutions on Sustainable Transport, in particular through public-private partnerships. For further detailed information, please see www.gpst2030.org
3.0. Persistent challenges to sustainable development in landlocked developing countries

3.1. Economic underdevelopment and population growth

Landlocked developing countries, by definition, are developing countries that do not possess any seacoast. Collectively, LLDCs account for nearly 13 per cent of the earth’s land area. However, in terms of economic activity and global trade, most LLDCs remain largely marginalized. In 2015, the common GDP of all 32 landlocked developing countries together accounted for only some 2.6 per cent of that of the group of developing countries, and only for 0.94 per cent of global GDP. (World Bank, 2015a) LLDCs economies are characterized by low levels of productivity and industrialization. The manufacturing value added, a basic indicator of the level of industrialization, has declined in LLDCs from 8.9% in 2000 to 6.9% in 2015. Furthermore, the share of manufactured goods in total exports from LLDCs decreased from 21% in 2000 to 14.6% in 2015.

The share of LLDCs’ merchandise exports in global exports in 2015 was just 0.97%, down from an average of 1.21% in the previous four years. In addition, the structure of the exports of LLDCs is highly concentrated in just a handful of products, in particular raw primary commodities. The export concentration ratio for LLDCs in 2015 was 0.28, exhibiting a greater export product concentration than their transit neighbours and developed countries. Moreover, export concentration has increased over the years. This dependence increases the vulnerability of LLDCs to external shocks, and diminishes their competitiveness. Furthermore, LLDCs suffer from limited integration into global and regional value chains, which further limits their economic growth.

On average, the world’s population grew by 1.18 per cent in 2015, with relatively higher growth rates in poorer developing countries. By global standards, Ethiopia and Uganda are among the countries with the fastest population growth per annum. In some LLDCs, rapid population growth largely offsets economic growth, resulting in long-term stagnation of per capita GDP. In addition, rural to urban migration unabatedly continues all around the world, including in LLDCs and in particular in Africa. Major investments by both public and private sectors are urgently needed to meet the growing demand for mobility, not only in capital cities of LLDCs, but also in other secondary and rural towns.

3.2. Continuing burden of high government debt

In many landlocked developing countries, economic development continues to be significantly constrained by excessive and unsustainable accumulation of historic government debt. As of March 2016, some 36 Heavily Indebted Poor Countries (HIPC), including 14 heavily indebted LLDCs, have benefited from debt relief measures provided by the International Monetary Fund, World Bank, and African Development Bank (International Monetary Fund, 2016). Since several other multilateral institutions, non-Paris Club official bilateral creditors, and commercial creditors have not supported the HIPC-Initiative, overall delivery of debt relief has remained disappointingly low. LLDCs which continue to carry a high debt and debt service burden will likely encounter many difficulties in mobilizing new international financing for overdue infrastructure development projects, whether in transportation or in other key social or economic development areas.

3.3. Lack of land transport infrastructure

Landlocked developing countries depend on land transit routes across neighbouring country territories for transportation of their exports and imports. Effective transit transport corridors are vital for economic development of LLDCs. Operation and maintenance of land transport corridors lies mostly beyond the jurisdiction of landlocked developing country governments. Hence, well-coordinated bilateral and regional cooperation

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2 HDI is expressed as a numerical score between 0 and 1.
3 For more on the HIPC Initiative, please see International Monetary Fund.
between LLDCs and their maritime neighbours is crucial for enhancing economic development of all inland and landlocked regions.

In terms of transport infrastructure, landlocked developing countries lag behind almost every other group of countries. Domestic road networks are often not adequately developed. Rural roads are few and mostly unpaved. Density of (paved) roads per square kilometre and length of (paved) roads per inhabitant are very low. Only few LLDCs operate domestic railway systems, most of which are not well maintained and use obsolete rolling stock. Tunnels and bridges form an important component of modern transport infrastructure. They are typically costly to build, but such public investments easily pay off over time through more direct routes, shorter distances, as well as savings on travel time and transport fuels. There are significantly fewer road or rail tunnels and bridges in LLDCs than in industrialized countries. In addition, only two of the 32 LLDCs are have navigable rivers.

According to World Bank estimates, one billion people living in rural areas throughout the world, including more than 181 million in LLDCs, did not have access to adequate transport in 2006, as their communities were located more than 2 km (or about 25 minutes walking time) away from the nearest all weather road. (World Bank, 2016a) New findings suggest that rural access to transport has improved in some LLDCs, but deteriorated in others. However, the findings also indicate that the problem of lack of access to transport in rural areas of developing countries, including LLDCs, in general remains no less acute in 2016 than it was in 2006, given the continued population growth and the chronic shortage of resources for investment in rural development. (World Bank, 2016b)

The topography of LLDCs includes many high and steep mountain ranges, extensive deserts, flood prone river valleys, and other features that can pose physical obstacles and make the construction of transport infrastructure particularly challenging and costly. In Bolivia (Plurinational State of), the Kyrgyz Republic, and Nepal, many towns are separated from each other by high mountain ranges. Tunnelling is often not possible or too costly, and mountain roads are treacherous, if not outright dangerous.

In most LLDCs with large territories, population density is very low. Mongolia, Kazakhstan, Central African Republic, Bolivia (Plurinational State of) or Chad, for example, are inhabited respectively by only 2, 6, 8, 10 and 11 person per square kilometre (World Bank, 2015a). Low rural population density can make the costs of providing access to rural roads and sustainable transport per person or per household disproportionately high. Therefore, adequate rural transport infrastructure is often not available at all in sparsely populated peripheral areas of LLDCs, perpetuating rural poverty in these areas. Many LLDCs are therefore negatively affected by their topography and their geography, which can cause higher than average costs of constructing the necessary transport infrastructure.

### 3.4. Rapid urbanization, motorization, congestion and inadequate urban transport infrastructure and services

Developing country cities around the world are experiencing a very fast population growth and a rapid rate of urbanization, not previously seen in history. The capitals and other cities and towns of landlocked developing countries are no exception. The population of capitals, cities and towns of LLDCs increased between 0.2 and 5.9 per cent in 2014 alone. In the Central Asian countries cities, population grew only modestly by between 0.2 and 2.3 per cent in 2014. However, recent urban growth has been particularly rapid in the African landlocked developing countries, including Rwanda (5.8%), Burkina Faso (5.7%), Burundi (5.8%), Niger (5.4%), South Sudan (4.7%), Mali (4.9%) and Ethiopia (4.8%). (World Bank, 2015a) The rapid urbanization poses many challenges, in particular for the respective metropolitan and local authorities, which are expected to provide adequate housing, water, electricity, sanitation, waste management, as well as affordable communication and transport services for the new city dwellers, many of whom initially seek shelter in suburban low-income districts and slums.

LLDCs have mostly small motor vehicle populations. In most industrialized countries, the number of registered motor vehicles per 1,000 inhabitants is typically well above 350 or 400 vehicles. But in LLDCs, motorization is still very low. In Central Asian LLDCs, the number of motor vehicles, including vans, trucks and buses, but not including motorcycles, ranges between 100 and 220 vehicles per 1,000 inhabitants. In most of the LLDCs in Africa, vehicle ownership is still much lower, and in some countries even falls below 10 vehicles per 1,000 inhabitants.
In spite of low levels of private vehicle ownership, LLDCs are not spared increasing vehicle congestion in urban areas. Narrow and often still unpaved roads, congested intersections, obstructed sidewalks and roadways, lack of reliable public transport, increasing numbers of motorcycles and motor-rickshaws, uncontrolled access of delivery trucks and growing transit traffic all contribute to ubiquitous urban traffic congestion, even in smaller towns. Traffic congestion can lead to serious waste of time, waste of fuels, increased levels of urban air pollution, as well as public health and road safety issues.

In recent years, importation and registration of private motor vehicles, including motorcycles and small trucks, has continued to increase in most LLDCs, in particular in the upper middle income countries and in the more rapidly growing cities and urban centres. According to national data reviewed and compiled by the World Health Organization (WHO) for its Global Status Report on Road Safety, the total population of motor vehicles registered in the LLDCs stood at some 22.2 million in 2013/14, including 11.4 million passenger cars and light trucks, 4.4 million motorcycles and motorized tricycles (rickshaws), 1.7 million (heavy) trucks, and 0.5 million buses4, among other vehicles. (WHO, 2015a) In the absence of adequate roads and public transport infrastructure and services, traffic congestion and transport-related urban air pollution are already issues of growing concern. Like in other developing countries, the use of private motor vehicle in LLDCs has grown faster than the availability and use of public transport. Reversing these observed trends will be difficult but essential to achieve sustainable urban transport in the long run.

There are only a handful of LLDCs, namely Azerbaijan, Uzbekistan and Uganda, that presently assemble and produce a limited number of motor vehicles. Other LLDCs rely entirely on imports for their motor vehicles, including smaller or larger buses and trucks. The high transport costs characterizing LLDCs make these imports more expensive than in other countries. Similarly, most LLDCs depend on imported petroleum products for their fuel needs. Consequently, tariffs and fees for transport, including urban passenger transport, are frequently higher in LLDCs than they are in other maritime developing countries.

3.5. High transport costs: a major obstacle to international trade and structural economic transformation

Transport is essential for productivity in all economic sectors, including agriculture, manufacturing, natural resource extraction, or services. In an increasingly globalized economy, transport costs can significantly impact economic competitiveness of the entire economy. As observed by many transport economists, the transportation of one tonne of cargo costs an estimated US$ 2 - 4 cents per kilometre in industrialized countries, such as the United States, but an average of US$ 8 - 12 cents in Africa, where the freight transport cost is often very much higher. (Raballand and Macchi, undated) According to World Bank data, the trade transport costs faced by LLDCs are more than twice higher than in transit countries, and these costs have been increasing over time. In 2014, the average cost to export and import a standardized container of cargo was $3,443 and $4,343 respectively in LLDCs, while only $1,301 and $1,559 in transit developing countries. Estimates show that the level of development in landlocked developing countries is about 20 per cent lower than those countries could expect were they not landlocked. (UN-OHRLLS, 2013)

High transport cost hampers economic growth in many landlocked developing countries. Lack of adequate transport infrastructure, of competition, and of access to efficient and affordable transport services can negatively impact the short and long term prospects for sustainable development, in particular in LLDCs. Many LLDCs find themselves in a vicious circle of economic and logistical disadvantages, which are due to their landlocked geographical location. Landlocked developing countries rely mostly on limited primary commodity for their exports and foreign exchange income. Primary commodities are typically bulky and comparatively low in value. With a limited number of buyers and a high reliance on traditional export markets, export concentration ratios of LLDCs are high, bargaining power is limited, and prices for most raw materials and commodities are stagnating, if not declining. With low export volumes, most LLDCs cannot benefit from any economies of scale. The competitiveness of primary commodity exports of landlocked developing countries on world markets is very sensitive and negatively affected by high transport costs. The import trade faces similar disadvantages. Even if prices of imported consumer goods or machinery are comparatively low at the location or country of origin, high mark-ups are caused by low import volumes, long transport distances, frequent transfers between transport modes, and other costly delays and transit transport charges. This makes

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4 Not including data from Armenia, Burundi, South Sudan, and Uzbekistan.
many products imported in LLDCs unaffordable, in particular for poorer consumers and their households. High transport costs continue to hinder LLDCs from increasing their share and playing a more than marginal role in international trade and world markets. (Chowdhury and Erdenebileg, 2006)

The Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024 (VPoA) highlights structural economic transformation as one for the key priorities for sustainable development of landlocked developing countries. Improving the manufacturing capacity of LLDCs can help achieve the triple objective of creating better-paying jobs, increasing revenues, and reducing dependency on primary commodity exports. Like other developing countries, LLDCs aim to improve value addition, enhance productivity and achieve greater material efficiency throughout their entire economy. Several LLDCs have sought to enhance local value adding activities by establishing small plants for local assembly of imported parts and subsequent domestic product distribution. Some LLDCs are also seeking to diversify their economies by promoting service industries, including financial services, tourism and cultural activities. Efficient, reliable, and low-cost or affordable transport, including transit transport, remains key to economic progress and to the success of such structural economic reform efforts in landlocked developing countries. With efficient low-cost transit transport connections to nearby seaports, and with close cooperation among the concerned authorities and other stakeholders of both landlocked and transit developing countries, LLDCs can achieve economic progress and structural transformation.

### 3.6. Energy resources

Energy is an important productive capacity that is necessary to support industrialization that can enable LLDCs to foster economic diversification, improve value addition and become more competitive in international markets. The multidimensional impact that rapid energy transition can have is all-encompassing: it is essential for alleviating poverty, improving human welfare, protecting health, empowering women and marginalized communities, protecting the planet, raising living standards, building resilience, creating jobs and achieving rapid and sustainable economic growth. For LLDCs specifically, reliable and sustainable energy is required to support faster customs clearance, border crossing, tracking of shipments in transit and other trade facilitation processes.

Natural resource endowment is very unevenly distributed across the LLDCs. Some Central Asian landlocked developing countries, such as Kazakhstan, Azerbaijan, Turkmenistan, and Uzbekistan, as well as South Sudan, Chad, and Mongolia, are rich in crude oil or natural gas resources. While long-distance cross-border pipelines are costly to construct, they represent the most economical and environmentally benign way to transport crude oil or natural gas to the nearest seaports or export markets. Today, due to the recent construction of new pipelines, oil and gas exports contribute a large share of national income, tax revenues, employment and social welfare in the afore-mentioned Central Asian LLDCs in particular.

Most other LLDCs, however, do not have any own oil deposits and continue to depend entirely on overland import and transport of refined petroleum products by truck or rail, to be used as domestic motor fuels for transport, as well as for cooking, local power generation, or small scale industrial production. For most LLDCs, unimpeded and efficient fuel supply and fuel transport is thus important for energy security. Some LLDCs and their inhabitants have repeatedly suffered from energy supply shortages and high fuel costs due to interruptions in the transit transport of petroleum products.

New and renewable sources of energy have become not only important energy supply options, but also as key resources for addressing global challenges, including universal energy access, energy security, climate change, and ultimately poverty eradication and sustainable development. Renewable energy can be a major source of energy access to those living in isolated rural areas and is also an alternative to the transportation and logistical challenges linked to delivering fuel to some of the LLDCs. However, according to UN statistics, the share of renewable energy derived from hydropower, solid and liquid biofuels, the wind, sun, biogas, geothermal and marine sources, and waste in the LLDCs’ total final energy consumption decreased from 44.3% in 2000 to 29.2% in 2012.5

### 3.7. Access to agricultural markets

In many poorer LLDCs, the largest part of the population still depends on (subsistence) agriculture for their livelihoods. Many poor people live and work in rural areas, often without access to transport. Fertile arable land is often very limited and agricultural productivity consequently very low. Access to rural transport can significantly improve income opportunities and living conditions in rural areas as it enables farmers to access agricultural inputs and sell their products in nearby markets.
In many LLDCs, farming cooperatives produce valuable agricultural cash crops for domestic, regional and global markets. In Africa for example, Ethiopia, Uganda and Rwanda, farmers produce coffee for export to European, North American and Middle Eastern markets. In Malawi, Zambia and Zimbabwe, large and small farms produce tobacco, mostly for (unprocessed) export to South and North Africa, China, the Russian Federation, the United States and other countries. Mali and Burkina Faso have joined other West African countries in growing fruits, particularly mangos, for international export markets. Whereas some West African coastal countries can export fresh fruits in larger quantities, LLDCs can only export their produce in the form of dried fruit, as the logistic transport chain would otherwise be too long for perishable agricultural products. Time and cost efficient transportation of agricultural products along transport corridors is thus crucial for improving living condition in LLDCs and their poverty-stricken rural areas. (FAO, 2014)

3.8. Limited connectivity by air

Aviation represents an essential lifeline to enhance connectivity, which promotes greater tourism, trade and other vital business activities of LLDCs. In most landlocked countries, connectivity by air is very limited. The volume of passenger traffic transported by air from LLDCs rose from 11.2 million to 26.6 million between 2000 and 2014, however it still represents just 0.8% share of the world’s passenger volume. Similar trends hold for freight volume by air transport, which increased for LLDCs from 246.5 thousand tonnes in 2000 to 454.1 thousand tones in 2014, but still accounts for just under 1% of global freight volume. (United Nations Economic and Social Council, 2016)

While the growth in passenger and freight volumes shows a robust infrastructure development, LLDCs lag behind other countries in the quality of their air transport infrastructure. The Enabling Trade index as presented in the World Economic Forum Global Enabling Trade Report 2016 includes indicators for availability and quality of transport infrastructure. In terms of quality of transport infrastructure, 13 of the 24 LLDCs for which data is available rank in the lowest quarter of the 136 countries worldwide for which data is presented. (World Economic Forum, 2016)

LLDCs are often in the flight path of long distance aircraft shuttling between global commercial centres in Europe, East Asia, North America, or South Africa, but most airports in LLDCs receive only limited number of flights a week, and costs of air travel per passenger are disproportionally high. For example, LLDCs rank poorly in the availability of international airlines seat kilometers per week, a measure of passenger carrying capacity; 15 LLDCs rank in the lowest quarter.

With the global air traffic projects to double by 2030, the pressure on existing aviation infrastructure will increase, even in LLDCs. Larger investments will be needed to modernize and expand aviation infrastructure in LLDCs. To maximize the benefits from aviation, developing countries, especially LLDCs, are encouraged to incorporate the aviation sector into the integrated transport system and prioritize aviation in their development plans. The special needs and structural characteristics of LLDCs should be taken into account in the coordination, prioritization, facilitation and implementation of assistance programmes.

3.9. Climate change: Additional risks, challenges and costs

At the global scale, transport accounts for a significant share in global greenhouse gas emissions, currently estimated at some 27 per cent and widely projected to be growing in the future. In cities of developing countries, inefficient motorized transport contributes to air pollution. Making transport systems and services better, more affordable and accessible to all, and simultaneously controlling and reducing air pollutants and greenhouse gas emissions is another major global sustainable development imperative and a precondition for a better future.

LLDCs are also vulnerable to climate change, which is exacerbating desertification, land degradation and drought. Over 50 per cent of their land is classified as dryland. In addition, 14 of the 29 countries in the world that have more than 20 per cent of their population living on degraded land are LLDCs. LLDCs are thus disproportionately affected by these environmental challenges.

Many countries, including many landlocked developing countries, have also raised concerns about increased risks and potential additional costs and losses due to severe unpredictable negative weather events, such as droughts and floods. Transport and its infrastructure can also be affected by climate change effects. In February 2016, the Southern parts of Bolivia including the cities of La Paz and Cochabamba were seriously affected by heavy rains causing landslides and flooding of
roads and homes.6 Nepal experienced in July 2016 higher than normal monsoon rains that caused flash floods, completely destroying a suspension bridge over the Tinau River in the city of Butwal.7 Even in landlocked Burkina Faso, a country more frequently affected by droughts, continuing heavy rains caused great damage in July 2016. The resulting floods in Burkina Faso affected homes of more than 10,000 people, making their living conditions even more precarious, damaged urban infrastructure and caused loss of life.8 Climate and extreme weather events can not only expose roads and railways to suffer from floods, erosion or landslides, but also affect transport infrastructure in various other ways. Street surfaces that are heavily used during periods of high temperature can be damaged and burst. Untarred roads can suffer from accelerated erosion during periods of high precipitation.

Climate change and its impacts poses additional risks, challenges and costs for LLDCs, which further compromise the limited available resources for development. In line with precautionary principles, any future construction of transport infrastructure in LLDCs will need to be planned and built in a climate resilient manner. Investments in climate-resilient and sustainable infrastructure can serve as a foundation for economic development and growth, help lift families out of poverty and make communities more resilient to climate change. While cost-effective in the long-run, resilient infrastructure would add significant costs to current development plans.

4.0. Addressing the challenges of sustainable transport development in landlocked developing countries

For transport systems to better enable sustainable development in landlocked developing countries, national action and international support is needed to pursue the following objectives:

- Development of basic transport infrastructure and services for poverty reduction and productivity improvement in rural areas;
- Development of safe sustainable urban mobility in LLDCs;
- Development of transit transport infrastructure and facilitation of transit and trade to enable LLDCs’ structural economic transformation and greater integration into global trading system;
- Development of passenger travel for enhanced socio-economic connectivity.

4.1. Development of basic transport infrastructure and services for poverty reduction and productivity improvement in rural areas

4.1.1 Multiple benefits of rural road programmes

Many studies have demonstrated the significant correlation between the access to rural roads and rural transport services and other indicators of rural socio-economic development. Studies and cost-benefit calculations have also shown that the sum of long-term benefits of well-planned and well-constructed rural roads outweigh by far their construction and maintenance cost. A comprehensive review of the available literature has recently been presented by Starkey and Hine, including an analysis of case study reports on rural transport in Ethiopia, Lesotho, Uganda, South Sudan and Zambia. (Starkey and Hine, 2014) Construction of rural roads and their maintenance and improvement enable commercial agriculture and provide rural farmers with better farm gate prices and better incomes, due to lower transport and lower input costs. Rural roads also offer better access to education and (emergency) health care. (Benin, 2016)

4.1.2 Tools and methods for integrated development of rural roads

Multiple tools are available for rural planners to identify areas where investments in rural roads are needed most, and where it can generate the highest user benefit. Experience has also shown that planning of rural roads should best be based on intensive consultations with potential users and beneficiaries and within the framework of a more comprehensive rural development planning, which should include delivery of other infrastructure and services (e.g. communication, education, water supply, agricultural extension services, medical care, etc.). Integrated Rural Accessibility Planning (iRAP) is a widely recommended participatory planning approach, which facilitates site-specific and tailor made solutions rather than “one size fits all” ones. For example, the Ethiopian Roads Authority formulated and implemented a comprehensive and integrated local rural access programme built on, but not limited to, rural roads: the multi-year Rural Travel and

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Transport Programme (ERTTP), which initially benefitted 8 pilot village sites and subsequently some 130 districts. (World Bank, 2012) Taking into account the varying site specific needs and rural road construction options, the Department of Roads of the Government of Nepal developed and implemented its own sustainable “green roads approach”. This approach encourages maximum local community participation and the use of labour intensive methods to ensure that at least two thirds of total construction costs are of immediate benefit to the local economy. Construction of “green roads” includes a variety of other complementary rural development measures, including soil bioengineering techniques to ensure slopes stability and erosion control. The “green roads approach” also encourages rural income generating activities, including cultivation of cash crops, rural retail trade, and additional animal husbandry. (Mulmi and Abhiman Das, 2009)

4.1.4 Monitoring and regulation of rural transport service providers

Transport and traffic rules and regulations and their implementation vary between countries, but also between provinces and municipalities. In some countries, entering the “informal” local rural transport business is as easy as purchasing and registering a (second-hand) van, pick-up or motorcycle. In other countries and regions, the market for formal and even informal transport services is formally or informally controlled by established transport businesses or their associations. Local authorities in LLDCs may wish to monitor local markets and the organization and performance of transport service providers to ensure that transport services, in particular passenger transport, is safe, competitive, priced fairly and affordable for all.

4.1.5 Institutional development: Strengthening of agencies and rural roads programmes

Improvement of rural transport requires the strengthening of the (rural) roads departments or agencies. It also requires inter-institutional coordination at various national, sub-national and local levels. In smaller LLDCs the development of the roads network, including rural roads, falls under the authority of Central Government Agencies. In other countries, rural transport infrastructure is administered by local municipal authorities. Regardless of the varying institutional arrangements, the main concern is the allocation of adequate budgetary resources for rural development programmes. In some countries governments have earmarked specific revenues from specific sources (e.g. road taxes, fuel taxes) to be used for rural development and rural infrastructure funding.

4.1.6 Financing rural roads programmes in landlocked developing countries: the need for greater financial support and international development cooperation

Rural road programmes typically remain the sole responsibility of governments. Rural roads cannot be built to generate user fees or other revenues, and are therefore of no interest to commercial private sector investors. In line with the Addis Ababa Action Agenda (AAAA), adopted at the Third International Conference on Financing for Development, and the expected mobilization of domestic resources, most of the LLDCs have already established national or provincial road funds. However, the tasks at hand and the investments required are typically much larger than the resources available. In view of LLDCs’ budget deficit and difficulties in generating resources and utilizing domestic capital markets, new financial instruments are needed.

International financial institutions (IFIs), among which regional development banks, regularly provide finance for integrated rural development in developing countries, including the construction rural roads. In 2016, a considerable number of larger rural transport infrastructure projects were being carried out in several LLDCs with IFI support, including projects in Afghanistan (Asian Development Bank), Burundi and Burkina Faso (African Development Bank), Mali (Islamic Development Bank), Armenia (World Bank),
Bolivia (Inter-American Development Bank), and Azerbaijan and Kyrgyzstan (European Bank for Reconstruction and Development). However, continued and increased IFI support will be needed for LLDCs to more rapidly improve living conditions in peripheral rural areas.

Various United Nations agencies and other international organizations, as well as non-governmental organizations and relief agencies, including Engineers without Borders (EWB)9 and some food-for-work programmes, engage in rural development efforts and regularly provide appropriate technical and financial support for rural road construction, for the immediate benefit of local communities. Most of these projects are carried out on a small scale at local levels, directly involve the community, and drive practical results. Continued community development programmes are also needed for LLDCs to progress towards overcoming rural poverty, as envisaged under the Sustainable Development Goal 1.

4.1.7 Importance of data collection for monitoring progress on rural access

Periodical assessments and monitoring of progress requires regular analysis of road quality and population data. In 2016, World Bank researchers revised and updated the Rural Access Index (RAI) methodology. The indicator itself remains unchanged, but the new methodology uses a more flexible definition of rural roads in “good condition”, and satellite imagery with more accurate information on the spatial distribution of rural population and their economic activity. Whereas the assessment was previously mainly based on household surveys, the new technology allows a more accurate mapping of lack of rural access to transport, and provides a useful planning tool for prioritizing rural transport infrastructure investments. New RAI data is currently only available for a few LLDCs (e.g. Ethiopia, Nepal, Uganda, Zambia), but additional surveys are intended to be conducted in some 30 other developing countries, including fourteen LLDCs. This methodology will produce a new set of data on rural access to transport.

Landlocked developing countries that have not as yet scheduled participation in the World Bank Rural Access Index surveys may consider doing so in the future.

4.2. Development of safe sustainable urban mobility in landlocked developing countries

4.2.1 Construction of urban by-passes or ring roads

Historic roads enabled people to travel from one city centre to another. As cities and suburbs grow in size and numbers, vehicle travel, including over long distances, is growing too. In accordance with the overall aim of reducing vehicle travel in cities, the construction of urban by-passes and ring roads can lead long distance transit vehicles more directly to their intended destination, without them having to drive through congested city centres. Urban by-passes and ring-roads can reduce transport time and fuel use and mitigate urban pollution. Many larger cities, including in landlocked developing countries, have completed or started construction of urban by-passes or ring roads. Some urban by-passes or ring roads are financed by domestic road funds and fuel levies. Others are co-financed by corporate, institutional or private investors collecting tolls or user fees.

The city of Kathmandu (Nepal) has currently a four-lane two-way 27 km long ring road, which is planned to be widened to 8 lanes, in cooperation with the Government of China. According to its urban development master plan, the City of Ulaan Bataar (Mongolia) is planning to triple its urban road network over the next 15 years to reach 1605 km by 2030, including 9 North-South corridors, 6 East-West corridors and 4 ring roads (Master Planning Agency of the Capital City, 2014). In Harare (Zimbabwe), Kampala (Uganda), and Lusaka (Zambia), the respective national and urban road authorities are also implementing or planning extended ring road projects, which are expected to significantly alleviate growing traffic congestion in the respective city centres. The Addis Ababa-Adama Motorway, which was opened in September 2014, is Ethiopia’s first commercially built six-lane tollway project. It was co-financed by the Government of Ethiopia and the Exim Bank of China. The 84.7 km tollway will reduce travel time from Addis Ababa to Adama at least by half. Continuous improvement of urban road infrastructure can provide a basis for enhancing sustainable urban mobility in LLDCs.

9 In 2010, Volunteers of the Engineers without Borders (EWB), Washington University Chapter (USA), assisted rural communities in North Potosi, Bolivia, in a more durable reconstruction of a rural road frequently damaged by floods, as reported in: https://deanchahimbgi.files.wordpress.com/2010/12/transnow_ewb-ews_final_report_11-4-10.pdf Similar practical rural development projects are also implemented by other EWB Chapters, including EWB (UK) http://www.ewb-uk.org/, EWB (Germany) https://www.ingenieure-ohne-grenzen.org/, and EWB (Australia) https://www.ewb.org.au/
4.2.2 Metro and light rail public transport systems in landlocked developing countries

Throughout the developing world, local authorities have recognized the importance of a modal shift from private to public transport. However, Baku (Azerbaijan), Tashkent (Uzbekistan), Almaty (Kazakhstan), and Yerevan (Armenia) are the only capital cities of LLDCs that have been operating high-occupancy urban metro or light rail systems for some time. As the largest and fastest growing capital city of any of the LLDCs, Addis Ababa (4.8 million inhabitants in 2014) embarked on the construction of a new metro system, which successfully inaugurated its first line in September 2015.

The Addis Ababa light rail project is a joint venture between Ethiopia and China. In the initial phase, it will have two lines, with a total length of 32 km and 39 stations, and benefit from an investment of US$ 475 million. The Addis Ababa light rail system is the first of its kind to be built in sub-Saharan Africa (except for South Africa), and it gives local commuters a way to escape some of the city’s most serious traffic jams.

The city of La Paz, Bolivia (Plurinational State of) has also been experiencing significant congestion. As the terrain is very mountainous, the national and local governments opted for the construction of a “subway in the sky”. The “Mi Teleférico” aerial public transport cable car system, which links La Paz with El Alto, was opened for service in 2014. Based on the system’s initial success, its expansion from 10 km to 30 km length and the increase of its capacity to 27,000 passengers per hour, are planned.\textsuperscript{10} Urban cable car systems may offer public transport solutions for other landlocked developing countries with similar mountainous terrain. In Ashgabad (Turkmenistan), a first monorail line is currently under construction. Expected to transport up to 1,200 athletes and visitors per hour around the various sites of the Olympic Village, its inauguration is planned in time for the Asian Games 2017.\textsuperscript{11} The monorail will provide convenient public transport between residential areas, sports stadiums and (sub)urban commercial centres. Efficient urban mass public transport systems can enable urban passenger transport at comparatively lower cost and lower levels of emissions per person and kilometre. Depending on local conditions, each city will need to determine which urban transport solution best meets its needs.

4.2.3 Bus rapid transit: Public regulators, private operators and a growing role for public-private partnerships

Light rail and metro systems are typically very costly to construct and are therefore a feasible urban transport option for very large cities with high ridership along major traffic arteries only. Most capital cities of LLDCs, however, have populations of 700,000 to 2 million inhabitants, who mostly live in single-story or low rise buildings and spread out over large geographical areas, including extended suburbs. Cities with these geographic features are more economically serviced by urban bus public transport systems than by light rail systems. In many cities of LLDCs, urban bus public transport is operated by municipal or state owned corporations. Although public transport operations work well in some countries, they also draw frequent criticism due to continued use of obsolete vehicles, unreliable or infrequent service, poor economic performance, and operating losses. In many cities, operators are seeking to improve services by acquiring new and more fuel efficient buses. In Astana (Kazakhstan), Kathmandu (Nepal), and Ulaan Bataar (Mongolia), projects and studies are underway to introduce dedicated separate bus lanes and bus rapid transit (BRT) lines which can significantly reduce intra-urban travel time and make public transport more attractive. In a growing number of municipalities, transport agencies are also commissioning private companies to operate buses along specific routes, or to manage entire urban bus systems. Such public-private partnerships can mobilize private co-funding and investments, increase operational efficiency, and attract more customers. In Kampala (Uganda), the Pioneer Bus Company is one such private company that provides local urban bus transport services.\textsuperscript{12} Contracting of private bus service operators can reduce the financial burden on limited municipal budgets for public transport.

\textsuperscript{10} More information on “Mi Teleferico” project at: www.miteleferico.bo
\textsuperscript{11} More information on Intamin Company which has been awarded the Ashgabat Monorail construction contract at http://www.intaminworldwide.com/transportation/Home/news/Ashgabat

\textsuperscript{12} More information on Pioneer Bus Company, Kampala at http://pioneereasybus.com/about-us/introduction/
4.2.4 Urban taxi fleets and formal and informal urban passenger transport services

Taxis owned and operated by local companies or by private individuals provide crucial urban transport services in LLDCs, in particular in towns and areas where other public transport is inadequate or unavailable. Every larger city of landlocked developing countries has large taxi fleets, comprising both formally licensed and informal services. In many developing countries, taxi services represent a popular informal self-employment opportunity. Paratransit refers to public transport services supplied by informal private operators running small to medium capacity vehicles (including motorcycle taxis, collective taxis, and mini-buses). Regulations on taxi systems, including licensing, taxi stands, metering systems, fuel use, and other operational parameters can vary between municipalities. Some of the main regulatory challenges are to “legalize” informal paratransit, and to find an adequate balance in the number of service providers active on the local transport markets. Not enough licensed vehicles may result in lack of service and access, but too many may result in congestion and ruinous competition. Public control over informal local transport service providers is difficult and often relatively weak. However, positive trends and improvements are observed in certain agglomerations, including Ouagadougou or Addis Ababa. If properly regulated, the paratransit sector can play a significant role in providing essential urban transport services in the context of lacking large scale scheduled bus or rail services.

4.2.5 Monitoring urban air pollution

A very limited number of cities in LLDCs have the technical capacities and the equipment needed to professionally monitor air pollution and to carry out source apportionment studies. Hence, only a very limited number of landlocked developing countries and cities have conducted measurements and reported air quality data for inclusion in the World Health Organization air quality database.

In almost all LLDC cities that have conducted air quality measurements, the levels of urban air pollution are very significantly above the urban air quality standards recommended by the World Health Organization. Even if only a portion of the particulates (PM 10 and PM 2.5) originates from transport emissions, action should be taken, where possible, to obtain more and new data, and to define appropriate local policy options for better air quality protection. Landlocked developing countries or cities where air pollution issues are a concern should receive upon their request technical and financial support, as needed, to better assess the problem and to devise practical mitigation options.

Table 1: Urban air quality – selected cities of landlocked developing countries

<table>
<thead>
<tr>
<th>Landlocked Developing Countries</th>
<th>City</th>
<th>Year of measurement</th>
<th>Annual mean $\mu$g/m$^3$ PM 10</th>
<th>Annual mean $\mu$g/m$^3$ PM 2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Kabul</td>
<td>2009</td>
<td>260</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Mazar-e-Sharif</td>
<td>2009</td>
<td>334</td>
<td>68</td>
</tr>
<tr>
<td>Bolivia (Plurinational State of)</td>
<td>Cochabamba</td>
<td>2014</td>
<td>60</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>La Paz</td>
<td>2013</td>
<td>82</td>
<td>44</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Thimpu</td>
<td>2012</td>
<td>78</td>
<td>43</td>
</tr>
<tr>
<td>Mongolia</td>
<td>Ulaan Baatar</td>
<td>2010</td>
<td>165</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Darkhan</td>
<td>2009</td>
<td>174</td>
<td>80</td>
</tr>
<tr>
<td>Nepal</td>
<td>Kathmandu</td>
<td>2013</td>
<td>88</td>
<td>49</td>
</tr>
<tr>
<td>Paraguay</td>
<td>Asunción</td>
<td>2010</td>
<td>34</td>
<td>18</td>
</tr>
<tr>
<td>TFYR Macedonia</td>
<td>Bitola</td>
<td>2013</td>
<td>69</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Skopje</td>
<td>2013</td>
<td>74</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Tetovo</td>
<td>2013</td>
<td>140</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Veles</td>
<td>2013</td>
<td>51</td>
<td>30</td>
</tr>
<tr>
<td>Uganda</td>
<td>Kampala</td>
<td>2013</td>
<td>170</td>
<td>104</td>
</tr>
<tr>
<td>WHO recommended desirable maximum</td>
<td></td>
<td></td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>


4.2.6 Concepts for integrated urban development and sustainable transport planning

In many cities of LLDCs, residents are dependent on long commutes to go to work and to access other economic and social opportunities and amenities. This situation is particularly challenging for the poor. Walking is the main mode of transport in urban areas of LLDCs, in particular in Africa. Various existing urban development models seek to reduce the need for intra-urban travel among urban residents, at least in the longer term. One such model envisages a polycentric urban form with multiple (sub)urban commercial centres, in which work places, residential areas and basic services are all clustered within close proximity. In this model, urban residents can essentially satisfy most of their needs within a limited geographical radius around their residence. Another model, referred to as transit oriented design, advocates for urban forms structured around public transport nodes and lined up along available transport arteries.
Urban planners in LLDCs are mostly familiar with such theoretical models, but face challenges in their implementation because of chronic shortage of public budgets and, at times, the opposition of vested business interests to relocations.

Many African urban areas are characterized by the existence of large central markets in their central business districts. A large part of the urban economy is structured around these commercial centres, and many transport routes converge to them, carrying both passengers and merchandise. Relocating parts of these markets, especially their wholesaling activities, to carefully selected areas outside the city centre, is one urban de-congestion option that has been successfully followed in several cities of LLDCs and that is under consideration in other ones. (Stucki, 2015) In many cities of landlocked developing countries, bus stops used by paratransit operators are also often very congested and lack the necessary infrastructure. Relocating or establishing separate paratransit bus stops at cardinal points of the city for buses servicing different routes can be another useful decongestion measure.

4.2.7 International development cooperation in proactive urban transport planning and urban infrastructure development

Coping with urban traffic congestions poses great challenges for all rapidly growing developing country cities. In urban transport planning, proactive interventions are often easier, less costly and more effective than reactive traffic congestion management. Many donors, technical cooperation agencies and international financial institutions engage in professional advisory services with developing country cities. However, international attention is often focused on megacities of coastal developing countries. Municipalities and cities of landlocked developing countries should equally be considered eligible for donor support and technical cooperation, with a view to prevent any further aggravation in urban traffic congestion and the associated negative external environmental impacts.

Over the past decade, many developing country municipalities, including some municipalities of landlocked developing countries, have successfully partnered with private sector corporations to provide urban transport solutions. Many efforts are also in place with the support of bilateral donors and multilateral financial and regional institutions.

A greater international exchange of experiences could benefit other landlocked developing country municipalities, where intra-urban travel demand and congestion is high and sustainable public transport unavailable. Relevant United Nations Departments or Agencies could be approached to secure support for such cooperation. The third United Nations Conference on Housing and Sustainable Urban Development (UN Habitat III) provided an important occasion for national and local urban development policy and decision makers to identify new opportunities for the implementation of the new urban development agenda and for collaborative action to address the urban transport challenges.13

4.2.8 Safety in the transportation sector

Target 6 of SDG 3 calls for halving, by 2020, the number of global deaths and injuries from road traffic accidents. Collectively, LLDCs (excluding Burundi and South Sudan), reported 35,562 road traffic deaths in 2013, but WHO estimates suggest that actual numbers might have even been higher. (WHO, 2015a) The largest numbers of road deaths occurred in cities, with many victims being pedestrians and bicyclists. Excessive speeding, drink-driving and drug-driving, motorcycle riders not wearing helmets and car drivers not wearing seats belts, as well as mobile phone use whilst driving, have all been causes that have contributed to these fatalities. While the total motor vehicle population in LLDCs is still low in comparison to OECD countries, accident fatalities remain relatively high. This may also be due to deficiencies in post-crash emergency health care. The Second High-level Global Conference on Road Safety, which has been held in Brasilia in November 2015 with the support of WHO, called for more funding and better coordination of financial and technical support in this area for the poorest countries, which would include many of the LLDCs. (WHO, 2015b)

4.3. Development of transit transport infrastructure and facilitation of transit and trade to enable LLDCs’ structural economic transformation and greater integration into the global trading system

4.3.1 Transport infrastructure development and maintenance

The Vienna Programme of Action sets out three key objectives for infrastructure development: (a) to significantly increase the quality of roads, including increasing the share of paved roads, by nationally appropriate standards; (b) to expand and upgrade the railway infrastructure in landlocked developing countries, where applicable; and (c) to complete the missing links in the regional road and railway transit networks.

13 For detailed information on the UN HABITAT III Conference Programme, please refer to: https://habitat3.org/
Road density and paved roads density still remains extremely low in LLDCs. Paved roads are surfaced with crushed stone and hydrocarbon binder or bituminized agents, with concrete, or with cobblestones. While Central Asian and European LLDCs typically have more than 80 per cent of their roads paved, most of the LLDCs’ national road networks in other regions are still in rather poor condition. In Africa, only 19 per cent of roads classified as highways are asphalted. In Latin America and South Asia respectively, 27 and 43 per cent of roads are asphalted. (EIU, 2014) In spite of recent and ongoing road construction and up-grading, the percentage of roads paved in LLDCs often still lies between 15 and 25 per cent. South Sudan, Central African Republic and Uganda are among the LLDCs with the lowest percentage of paved roads. Unpaved roads can deteriorate quickly and become hazardous or unpassable during rainy season. In all countries, a good road infrastructure provides the basis for mobility and economic activity. Road development in LLDCs needs thus to be further accelerated.

Regular road maintenance is as important as road construction. For some underfunded road departments in LLDCs, proper road maintenance can also be a challenge. Overloaded trucks can cause roads to age prematurely. In some countries, weigh stations report overloading rates exceeding 50 per cent. Most LLDCs have regulations limiting the axle load of trucks, but enforcing them often poses problems.

While railways can provide an economical freight option for the transport of heavy and bulky goods over long distances, only a limited number of LLDCs have operational ones. Kazakhstan has the largest railway network (14,329 km), followed by Uzbekistan (4,192 km), Turkmenistan (3,115 km), Bolivia (2,866 km), Zimbabwe (2,583 km), Azerbaijan (2,068 km), and Mongolia (1,818 km). Some LLDCs have only short rail sections linking their commercial hubs to the railway networks of neighbouring transit countries, such as Lesotho (1.6 km), Nepal (50 km), or Afghanistan. The 715 km long Addis Ababa to Djibouti electrified railway line, which in future will connect Ethiopia’s capital with the port of Djibouti, is one of the largest new railway projects being currently conducted in a landlocked developing country. The construction was expected to be completed before the end of 2016. It has been carried out during a 3 year period by two Chinese construction companies, and largely financed by a US$ 3 billion loan from China’s Exim Bank. The railway is designed for 3,000 ton gross capacity freight trains travelling at a speed of 120 km/hour, reducing the necessary travel time from several days to just 10 hours. The same line will also be used for passenger transport. The East African rail link is another important regional railway project already in an advanced stage. In its first phase, the new 472 km standard-gauge railway line will link the port of Mombasa with Nairobi. Most of the new tracks have been laid and the first trials of this $US 3.8 billion railway are scheduled for the second half of 2017. Freight trains will operate up to a speed of 80 km/h, while the maximum speed for passenger trains will be 120 km/h. The line will have a design capacity of 25 million tons of freight per year. In its next phase, it is planned to extend it to Kampala, Uganda, and possibly South Sudan, Rwanda and Burundi.

Among the LLDCs, only Paraguay and Bolivia can be accessed by navigable rivers, and both countries operate inland ports which handle a considerable portion of their international trade. Periodical dredging of rivers is important to keep the inland ports accessible. Transport of bulk cargo by river typically takes much longer than by road, but involves significantly lower costs, and is usually more environmentally benign. (World Bank, 2010)

An international trade and transport corridor is a coordinated bundle of transport and logistics infrastructure that facilitates trade and transport flows between major centres of economic activity, including production, transhipment or consumption. A trade and transport corridor is typically coordinated by a regional body and constituted by the concerned governments and public or private sector bodies. Most transport corridors follow traditional trade routes. The facilities and services that make up a transit transport corridor include not only roads and railways, but also potential pipelines, electricity or communication transmission systems, warehouses, border posts, seaports, and intermodal facilities. In order to be effective, transit transport corridors not only need to have good and well maintained transport infrastructure, but also require smooth implementation of agreed intergovernmental trade facilitation measures and harmonized trade and transport rules and procedures.

In spite of many improvements during recent years, LLDCs continue to encounter significant challenges including poor modal integration, missing links between key origins and

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15 For more information, see www.railjournal.com, 28 April 2016.
destinations, lack of continuity and inter-regional connectivity, and delays at cities where by-passes have not yet been built. Capacity constraints and high accident rates are also often of great concern.

4.3.2 Regional programmes for coordinated development of transport infrastructure

Among the developing countries of Africa, Euro-Asia and Latin America, several regional programmes have been established with a view to facilitate a coordinated and accelerated regional transport infrastructure development, including transport corridors and various seaports, dry ports, modal transfer facilities and storage sites.

Development of regional transport infrastructure in Africa

At the continental level, the Programme for Infrastructure Development in Africa (PIDA)16 of the African Union, the African Development Bank, the New Partnership for Africa’s Development (NEPAD), and the eight (Sub-)Regional Economic Communities provides a framework and an integrated plan for intermediate and long-term investments in transport, energy, ICT and water supply infrastructure. The programme identifies a total of 24 long distance multimodal transport corridors that should form a core network for regional integration and connectivity, many of them connecting the LLDCs to ports. These include the Djibouti-Addis Ababa Multimodal Transport Corridor, the Northern Corridor, the Central Corridor, the Dar es Salaam Corridor, the Maputo Corridor, the Walvis Bay Corridor group and others. The various elements of the future Trans-African Highway network will improve access to seaports for the 16 African landlocked countries and also improve regional links.

Each sub-regional economic cooperation organization in Africa also has its own sub-regional transport infrastructure development plan. In the case of the Southern African Development Community (SADC), the sub-regional Transport Sector Modal Development Plan for the period 2013-2027 comprises 208 projects, including 18 border post projects, 72 road projects, 31 rail projects, 23 aviation projects and 64 maritime and port projects, and requiring a total investment of US$ 35.3 billion. An early realization of the sub-regional plan will greatly benefit the six LLDCs of the sub-region: Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe.17 The three West African landlocked developing countries, namely Burkina Faso, Mali and Niger, are member states of the Economic Community of West African States (ECOWAS), which also implements a comprehensive sub-regional multimodal transport infrastructure and trade facilitation programme.18

Development of regional transport infrastructure in Asia

In Asia, 29 United Nations member States, including all regional LLDCs, ratified the Intergovernmental Agreement on the Asian Highway Network (IGA). The IGA identifies 55 Asian Highway (AH) routes among 32 member countries totalling approximately 140,000 km (87,500 miles). AH routes cover all of the LLDCs in the region, to varying degrees. Kazakhstan occupies the top position, reflecting its vast physical size, while Bhutan has the lowest number of AH routes, reflecting its small size but also difficult terrain. The AH defines four road types and their design standards: primary, class I, class II and class III.19 While more than 18,162 km of the network belong to the primary class, 22,000 km are below class III standards and need to be upgraded. Member countries are continuously investing in the development and upgrade of the AH road network. Recent reports suggest that at least US$ 26 billion have been invested in the project in recent years. China has been the biggest investor with US$ 6.65 billion provided, followed by India with US$ 3.64 billion and the Russian Federation with US$ 2.65 billion.20

In addition, the Intergovernmental Agreement on the Trans-Asian Railway Network and the Intergovernmental Agreement on Dry Ports respectively entered into force in 2009, and 2016, respectively. The Trans-Asian Railway network now comprises 117,500 km of railway lines serving 28 member countries. A number of LLDCs however have no railway links yet. As many Asian LLDCs are primarily exporters of primary bulky commodities, the case for greater use of railways that are suited to carry bulky goods over long distances as reduced costs, cannot be overemphasized. Along with the Asian Highway, with some 260 existing and planned dry ports and trade facilitation measures, the Trans-Asian Railway network forms the backbone of a large regional integrated, intermodal

18 For more information, see http://www.ecowas.int/ecowas-sectors/infrastructure/
19 “Primary class” are access-controlled highways, where two-wheelers, lightweight vehicles and pedestrians are not allowed. The speed limit for these roads varies between 60 and 120 kmph. They are laid with asphalt or cement concrete. Class I roads have four or more lanes. These are built with asphalt or cement concrete and have a speed limit of 50 to 100 kmph. Class II are two lane roads built with asphalt or cement concrete. The speed limit on these roads is 80 kmph. Class III roads are two-lane roads built using double bituminous treatment. The speed limit is 60 kmph.
transport system, that has the potential to connect the LLDCs to regional and global markets.

In recent years, the establishment of corridors has found favour in the region. Two of the most important transport corridors for the Asian LLDCs are the Central Asian Regional Economic Cooperation (CAREC) corridors and the Euro-Asian Transport Links (EATL).

Development of regional transport infrastructure in Latin America

In Latin America, the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) was initiated in 2000 by member countries of the Union of South American Nations (UNASUR). IIRSA is supported by the Corporación Andina de Fomento (CAF), the Inter-American Development Bank (IDB) and the River Plate Basin Financial Development Fund (Fonplata). Various energy and transport infrastructure projects have been proposed and implemented within this initiative, including projects that benefited the landlocked countries of Bolivia (Plurinational State of) and Paraguay.

The IIRSA activities consist of coordination of planning and investments, harmonization of regulations and institutional aspects, and creation of innovative ways to finance integration projects. Under UNASUR, the South American Counsel for Infrastructure and Planning (COSIPLAN) has become the technical forum for IIRSA and has been adopting the priority projects. There were 579 projects under IIRSA in 2014 amounting to a total investment of US$ 163,324 million. (UNASUR-COSIPLAN, 2015a) Of the total IIRSA/COSIPLAN portfolio, 9 per cent was devoted to Paraguay and 6 per cent to Bolivia. However, only a minority of transport projects have been completed (21 per cent), most of them being under execution (36 per cent) and in a pre-execution stage (28 per cent).

Missing links in regional transport infrastructure

The integration of LLDCs and their main export and import transport corridors into regional transport infrastructure programmes has already led to significant positive impacts. Several countries reportedly observed increased interest from private investors who engaged in the co-financing of selected toll road sections, with direct and indirect additional benefits for the local population. The further development of regional infrastructure networks will have significant benefits for LLDCs. However, very important investments will be needed to upgrade existing regional road and rail transport corridors in Africa, Asia and Latin America, and to build their missing links. Although all 32 LLDCs and their economic development prospects significantly depend on these regional infrastructure investments, they are unable to contribute as much as necessary from their public budgets.

Implementation of the PIDA Programme for Africa will require a total investment of US$ 360 billion between 2011 and 2040. As for the near term future, PIDA estimates total infrastructure investment requirements from 2011 to 2020 for 51 immediate priority projects to amount to US$ 67.9 billion, including US$ 40.3 billion for energy, US$ 25.4 billion for transport, US$ 1.7 billion for water and US$ 0.5 billion for ICT.23

The UN Economic Commission for Asia and the Pacific (ESCAP) estimates total investments needed to upgrade the region transport systems and to close their missing links to US$ 106 billion, including US$ 64 billion for the Trans-Asian Railways, US$ 40 billion for Asian Highway projects, and US$ 2 billion for dry ports at the main trans-shipment locations. Most of these investments will be needed for the development of the Southern Asian Corridor (US$ 54 billion), while the Middle Corridor and the Northern Corridor will require less financing (respectively US$ 30 billion and US$ 22 billion), as the infrastructure along these corridors already largely exists.24

In South America, investments requirements for regional infrastructure development are also important. In 2015, the estimated total requirement for implementing 593 regional integration projects amounted to US$ 182.44 billion, including a US$ 13.6 billion set of 31 regional priority projects for the period up to 2022, identified by COSIPLAN under its “Integration Priority Project Agenda (API).” However, only about a quarter of the necessary investments have been mobilized thus far. (UNASUR-COSIPLAN, 2015b)

21 For more information, see www.iirsa.org

22 A good example of this is the Pumtree-Mutara Road in Zimbabwe managed by Infalink Pty, a special purpose vehicle, jointly owned by the construction company Group 5 and the Zimbabwean Road Agency supported by South Africa’s Export Credit Insurance agency on the basis of ring-fenced toll-fees for the repayment of debt obligations. This road has made a huge difference to the lives of Zimbabweans, facilitating connectivity and trade. (World Economic Forum)


24 Data provided by communication with ESCAP Transport Division staff.
One of the most important infrastructure development projects in South America is the construction of the twin ocean railway, which is planned to connect seaports of Brazil and Peru on the Atlantic and the Pacific Oceans. Various feasibility studies have been undertaken and alternative options are being considered by the concerned stakeholders. The twin ocean railway, also known as “Corredor Ferroviario Bioeanico Central”, would provide a crucial opportunity to significantly improve the connectivity of Bolivia and Paraguay, the two LLDCs in South America. In many sections, the necessary infrastructure already partially exists, but very significant investments are still needed to build the missing links.

There remain several important missing links in the regional transport infrastructure of Africa, Asia and Latin America. Improved physical integration and better connectivity of LLDCs will require continued constructive regional cooperation and significantly increased support from all international stakeholders, including international financing organizations, traditional donors, and private sectors. Financial resources will be needed urgently for the implementation of the regional infrastructure plans, if progress is to be made on achieving SDG 9.

4.3.3 Solving fundamental transit policy issues

The Vienna Programme of Action emphasizes the reduction of transit transport time and transport costs as first priority. Priority 1 of the VPoA on fundamental transit policy issues calls for (a) reduction of travel time along all main transit transport corridors, (b) reduced time spent at land borders, and (c) improved intermodal connectivity requiring less time for the transfer of cargo from rail to road and vice versa, and from port to rail or road and vice versa. The VPoA also highlights the importance of constructive (sub)regional and bilateral cooperation on trade and transport facilitation between neighbouring landlocked and transit developing countries under priorities 3 on international trade and trade facilitation and priority 4 on regional integration and cooperation. Much progress has already been achieved in terms of harmonization and standardization of administrative requirements, customs and border-crossing procedures, but much more need to be done to make transit, transport and trade easier, smoother, faster and less costly.

**Improving corridor performance: Reduction of travel time**

The first specific objective under the VPoA priority on fundamental transit policy issues is to move transit cargo a distance of 300-400 km every 24 hours. Whereas cargo along transport corridors in Central Asia moves comparatively fast and on average at a speed of more than 600 km per day, cargo travel time along corridors in the various sub-regions of Africa is still far below the VPoA target. In 2009, the World Bank estimated average travel time along transport corridors in Southern Africa at 288 km per 24 hours, in Eastern Africa at 192 km per 24 hours, and in Western and Central Africa at 144 km per 24 hours. However, travel time has been reduced significantly along several long distance corridors in Africa thanks to recent road construction and transit road upgrading projects. Today, cargo can be transported along the 1,366 km Trans-Kalahari Corridor from Walvis Bay to Gaborone, at a speed of approximately 600 km per 24 hours, and the travel time on the West African transit corridors going through Ghana, which serve as a key import and export route for Burkina Faso and Mali, approaches a speed of300 km per 24 hours. But in spite of such improvements, significant additional efforts will be needed to reduce cargo transit travel time and travel cost, in particular in Western, Central and Eastern Africa.

**Reduction of time spent at land borders**

The time needed to complete customs and other inspections and transit formalities and checks at border points can add considerable travel time and costs, and should be reviewed and reduced as a part of VPoA implementation. The logistics performance index (LPI), based on surveys with the business community and compiled and monitored by the World Bank on a bi-annual basis, provides the most comprehensive and up-to-date summary assessment of countries’ performance in the essential logistics components, including customs, infrastructure, international shipments, logistics quality and competence, tracking and tracing and timeliness. LPI scores have been computed since 2007 and enable comparisons between countries and tracking of progress over time. With only few exceptions, LPI scores of LLDCs belong mostly to the world’s bottom tier, given the many challenges faced by export and import transport operators in these countries. Landlocked developing countries, with an average LPI in 2016of 2.28 typically score considerably lower than transit developing countries (average LPI in 2016 of 2.90), and much below the countries of the OECD group (average LPI in 2016 of 3.430). (World Bank, 2016c)

Whereas some landlocked developing countries, including Botswana, Uganda, Rwanda and Burkina Faso, have been able to gradually improve their overall logistics for imports and
exports between 2010 and 2016, the situation in other countries, such as Afghanistan, Lao PDR, Kyrgyzstan, and Tajikistan has fallen further behind. Double landlocked country, such as Uzbekistan, where exports and imports have to cross more than one land border, faces additional particular challenges.

Combining the border agency interventions of two neighbouring countries into one-stop border posts (OSBP) has shown to be one of the most effective ways to reduce time spent at borders. For instance, in Malaba, on Kenya’s western border with Uganda, waiting time of container truck drivers has reportedly been reduced from almost 2 days to less than 8-10 hours. Other options to reduce or facilitate border formalities include the introduction of automated systems for customs data or electronic single-window facilities, as well as the use of TIR carnets or other mutually accepted regional transit permits. Third party motor vehicle insurance schemes that offer regional coverage can make border crossing easier. Mutual recognition of driver licenses and vehicle roadworthy certificates and harmonized maximum axle load regulation can also significantly facilitate cross-border transport and trade.

Corruption is still a major challenge, in particular for transport operators servicing clients in LLDCs. Corruption can even off-set all other progress made in trade facilitation. Surveys undertaken by the IRU suggest that in some regions, truck drivers spend up to 57 per cent of their time en-route queuing at borders, and as much as one third of freight costs are going towards illicit payments. Corruption increases legal and operational uncertainty and adds additional costs to the entire logistics chain and the end product. More effective fighting of corruption on border crossings and along transport corridors remains an important priority issue for the concerned businesses, relevant authorities, national governments and international organizations. The IRU and the United Nations Global Compact have launched a Global Anti-Corruption Initiative (GACI), which provides guidance for collective action in countering bribery.25

**Reduction of waiting time spent at intermodal transfer points**

A further objective is to reduce time spent at intermodal transfer points, in particular in commercial ports. Comprehensive and comparable global data is not readily available, but multiple studies have been undertaken to assess the performance and the efficiency of individual or regional ports. Whilst many developing countries ports, in particular in Africa, generally operate at a much lower capacity and lower efficiency than European, North American or East Asian ports, significant improvements in efficiency in terms of reduced ship waiting and cargo dwelling times have been reported for some individual transit developing country ports, including Tema (Ghana) and Mombasa (Kenya).

According to the “Trading across Borders” data collected as part of the World Bank’s Doing Business project (World Bank, 2015b), almost 47 days were needed on average to import a 20-foot container in a landlocked country in 2014. While the situation shows some improvement in comparison to the average 59 days needed in 2007, there is a very noticeable gap with transit countries, in which an average 37 days was needed in 2007. A study conducted by researchers of the Inter-American Development Bank (IADB) in 2014 observed a similar trend. Based on an analysis of time series of data covering 203 ports in 70 developing countries, the study concluded that port efficiency in developing country increased on average by 10 per cent between 2000 and 2010. The analysis concluded that private sector participation, reduction of corruption in the public sector, improvements in liner connectivity, and establishment of new multimodal links contributed to an increase in port efficiency in developing regions. (IADB, 2015)

Many developing country ports that handle transit cargo for landlocked country destinations have experienced a rapidly growing volume of domestic and transit cargo. In order to further reduce logistical bottlenecks and reduce the time spent at intermodal transfer points, significant additional investments in transit developing country port infrastructure will be needed, including for their modernization as well as their capacity expansion. Relocating container stripping away from inner port loading and unloading areas can reduce congestion and enhance port operational efficiency. Further development of the dry port infrastructure will likely also enable further reductions in waiting times spent at intermodal transfer points.

### 4.3.4 International transit and trade facilitation

Apart from the needed improvements in the infrastructure of transit transport corridors, the implementation of international, regional and bi-lateral transit and trade facilitation measures are equally important, as they can significantly speed up trade flows, reduce per unit transport costs, and stimulate growth in LLDCs. A large number of international conventions on transport, transit and trade facilitation have been developed
and agreed upon under the auspices of the United Nations.  
Recognizing the multiple benefits of an efficient common international trade and transport regime, a large number of countries have acceded to and ratified these international conventions over the years.

The Customs Convention on the International Transport of Goods under Cover of TIR Carnets came into force as a United Nations Convention in 1975. Today, the TIR Convention has around 70 contracting parties on four continents. Under TIR, goods are contained in load compartments and formally sealed by customs in the country of origin. The contents are detailed in a TIR Carnet, an essential document that accompanies the driver and the cargo along its journey. Custom officials at transit borders simply have to verify the Carnet and check if the original seals are intact. At transit border points, custom officials no longer need to physically check the load. The TIR Convention has greatly facilitated transit transport, in particular in Europe, where the convention originated. The TIR Convention is open to all countries, and all international traders can greatly benefit from the freedom of transit it provides. Today, more than 40,000 international transport operators are authorized to access the TIR system, and some 3.2 million TIR carnets are issued each year. At the time of the preparation of this report, 11 LLDCs and 6 transit developing countries had ratified the TIR Convention, but additional developing countries have expressed interest to join. The recent accession of China to the TIR Convention is widely expected to significantly increase the value and volume of cargo carried under the convention in future. LLDCs that have not as yet ratified the Convention may consider doing so in order to further enhance transit facilitation. UN Member States may communicate their decision on acceding to any of the United Nations Conventions or International Agreements at any time. However, the UN Secretary-General’s Annual Treaty Event provides a particularly convenient opportunity for doing so.  

The International Convention on the Harmonization of Frontier Control of Goods aims to reduce the requirements for completing border formalities, as well as the number and duration of border controls, by coordinating control procedures and their methods of application. The Convention was adopted in 1982 and came into force in 1985. The convention has been ratified and is being implemented by 57 state parties, mostly European countries. 10 LLDCs have also ratified the Convention, including Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Lao PDR, Lesotho, Moldova, Mongolia, Uzbekistan, and the Former Yugoslav Republic of Macedonia. Like the TIR Convention, the International Convention on the Harmonization of Frontier Controls of Goods is open to accession by all countries. The benefits of a harmonized international regulatory framework on transit transport and trade include more efficient and faster border and customs controls, simplified and standardized procedures, and internationally recognized transit documents and guarantees. Compliance with the regulations of the Convention will result in more transparency, greater international cooperation, and ultimately faster, safer and more reliable transport. Landlocked and transit developing countries that have not as yet ratified the Convention may consider doing so. In its Resolution 70/197 Towards comprehensive cooperation among all modes of transport for promoting sustainable multimodal transit corridors of 22 December 2015, the General Assembly invited Member States to accede to the fore mentioned international conventions.

Global trade is widely expected to significantly progress through the implementation of the WTO Trade Facilitation Agreement (TFA), which was adopted by the World Trade Organization (WTO) members at the Bali Ministerial Conference in 2013. The TFA contains provisions for expediting the movement, release and clearance of goods, including goods in transit, with the main objectives of reducing bureaucratic obstacles trade and decreasing trade costs. The TFA clarifies and improves the relevant articles of the General Agreement on Tariffs and Trade (GATT) of 1994, and sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues. The full implementation of the Agreement on Trade Facilitation has the potential to reduce the trade costs of WTO member States by 14.3 per cent on average. Trade costs in landlocked developing countries could be reduced by an estimated 15.4 per cent on average, 19.3 per cent for manufactured goods and 11.7 per cent for agricultural products. (United Nations General Assembly, 2016)

Furthermore, the TFA contains innovative special and differential treatment (SDT) provisions that allow (landlocked) developing countries to determine when they will implement individual

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26 The principle of the fundamental right of transit was first established by the Barcelona Convention and Statute on Freedom of Transit that entered into force in October 1922. Article 3 prohibited governments from demanding payments for transit rights, except for dues designated to cover operational expenses.

27 For information on the UN Secretary-General’s Treaty Event in September 2016, please see https://treaties.un.org/pages/TreatyEvents.aspx?path=Treaty/Focus/Page1_en.xml
provisions of the Agreement. (Landlocked) developing country signatories also have an option to identify provisions of the TFA that they will only be able to implement upon receipt of technical assistance and capacity building support. To benefit from SDT, a member must categorize each provision of the agreement and notify the WTO in a timely manner on whether the designated provision will be implemented upon entry into force of the Agreement (Category A), entry into force after a transitional period (Category B), or entry into force only after a transitional period and the receipt of relevant technical assistance and capacity building support (Category C). The envisaged flexibility in the implementation of the TFA and the envisaged provision of technical support for developing countries are important innovations that LLDCs should avail of.

The TFA will help improve transparency, increase possibilities to participate in global value chains, and reduce the scope for corruption. The Trade Facilitation Agreement will enter into force once two-thirds of WTO Members will have ratified a Protocol of Amendment. As of 15 December 2016, 102 WTO members had ratified the TFA, including 13 landlocked developing countries and 15 transit developing countries. With only a few additional ratifications, the TFA is likely to come into force in the very foreseeable future. WTO members, including landlocked developing countries that are WTO members and that have not yet ratified the TFA, should consider doing so expeditiously.


4.3.5 Regional cooperation in trade facilitation

In addition to becoming party to international conventions, international trade and transit can be made easier, faster and less expensive by implementing regional and bilateral trade facilitation measures. Almost all LLDCs have multiple regional and bilateral trade and transport agreements with their neighbouring transit countries.

Regional trade and transport development cooperation in Africa

The Tripartite Free Trade Area Agreement (TFTA) is an overarching economic cooperation and integration agreement recently signed by African developing countries. It brings together Member States of the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern African Development Community (SADC). The TFTA was signed in Sharm-el-Sheikh, Egypt, in June 2015 by representatives of 26 countries, including 10 African LLDCs. It is expected to enter into force during 2017, after at least 14 of the 26 founding member states have transmitted their ratifications. The TFTA pursues an integration approach built on three pillars: industrial development, infrastructure development, and market integration. Tariff liberalization, disciplines on non-tariff barriers, rules of origin, trade remedies and provision for dispute settlement are all part of the Agreement. Other provisions include, among other issues, elimination of quantitative restrictions, customs cooperation, trade facilitation, transit trade, and infant industries. TFTA will seek to integrate all main provisions of the three sub-regional African trade cooperation agreements that were created earlier.

Under COMESA, 19 African developing countries already signed a sub-regional Customs Transit Guarantee Scheme. EAC also established a joint Customs Management Act setting out common procedures for the 5 African developing countries of which it is composed. The SADC Protocol on Transport, Communications and Meteorology, first adopted in 1996, is another pre-existing African trade cooperation agreement. The 15 SADC Member States also adopted the SADC Regional Infrastructure Development Master Plan 2012-2027, which became a component of the PIDA. In spite of the many regional trade agreements, intra-African trade accounts approximately for only 12 per cent of total regional trade. However, it can be expected that wider and better coordinated regional economic integration and trade facilitation efforts will eventually lead to more intra-regional trade, and be of greater benefit to African LLDCs.

Regional trade and transport development cooperation in Euro-Asia

Three LLDCs, namely Kazakhstan, Armenia and Kyrgyzstan, have joined the Russian Federation and Belarus to form the Eurasian Economic Union in 2015. The Eurasian Economic

Additional information on the work of the Eurasian Union can be obtained from www.eaeunion.org
Union builds on prior agreements concluded within the Eurasian Economic Community and the Eurasian Customs Union. In most of the Central Asian countries, transport infrastructure, including long distance road and rail links, is rather well developed. Apart from great geographical distances between the economic centres of the countries of the Union, no major obstacles exist to transport and trade, including with associated economic partners.

Under the Trans-Asian Railway and the Asian Highway programmes, infrastructure is being upgraded, new agreements are being signed, and new international transport and rail ways, linking China with Central Asia and even Eastern and Western Europe, are being built. New and very competitive long distance transport corridors are thus emerging, on which goods from inland China can be transported to old and new markets, benefitting from a shorter transport time than through maritime shipment. China’s recent accession to the TIR Convention will greatly facilitate long distance land transport by rail and road in the near future. All along the multiple East-West-New Silk-Road Corridors, new opportunities will emerge for Central Asian LLDCs. In 2014 in Dushanbe, Tajikistan, members of the Shanghai Development Organization have signed an intergovernmental Agreement on Establishing Favorable Conditions for International Road Transport (Dushanbe, 12 September 2014), which has already come into force. Members of the Shanghai Development Organization also agreed on a comprehensive Action Plan with priority projects in trade and economic cooperation. A special financing facility has been established to advance the implementation of the Action Plan during the 2017-2021 period. In Western and Central Asia, the Transport Agreement of the Economic Development Organization (ECO), based in Tehran, Iran, also seeks to facilitate cooperation on cross-border transport benefiting LLDCs. In the foreseeable future the Central Asian landlocked developing countries will become more accessible land transit countries.

With support provided by the Asian Development Bank (ADB), members of the South Asia Sub-regional Economic Cooperation (SASEC) (Bangladesh, Bhutan, India, Nepal) have drawn up and ratified a comprehensive intergovernmental Motor Vehicle Agreement (MVA) in 2015. The MVA is expected to enable better connectivity throughout the sub-region, benefiting in particular the landlocked developing countries of Nepal and Bhutan. In conjunction with the MVA, the transport ministers of the four party countries have also requested the ADB to provide greater financing support for some 30 selected road projects aimed to develop the physical transport infrastructure in the sub-region. ADB support is also envisaged for parallel trade facilitation efforts and programmes aimed at customs procedures modernization.

The Lao PDR is the only landlocked developing country in the South-East-Asia sub-region. Since 1999, the countries of the Greater Mekong Sub-region (GMS) (Lao PDR, Thailand, Viet Nam, Cambodia, China, and Myanmar) cooperate on trade facilitation under the GMS Cross-Border Transport Agreement (CBTA). The GMS CBTA provides for the development and upgrading of several sub-regional transport corridors, which will enable Lao PDR to access seaports of Thailand, Viet Nam, and China.

The Intergovernmental Agreement on Dry Ports was developed under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and entered into force in April 2016, after eight of the 17 signatory countries became Party to it. The Agreement opens up new development prospects for the LLDCs in the Asian region, as well as for inland areas of transit countries, whose goods and services are also facing the challenges of prohibitive costs and complex logistics to access markets. By serving similar functions as ports in coastal areas, such as those of consolidation and distribution centres, dry ports can create new economies of scale, reduce transport costs, and generate employment opportunities for local populations. Dry ports create the infrastructure preconditions for intermodal transfer options. Using road services in combination with more energy-efficient and less polluting alternatives such as rail, short sea shipping and inland waterways will play an important role in enhancing sustainable transport in the Asia-Pacific region.

The Agreement identified 260 dry ports in 32 countries and is designed to promote their international recognition, facilitate investment in their infrastructure, improve their operational

29 For additional information on the Shanghai Cooperation Organization (SCO) Transport Initiative please see Asian Development Bank - https://arc.adb.org/initiative/shanghai-cooperation-organization
30 For background information on the Economic Cooperation Organization please see: http://www.ecosecretariat.org/in2.htm
31 For information on the South Asia Subregional Economic Cooperation (SASEC), please see http://sasec.asia/
32 For detailed information on the Sub-regional cross-border transport agreements in the Greater Mekong Sub-region, please see http://www.gms-cbta.org/cross-border-transport-agreement
efficiency, and enhance the environmental sustainability of transport. The network of dry ports defined through the Agreement also supports the Asian Highway and Trans-Asian Railway networks and ushers in greater prospects for the development of efficient international intermodal freight corridors. The Asian International Agreement on Dry Ports can provide a model for other developing regions in Africa and in Latin America to engage in similar regional or sub-regional agreements for the benefits of their respective landlocked countries and inland regions, as well as for enhancing sustainable transport as a whole.

Regional trade and transport development cooperation in Latin America

Promotion of regional economic cooperation has been an important goal for Latin American developing countries since the 1960s, when the Latin American Free Trade Association (ALALC) was first formed by the signatories of the Treaty of Montevideo. ALALC aimed to create a common regional market with tariff rebates and an eventual elimination of all duties and trade restrictions within a twelve-year period. In 1980, the ALALC was transformed into the Latin American Integration Association (ALADI) to pursue more ambitious goals of improving the economic and social development of the region through the establishment of a common market.

Today, MERCOSUR (Mercado Común del Sur) is the largest regional trade and economic cooperation mechanism in Latin America. Mercosur was first established in Asuncion, Paraguay, in 1991 by the founding member states of Argentina, Brazil, Paraguay and Uruguay. The Treaty was subsequently amended at Ouro Preto in 1994, outlining a more detailed vision for the development of a common market in Latin America. Venezuela and Bolivia joined Mercosur as state parties, and other Latin American developing countries, including Chile, Colombia, Ecuador, Guyana, Peru, and Suriname, are also associated with the mechanism. In December 2004, Mercosur and the Andean Community of Nations (CAN) signed a reciprocal associate-member status agreement, which formed the basis for the creation of the political Union of South American Nations (UNASUR) in 2008, comprising of 12 Latin American developing country member states, including the two LLDCs of the region, Bolivia and Paraguay.

Regional and international exports of both Bolivia and Paraguay have shown gradual improvements in recent years. Progress has been made in terms of implementing an Advance Regional Transit Agreement (ATIT), an electronic customs system (SINTIA), and integrated control posts on most of the border crossings. However, whereas progress has been made in regional economic cooperation and trade facilitation in Latin America in recent years (see Table 2), much work still needs to be done. (Mendoza, 2012; ECLAC, 2015)

Table 2: Trends in trade facilitation in South America: reduction in total time to export and import (2006-2015)

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<th>Country</th>
<th>Time to export (days)</th>
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<td>Bolivia</td>
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4.3.6 Bi- and multilateral transit corridor agreements and institutions

International transit transport corridors require good collaborative governance, which can best be provided by dedicated transit corridor development and coordination authorities. In Africa, the Northern Corridor Transit Agreement (NCTA), signed by the governments of Burundi, Kenya, Rwanda and Uganda in 1985, was one of the first such multilateral transit corridor management and trade facilitation agreements. The NCTA is one of Africa’s eldest multilateral agreements between landlocked and transit developing countries aimed at establishing an efficient, cost-effective, reliable and mutually beneficial multimodal transit transport system. The Democratic Republic of Congo acceded to the Agreement in 1987, and South Sudan joined it after its independence. The NCTA is governed by the Northern Corridor Transit and Transport Coordination Authority (NCTTCA) and its three organs, the Council of

36 Further information on Mercosur please see: http://www.mercosur.int/innovaportal/v/7823/2/innova.front/paises-del-mercosur
37 For information on UNASUR, please see: http://www.unasursg.org/en
38 For additional information on International Customs Transit Computerized System (SINTIA) http://www.statusin.org/9701.html
Ministers, the Executive Board, and the Executive Secretariat. The NCTA ensures the freedom of transit among Member States, safeguards the right of access to and from the sea for landlocked countries, and facilitates inter-state and transit trade. NCTTCA works in partnership with EAC, COMESA, and other sub-regional economic development organizations, with a view to harmonizing documentation and procedures for cross-border trade and transport. It implements practical trade and transport facilitation instruments such as One-Stop Border Posts, Integrated Border Management systems, an Electronic Single Window System, and a regional Overload Control System. The NCTTCA Secretariat works with international development partners, donors, and international financial institutions to mobilize international technical assistance for its members, if and when needed. In addition to the development of its transport and other infrastructure, NCTTCA and its member countries seek to upgrade and convert the Northern Corridor into an economic development corridor, which could offer further economic opportunities and benefits not only for landlocked communities, but also for communities along the transit route and its feeder roads.39

All over Africa, bi- and multilateral sub-regional projects are under way to maintain and upgrade multimodal overland transport corridors, or develop new ones. In Southern Africa, Namibia, Zambia and the Democratic Republic of Congo recently signed in Lubumbashi a Trilateral Road Transport agreement for the coordinated development of the Walvis Bay-Ndola-Lubumbashi Development Corridor (WBNLDC). The partner countries established a permanent secretariat to look into issues such as customs, transit fees, security, theft and smuggling along the corridor, as well as immigration and health-related issues. The African Development Bank supports the WBNLDC Secretariat for an initial period of three years, after which the project is expected to be financed by the partners themselves, including the private sector.40

In the context of Ethiopia’s robust economic growth, international attention is focused on existing roads, railway lines under construction, and planned pipelines along the Djibouti - Addis Ababa corridor. Another major long distance transport corridor in East Africa is the Port Lamu-South Sudan-Ethiopia (LAPSSET) corridor.41 Western and Central African long distance transport corridors include the Dakar-Bamako-N’Iamey, Conakry-Bamako, Tema-Ouagadougou, Lome-Ouagadougou, Douala-N’djamena, and Doula-Bangui routes. While these corridors will mostly comprise of road infrastructure, some railways are also planned to be rehabilitated and modernized. Institutional arrangements for corridor development and management vary, as do the pace of progress and the development of the trade volumes along the different routes. Along all of these transport corridors, the development of their infrastructure and the facilitation of cross-border transport are of crucial importance for the concerned West and Central African landlocked countries.

In Asia, efforts to develop intermodal transit corridors have been ongoing. For example, bilateral and multilateral discussions, such as the trilateral meeting of the Presidents of Azerbaijan, the Islamic republic of Iran and the Russian Federation in August 2016, have been held to promote the International North-South Transport Corridor. China’s ‘Belt, Road’ Initiative, which incorporates a number of corridors along the Silk Road Economic Belt and the Twenty-First Century Maritime Silk Road, provides useful references and guidance. The developments of other corridors, including the Bangladesh-China-India-Myanmar Economic Corridor, the China-Pakistan Economic Corridor, and the Middle Corridor, amongst others, are also under way.

The two landlocked South American developing countries, Bolivia and Paraguay, transport most of their exports and imports by road, and have concluded multiple binational transit agreements with each other, as well as with Argentina, Brazil, Chile, Peru, and Uruguay. For both LLDCs, the development of the cross-continental rail links and expanded international navigation along the Paraguay Paraná inland waterway (also known as the “Hydrovía Paraguay Parana”) can provide important opportunities for sustainable low-cost transport, and the expansion and facilitation of regional and international trade. (World Bank, 2010)

Most of the bi- or multilateral transit corridor management authorities are co-financed by their collaborating partners. Nevertheless, in order for them to effectively develop the necessary infrastructure along their respective corridors, they also need continued external and international financing support. For many donors and international financial institutions, bi- and multilateral transit corridor management authorities are important partners, as their project proposals have usually been carefully vetted and typically promise a more rapid pay-back and multiple benefits for all concerned stakeholders.

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39 For detailed information on the Northern Corridor Transit and Transport Coordination Authority please see: www.ttcanc.org
41 For additional information, please see: http://www.lapsset.go.ke/
4.4. Development of passenger travel for enhanced social-economic connectivity

4.4.1 Inter-city and cross-border bus and coach passenger transport in landlocked developing countries

Travel by bus or coach is typically the most economical and often the only available option for long distance passenger travel within LLDCs, or between cities of landlocked and neighbouring developing countries. Long-distance bus and coach services enable interpersonal contacts, family visits, and long-distance passenger travel for other purposes, including (migrant) work or study. In comparison with private motorized transport, travel by bus or coach is environmentally benign, generating only low emission per passenger and kilometre. In most LLDCs, long distance passenger transport was formerly often mainly provided by state-owned companies. In many countries, these public sector passenger transport operators typically charged low tariffs, but their underfunded operations could also often not meet public expectations or traveller needs in terms of quality, frequency, timekeeping, or even safety of services. Hence, in all LLDCs inter-city and cross-border bus and coach passenger transport has become an important domain for private operators, who typically offer better quality vehicles, individually or company owned small or large buses, and more frequent services, even on less travelled and less profitable routes. In many of the LLDCs today, national transport licensing authorities face the same challenges as municipalities in urban areas in terms of providing an enabling environment for transport operators, and simultaneously preventing excessive competition with potential negative impacts in terms of passenger vehicle overloading, vehicle speeds, or not adequately qualified drivers. Continuous improvement in the regulatory frameworks on overland passenger transport remains an important area of further policy reforms, as well as strict enforcement of applicable traffic laws.

Inter-city and cross-border bus and coach passenger transport in LLDCs is an important area of South-South and Triangular business cooperation. In Turkmenistan, many new buses are provided by manufacturers from neighbouring Iran (Islamic Republic of). In Nepal and Bhutan, many buses are provided by Indian manufacturers. In most African and Latin American LLDCs, coaches of Japanese and Chinese manufacturers are very popular. In Dushanbe, Tajikistan, foreign investors, including Turkish companies, have supported the construction of a new “Asia Express” bus terminal, offering all necessary facilities for long distance inter-city travellers. The modernization and expansion of bus and coach fleets in LLDCs should provide further options for mutually beneficial South-South and triangular trade in passenger transport vehicles.

4.4.2 Passenger air travel and international connectivity of landlocked developing countries

Global passenger air travel has grown tremendously over the past decade. Several LLDCs operate their own airlines, offering domestic and international flights. In order to diversify their national and local economies, a growing number of LLDCs are pursuing active tourism promotion policies and programmes, including Ethiopia, Mongolia, Uzbekistan, Bhutan, Nepal, and others. LLDCs that reported major revenues from inbound tourists in 2014 include Azerbaijan (US$ 2,713 million), Kazakhstan (US$ 1,555 million), Armenia (US$ 994 million), Zimbabwe (US$ 827 million), Bolivia (US$ 736 million), Lao PDR (US$ 642 million), and Zambia (US$ 642 million). (World Bank, 2016d)

A survey conducted by researchers of the World Bank in 2011 on the air connectivity of LLDCs concluded that additional bilateral air service agreements and a more liberal trade regime (measured in a lower Services Trade Restrictiveness Index (STRI) can lead to a 20 per cent increase in the number of flights. (Borchert et. al., 2011). Improved air connectivity also offers other new export business opportunities for LLDCs. In Ethiopia, flower farming and export to Europe by air has become a new lucrative business. In 2014, Uganda also exported cut flowers worth US$ 35 million to the Netherlands and the Russian Federation. Given the long distance between the main international tourist markets and landlocked developing country destinations, foreign tourists may mainly travel and arrive by air. Improvements in airport infrastructure, installation of advanced air traffic control and air navigation systems, better safety and security services, and liberalization of air travel markets are all important measures to be considered by LLDCs to enhance the development of their tourism industries and services. Financial and technical assistance to LLDCs may be required in the air transport sector. For example, the African Development Bank (AfDB) has provided since 2006 technical

42 For more detailed information: http://www.busandcoach.travel/en/efficient/efficient_facts_and_figures.htm
43 In Uganda alone, national and international overland passenger transport services are offered by 26 licensed bus operators. For more detailed information: http://fortuneofafrica.com/ug/major-local-and-foreign-bus-companies-in-uganda/
and financial support to member states in Western and Central Africa through the Support Project for the air transport sector in West and Central Africa (PASTA CO), with a view to harmonize national regulations and to enhance the regulatory framework for air transport services in the region. The AfDB project supports the training of regional inspectors, for them to be able to perform controls and audits in accordance with the standards and recommended practices of the International Civil Aviation Organization (ICAO). (African Development Bank, 2015).

5.0. Means of implementation: Enhancing sustainable transport in landlocked developing countries

Access to advanced transport technologies, capacity building, financial resources, and investments will be essential means of implementation for LLDCs to move forward and implement policies and programmes on sustainable transport.

5.1. Measures and available technologies for cleaner fuels, cleaner vehicles, and more efficient transport systems and operations in landlocked developing countries

Phase out of production and use of leaded gasoline

Low motor fuel quality can have serious impacts on local air pollution and public health, particularly in rapidly growing and congested cities. Over the past two decades, major global efforts have been undertaken to effectively reduce and phase out the production and use of leaded gasoline. All LLDCs have joined these efforts, and today, all fuels produced or imported by LLDCs are practically lead free.

Reduction of sulphur content in motor fuels

Today, public health and environmental concerns mainly focus on reducing the sulphur content in fuels. High-sulphur motor fuels form sulphur dioxide (SO2) and sulphate (SO4) particulate matter during combustion. These pollutants can affect not only the durability and performance of engines and exhaust emission control systems, but also the human respiratory system and the function of the lungs. Furthermore, when SO2 combines with water, it forms sulfuric acid which is the main component of acid rain.

The UNEP Partnership for Clean Fuels and Vehicles (PCFV) and the International Council on Clean Transportation (ICCT) are leading international multi-stakeholder initiatives that promote the reduction of sulphur in petrol and diesel. Most OECD countries have passed legislation that requires refineries to reduce sulphur in diesel and/or petrol to below 15 ppm. In most developing countries, including most LLDCs, however, sulphur levels are still at 350 or 500 ppm, and in some cases even significantly higher.

Whereas several refineries operating in Azerbaijan, Kazakhstan, Turkmenistan, Uzbekistan, and Bolivia have been modernized, expanded and improved to produce a greater variety of quality fuel products, most other LLDCs still depend on smaller outdated domestic refinery facilities and/or on the import of products from transit countries. Landlocked developing countries with rapidly growing economies, including Ethiopia, Mongolia, Lao PDR, Uganda or Zambia, have ongoing projects or plans to build their own (modern and cleaner) refineries and/or associated petroleum product pipelines. Continued international technical support and mutually beneficial refinery business cooperation will be important to enable LLDCs to further bring down sulphur levels in motor fuels.

Use of natural gas in motor vehicles

The use of natural gas in motor vehicles can offer economic as well as environmental advantages, since its combustion produces lower levels of harmful air pollutants and lower greenhouse gas emissions. Several LLDCs, notably Bolivia and several Central Asian countries, including Azerbaijan, Kazakhstan, Turkmenistan, and Uzbekistan, produce their own natural gas and have embarked on proactive programmes to increase the domestic use of compressed natural gas in transportation. Significant public and private investments have been made in building the necessary gas storage and refuelling infrastructure in several of their cities. In some countries, such as in Bolivia, governments offer incentives for the conversion to natural gas vehicles. In cities such as La Paz (Bolivia), Santa Cruz (Bolivia), Almaty (Kazakhstan), Tashkent (Uzbekistan), and Yerevan (Armenia), buses and taxis fuelled by natural gas provide crucial services for urban mobility and help reduce urban air pollution. Increasing the use of locally produced gas in transportation can also make a positive contribution to energy security.45

45 Detailed information on the development potentials and bilateral cooperation plans between Gazprom and the Government of Bolivia can be obtained from http://www.gazprom.com/about/production/projects/deposits/bolivia/
Domestic production and use of biofuel (ethanol)

Paraguay is the only landlocked developing country with a significant domestic production of biofuel (ethanol) and a dedicated policy encouraging its use in flex-fuel vehicles, most of which are imported duty-free from neighbouring Brazil. In Brazil and Paraguay, public and private companies closely cooperate on regional production, trade and use of ethanol. Industria Paraguaya de Alcoholes S.A. (INPASA), located in Nueva Esperanza City in Eastern Paraguay, is the country’s largest producer of ethanol. Joint efforts are undertaken to promote flex-fuel vehicles and build the necessary fuel distribution infrastructure. At present, an estimated 4 per cent of registered vehicles in Paraguay are flex-fuel vehicles, and the Government is expected to add a larger number of new flex-fuel vehicles to its fleet in the near future.

Enhancing the average fuel efficiency of the national motor vehicle fleets

Enhancing the average fuel efficiency of the national motor vehicle fleets is an important policy option to reduce national fuel consumption for transport and related emissions in the longer term. During recent years, several of the Central Asian LLDCs, as well as the Former Yugoslav Republic of Macedonia, have passed legislation requiring imported motor vehicle to be compliant with European Union (EU) fuel efficiency standards Euro-3 or Euro-4. Some African landlocked developing countries are seeking to implement regulations limiting the import of possibly unsafe and older non-fuel-efficient second-hand vehicles. Botswana does not allow registration of imported vehicles that have already been driven for 100,000 km or more, and Lesotho forbids the import of second-hand vehicles that are more than eight years old. Bolivia also poses some restrictions on the importation of passenger cars that are more than four or five years old. The Partnership for Clean Fuels and Vehicles (PCFV), supported by UNEP, provides an important platform for information exchange on practical policy options and measures to enhance vehicle fuel efficiency, and welcomes active participation of LLDCs. The International Road Transport Union (IRU) and its Academy for Drivers provide upon request training programmes for safe and fuel efficient driving. Driver training can improve fuel efficiency by 5 to 20 per cent.

Periodical roadworthiness and emission testing of vehicles

There is also growing international awareness that periodical roadworthiness and emission testing of vehicles, including trucks, buses, light duty passenger cars and motorcycles, can play an important role in enhancing road safety as well as maintaining adequate urban air quality. However, relevant national and local institutional arrangements, policies and regulations vary greatly between developing regions, countries and cities. In many LLDCs, relevant regulatory frameworks are still being developed, and necessary equipment, capacities and trained manpower are widely lacking, making regular centralized or ad-hoc road-side exhaust emission monitoring impossible. Greater international financing and technical and capacity-building support (including training) could enable LLDCs to advance the implementation of environmental protection measures. At the same time, further regional dialogues including LLDCs and their transit country neighbours, and continuing progress in the regional harmonization of applicable regulatory framework for vehicle licensing and emission control, can significantly facilitate effective protection of air quality without creating obstacles for cross-border transport.

Electric mobility

Electric mobility based on plug-in or hybrid vehicles still remains unaffordable for most LLDCs, where charging infrastructure and, in many rural areas, even basic electric power supply, are unreliable or non-existent. Nevertheless, in several LLDCs, governmental and international institutions and local companies have ventured into electric mobility projects. In 1993, a USAID supported project introduced the “Safa Tempo” electric three-wheelers to the Kathmandu valley, which provided inexpensive local public transport, and many of which are still operating today. In Uganda, the Kiira Motors Corporation (KMC), established in 2014 by Uganda Development Corporation and Makerere University, has in its start-up phase produced three concept vehicles, including the “Kayoola Solar Bus 2016”, a battery electric vehicle with a real-time solar charging system for range extension. KMC is slated to start the assembly of vehicles in 2018, with a portfolio including pickups, sedans, small trucks, and buses. In Bhutan and in Paraguay, electric mobility demonstration and testing projects have also been implemented during recent years. Both

46 For further information INPASA and ethanol production in Paraguay please see www.inpasa.com.py/empresa

47 For detailed information, please see https://www.iru.org/what-we-do/iru-academy/iru-academy-courses-for-drivers

48 For more information, please see public media reports at http://afkinsider.com/118662/ugandas-kiiра-motors-unveils-africas-first-solar-bus/ as well as video documentary at https://www.youtube.com/watch?v=jH8KQ701
countries are largely powered by comparatively inexpensive electricity produced by domestic hydroelectric power stations, which enables electric mobility as a nearly CO2 emission-free transport option.

Motorcycles and motorized tricycles are very popular in LLDCs, but traditional motorcycles with 2-stroke engines are major contributors to urban air pollution. For example, in Nepal and Lao PDR, the numbers of registered motorcycles exceed by far the number of registered passenger cars. Electric bicycles, scooters and rickshaws offer many environmental advantages, and are increasingly produced, assembled and available in developing countries, at costs comparable to those of gasoline powered two-wheelers. In Nepal, customers are offered electric scooters manufactured in Japan by Terra Motors for retail prices comparable to those of other motorcycles. In Vientiane (Lao PDR) electric “tuc-tucs” are also being tested.

National and city governments in LLDCs may consider reviewing their 2-wheeler tax and registration regulations with a view to facilitate a gradual transition towards electric mobility in this vehicle category. Continued technology cooperation and technology transfer will be essential to ensure that LLDCs’ innovations in this area are viable and successful. Financial assistance is also required to support the scaling up of projects.

Access to advanced information technologies

Modern information and communication technologies have very rapidly advanced and made transport systems more effective. Various global positioning, navigation and tracking systems enable governments, the private sector and consumers to save time and money in searching destinations and resources. Advanced information technologies help transport and logistics companies in optimizing schedules and minimizing transport costs. They also offer many options for facilitating trade and modernizing border management. Electronic submission and transmission of documents, as well as electronic payment systems, can make border crossings easier, faster and less costly.

The World Customs Organizations (WCO) provides guidance on standardization, improvement of coordinated border management, and better use of digital technologies by customs authorities.50 The Technology Network of the WCO also provides an important forum for information exchange and capacity building, as well as technical support on the use of advanced information technologies to national customs authorities and transport or trading companies.

Whereas the necessary infrastructure for electricity supply and internet use is typically readily available in capital cities and urban areas of most LLDCs, access is still difficult in rural areas. Continued development of electricity access and communication infrastructure remains an essential precondition for expanding access to advanced information technologies, in particular along all major national and international transport corridors.

5.2. Partnering with private sector entities and associations

More than in other sectors, public and private entities need to closely work together to make transport efficient and sustainable. Whereas transport infrastructure, policy frameworks and regulations are typically planned and set by Governments and public institutions, most transport services are provided by private enterprises. Most developing countries, LLDCs included, require the assistance of international financial institutions and foreign investors to mobilize the necessary resources for investment in transport infrastructure, trade facilitation and access to new technologies.

LLDCs may wish to explore additional opportunities for collaboration with domestic and/or foreign private sector partners. Creating an enabling environment for attracting foreign direct investments is a pre-requisite. Various international organizations, including the World Bank Group, as well as regional development banks, can offer relevant advisory services upon request in this regard.51 Cooperation with global transport business associations, such as the International Road Transport Union, the International Union of Railways, the International Association of Public Transport, and the International Air Transport Association, can help LLDCs to identify technically and financially feasible sustainable transport solutions.

50 Information on WCO Technology Network: https://ten.wcoomdpublications.org/

49 Information on International Agreements for standardization, harmonization and modernization of customs: www.wcoomd.org
5.3. Capacity-building support by the United Nations system and other international organization and partnerships

In the area of sustainable transport and infrastructure development, several UN Departments and Specialized Agencies, including the UN Regional Commissions, as well as other international organizations and partnerships, can provide upon request professional technical capacity building support to developing countries, including LLDCs. The Global Partnership for Sustainable Transport (GPST), the Global Road Safety Partnership, the UNEP Partnership for Clean Fuels and Vehicles (PCFV), the Global Facilitation Partnership for Transportation and Trade (GFPTT), the Global Fuel Economy Initiative of the FIA Foundation, and the International Transport Forum of the OECD, are just some of the possible resources for technical advice, capacity building or training.

For LLDCs, technical cooperation and capacity building may be of particular interest in the area of developing mutually beneficial public private partnership schemes for the development of regional transport networks and international transport corridors, especially in the soft infrastructure components such as accession to legal trade and transport conventions and implementation of trade facilitation measures. Subject to their national programme priorities, LLDCs could also benefit from additional capacity building to support their endeavours to pursue legal, regulatory and policy reforms to create an environment that promotes greater public, private and foreign direct investments in transport infrastructure.

5.4. Sources of financing for sustainable transport infrastructure and services

All LLDCs have a great need for investments to enhance productivity, competitiveness and economic development, especially in transport, energy and communications infrastructure and implementation of trade facilitation measures. However, many LLDCs continue to depend to a large degree on foreign sources of financial support, including official development assistance (ODA) and foreign direct investment (FDI).

Official Development Assistance

Although ODA remains of critical importance for many LLDCs, flows of ODA have declined in recent years, and in most cases have been too low to bring about significant economic progress, structural transformation, or improvement in living conditions. According to OECD statistics, ODA increased by 6.6% in real terms between 2014 and 2015. However, majority of this increase can be accounted to the refugee crisis. ODA increased in some areas such as education and energy, but fell in others. In the area of transport and storage, it fell by 6 per cent in real terms between 2013 and 2015.\textsuperscript{52} ODA flows to LLDCs have hovered steadily around US$27 billion since 2012. In 2015, ODA flows to LLDCs increased by 10 per cent. However, the ODA allocated to transport and storage in LLDCs accounted for only 7.8 per cent of total ODA disbursements from 2010-2014 and furthermore fell to 6.4 per cent in 2015. Strong efforts should be made to increase the share of ODA to transport, especially in LLDCs, given the high spin-off effects.

FDI direct investment

FDI is a key indicator of business confidence and economic development prospects. As shown in Table 3, foreign interest and foreign direct investment in LLDCs have been considerable in recent years. In 2014, the United States, China, the Russian Federation, and the Republic of Korea remained the most important sources of FDI in LLDCs.

FDI statistics show that foreign investors remained largely focused on a small number of oil and gas exporting countries, especially Kazakhstan, Azerbaijan, and Turkmenistan, which together benefitted from a net inflow of more than US$ 15 billion in 2014. Zambia, Ethiopia, and Uganda have also been successful in securing FDI of US$ 2.5 billion, US$ 2 billion and US$ 1 billion respectively in 2014, which has contributed to and strengthened their robust economic progress.

<table>
<thead>
<tr>
<th>Sub-region</th>
<th>2002 (million US$)</th>
<th>2014 (million US$)</th>
<th>Growth (in%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLDCs (total)</td>
<td>7,872</td>
<td>29,151</td>
<td>12</td>
</tr>
<tr>
<td>LLDCs-Africa</td>
<td>2,501</td>
<td>7,631</td>
<td>10</td>
</tr>
<tr>
<td>LLDCs-Latin America</td>
<td>682</td>
<td>884</td>
<td>2</td>
</tr>
<tr>
<td>LLDCs-Asia</td>
<td>129</td>
<td>1,317</td>
<td>21</td>
</tr>
<tr>
<td>LLDCs-Transition economies</td>
<td>4,359</td>
<td>19,319</td>
<td>13</td>
</tr>
</tbody>
</table>


\textsuperscript{52} Statistics provided by the OECD: http://stats.oecd.org/Index.aspx?QueryId=42232&lang=en
In other LLDCs, FDI have fallen significantly below expectations for several years already, while many proposed important transport infrastructure projects will require the participation and support of foreign investors. Many LLDCs have also undertaken measures to assure a favourable business environment and attract foreign investors, offering tax exemptions or other privileges.

International Financial Institutions

International financial institutions provide an important source of direct and indirect financing for development, including in LLDCs. Their developmental importance goes beyond the actual amounts they invested in various countries, sectors and projects, as they also mobilize co-financing of commercial banks and the private sector.

World Bank Group

At the time of the preparation of this report (September 2016), the World Bank Group provided financing for a total of 212 transport and ICT projects in 78 developing and newly industrializing countries, with a total project volume of US$ 42 billion. 23 LLDCs received financial support from the World Bank Group for the implementation of major transport and ICT projects.

The current World Bank Transport and ICT project portfolio includes 55 projects in African developing countries, including 15 projects in 7 African LLDCs. The detailed geographical distribution of the project activities is shown in Table 4A.

Table 4A: World Bank Group financed transport and ICT projects in African landlocked developing countries

<table>
<thead>
<tr>
<th>Country</th>
<th>No of Transport and ICT projects</th>
<th>No of project locations</th>
<th>Total project value (in million US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>1</td>
<td>8</td>
<td>186</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>1</td>
<td>1</td>
<td>85</td>
</tr>
<tr>
<td>Burundi</td>
<td>1</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>5</td>
<td>71</td>
<td>1,650</td>
</tr>
<tr>
<td>Rwanda</td>
<td>1</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td>South Sudan</td>
<td>1</td>
<td>4</td>
<td>38</td>
</tr>
<tr>
<td>Uganda</td>
<td>1</td>
<td>11</td>
<td>243</td>
</tr>
<tr>
<td>Western African regional projects</td>
<td>4</td>
<td>49</td>
<td>1,030</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>149</td>
<td>3,302</td>
</tr>
</tbody>
</table>

Source: World Bank, 2016e, online database and global mapping.

In the European, Asian and Latin American regions, 12 landlocked developing countries benefitted from World Bank Group financing for transport and ICT projects in 2016. The World Bank transport and ICT project portfolio in these regions included 26 projects with an aggregate value of more than US$ 7 billion. The geographical distribution of World Bank Group financing for European, Asian and Latin American landlocked developing countries is shown in Tables 4.B and 4.C.

Table 4B: World Bank Group financed transport and ICT projects in European and Asian landlocked developing countries

<table>
<thead>
<tr>
<th>Country</th>
<th>No of Transport and ICT projects</th>
<th>No of project locations</th>
<th>Total project value (in million US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>4</td>
<td>51</td>
<td>515</td>
</tr>
<tr>
<td>Armenia</td>
<td>1</td>
<td>4</td>
<td>85</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>2</td>
<td>40</td>
<td>1,050</td>
</tr>
<tr>
<td>Bhutan</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FYR Macedonia</td>
<td>2</td>
<td>37</td>
<td>162</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>1</td>
<td>14</td>
<td>50</td>
</tr>
<tr>
<td>Moldova</td>
<td>2</td>
<td>26</td>
<td>100</td>
</tr>
<tr>
<td>Mongolia</td>
<td>1</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Nepal</td>
<td>3</td>
<td>30</td>
<td>273</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>3</td>
<td>25</td>
<td>4,170</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>2</td>
<td>6</td>
<td>395</td>
</tr>
<tr>
<td>Central Asia Regional projects</td>
<td>2</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>236</td>
<td>6,909</td>
</tr>
</tbody>
</table>


Table 4C: World Bank Group financed transport and ICT projects in Latin American landlocked developing countries (status as of September 2016)

<table>
<thead>
<tr>
<th>Country</th>
<th>No of Transport and ICT projects</th>
<th>No of project locations</th>
<th>Total project value (in million US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>2</td>
<td>26</td>
<td>334</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>26</td>
<td>434</td>
</tr>
</tbody>
</table>


Regional Development Banks

In addition to the World Bank Group, regional development banks are playing an important role in providing and mobilizing financing for transport and ICT infrastructure development.
African Development Bank

In 2015, the active transport and ICT project portfolio of the African Development Bank (AfDB) amounted to a total of US$ 11.3 billion, including US$ 7.1 billion for national projects and US$ 4.2 billion for regional ones. The construction and improvement of 16,000 km of African roads accounted for the largest share of these investments, equivalent to US$ 8.9 billion. The geographical distribution of the investments in African LLDCs is shown in Table 5.

Table 5: AfDB active transport and ICT project portfolio in African LLDCs (2015)

<table>
<thead>
<tr>
<th>LLDC</th>
<th>million US$</th>
<th>LLDC</th>
<th>million US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>-</td>
<td>Mali</td>
<td>185</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>237</td>
<td>Niger</td>
<td>120</td>
</tr>
<tr>
<td>Burundi</td>
<td>233</td>
<td>Rwanda</td>
<td>226</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>54</td>
<td>South Sudan</td>
<td>11</td>
</tr>
<tr>
<td>Chad</td>
<td>113</td>
<td>Swaziland</td>
<td>48</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>586</td>
<td>Uganda</td>
<td>429</td>
</tr>
<tr>
<td>Lesotho</td>
<td>11</td>
<td>Zambia</td>
<td>447</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Total LLDCs</td>
<td></td>
<td></td>
<td>2,701</td>
</tr>
<tr>
<td>Total African developing countries</td>
<td></td>
<td></td>
<td>11,301</td>
</tr>
</tbody>
</table>


Regional development banks in Latin America

Two important regional development banks provide finance for development in the Latin American region, including in two LLDCs: Bolivia and Paraguay. These are the Development Bank for Latin America (CAF) and the Inter-American Development Bank (IADB).

Table 8A: Development Bank of Latin America (CAF) development loans to Latin American LLDCs approved in 2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>407</td>
<td>485</td>
<td>684</td>
<td>625</td>
<td>575</td>
<td>2,777</td>
</tr>
<tr>
<td>Paraguay</td>
<td>120</td>
<td>189</td>
<td>431</td>
<td>181</td>
<td>307</td>
<td>1,228</td>
</tr>
</tbody>
</table>


Asian Development Bank

Table 6 shows the cumulative lending and grants provided by the Asian Development Bank (ADB) to LLDCs and the relative weight of the bank’s investments in transport and ICT in comparison with other sectors. The relative weight of transport and ICT infrastructure investments in the portfolio of regional development banks varies between countries, depending on national funding requests, relative feasibility of projects, and other factors. In many LLDCs, the transport and ICT sector benefits from the largest relative share of regional development bank project financing.

European Bank for Reconstruction and Development

The European Bank for Reconstruction and Development (EBRD) is an important source of project financing, in particular for European and Central Asian LLDCs. Its investments in the infrastructure sector, which includes transport as well as ICT, account for the largest proportion of total investments in many of the European LLDCs, as shown in Table 7.

As shown in Tables 4 to 9, international financial institutions play a critical role in financing the development of transport infrastructure in LLDCs. In spite of these large investments, many missing links remain and additional financial resources are urgently needed, as discussed under section 4.3. The transport and ICT sector often already accounts for the largest relative share of development finance in the LLDCs. Thus, the necessary increase in transport and ICT financing should, if possible, come from additional resources, and not crowd out development finance earmarked for other sectors, which are equally important for sustainable socio-economic development.
### Table 8B: Development Bank for Latin America (CAF) transport infrastructure projects in Latin American LLDCs approved in 2015

<table>
<thead>
<tr>
<th>Executing Agency</th>
<th>Loan Amount</th>
<th>Loan Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Borja-San Ignatio de Moxos Highway Construction Project</td>
<td>US 172 $million</td>
<td>15 years</td>
</tr>
<tr>
<td>Caracollo-Colomi Dual Carriageway Construction project (Section 2b-Comitál-Bombeo)</td>
<td>US 88 $million</td>
<td>15 years</td>
</tr>
<tr>
<td>Santa Cruz-Warnez East Side (Dual Carriageway Construction Project)</td>
<td>US 86 $million</td>
<td>15 years</td>
</tr>
<tr>
<td>Villa Granado-Puente Taperas-La Palizada highway Construction Project (Co-financed by OFID)</td>
<td>US 70 $million</td>
<td>15 years</td>
</tr>
</tbody>
</table>

| Paraguay Programme for the improvement of access roads and bridges in the Eastern region | US 100 $million  | 15 years |
| The paved roads network project | US 100 $million  | 15 years |


### Table 9: Inter-American Development Bank (IADB) cumulative lending to Latin America LLDCs by sector (2011-2015)

<table>
<thead>
<tr>
<th>Agriculture and rural development</th>
<th>Energy</th>
<th>Transport and connectivity</th>
<th>Other sectors*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td>mn US $</td>
</tr>
<tr>
<td>Bolivia 116 7 239 15 730 45 555 34 1,640</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay 38 3 120 9 652 49 520 39 1,330</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Other sectors include: water, education, financial markets, private firms and SME development, reform and modernization of state, social investment, urban development and housing, trade, and sustainable tourism

Source: IADB, 2016

### 5.5. South-South and Triangular Cooperation

Over the past decade, South-South technical and financial cooperation has rapidly gained increasing importance for LLDCs. For a growing number of LLDCs, China, India, South Africa, the United Arab Emirates, and Nigeria have become important markets, as well as sources of foreign investment. Today, China receives more imports from Africa than does the United States. Major South-South and triangular cooperation and investment projects benefitting LLDCs include the Almaty-Bishkek highway, partly financed by the Asian Development Bank, the Turkmenistan-Afghanistan-Pakistan-India Natural Gas Pipeline Project, the US$ 500

### Table 6: Asian Development Bank (ADB) cumulative lending and grants to Asian LLDCs by sector (1966-2013)

<table>
<thead>
<tr>
<th>Agriculture and natural resources</th>
<th>Energy</th>
<th>Transport and ICT</th>
<th>Other sectors*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td>mn US$ %</td>
<td></td>
</tr>
<tr>
<td>Afghanistan 399 12 743 23 1,702 52 443 13 3,286</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia - - 25 3 467 62 261 35 338</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azerbaijan 22 1 187 11 757 46 671 42 1,637</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhutan 8 2 193 41 97 20 176 37 356</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kazakhstan 180 6 40 1 1,788 55 1,234 38 3,243</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyrgyzstan 96 8 130 10 451 36 574 46 1,251</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lao PDR 342 18 343 18 426 23 757 41 1,869</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mongolia 79 6 94 7 383 30 703 57 1,251</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal 1,221 26 715 18 628 16 1,618 40 3,982</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tajikistan 114 10 388 34 428 38 197 18 1,127</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkmenistan - - - - 125 100 - - 125</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uzbekistan 565 14 780 19 1,170 29 1,544 38 4,262</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Other sectors include: water and municipal services, education, finance, health and social protection, industry and trade, multi-sector, and public sector management

Source: ADB, 2014, Country Fact Sheets
In 1976, the Organization of Petroleum Exporting Countries (OPEC)\textsuperscript{54} established the OPEC Fund for International Development (OFID), which supports South-South partnerships and provides grants and loans to some 100 developing countries, including almost all LLDCs. As shown in Table 10 below, a considerable portion of its financial contributions have supported transport, infrastructure and ICT projects.

In African and in Latin American LLDCs, construction of transport infrastructure has begun to advance more rapidly, more rapidly; this is the result of the productive and mutually beneficial South-South inter-governmental and corporate sector cooperation between their respective national entities and Chinese technology and financing partners. In Latin America alone, China has become a leading partner in infrastructure development, implementing more than 20 large-scale highway, waterway, power grid and telecommunication projects across the continent. The launching of a special South-South transport infrastructure development cooperation programme for LLDCs, within the framework of the United Nations High-level Committee on South-South Cooperation (SSC)\textsuperscript{53}, could be considered.

### Table 7: European Bank for Reconstruction and Development (EBRD) current investment portfolio in Euro-Asian LLDCs by sector (2015)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>65 mn€ 9% 87 mn€ 12%</td>
<td>196 mn€ 27%</td>
<td>385 mn€ 53%</td>
<td>726 mn€</td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>78 mn€ 8% 430 mn€ 44%</td>
<td>372 mn€ 38%</td>
<td>98 mn€ 10% 978 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FYR Macedonia</td>
<td>33 mn€ 4% 165 mn€ 20%</td>
<td>619 mn€ 71%</td>
<td>41 mn€ 5% 825 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>268 mn€ 11% 998 mn€ 41%</td>
<td>1,071 mn€ 44%</td>
<td>97 mn€ 4% 2,435 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>26 mn€ 14% 68 mn€ 29%</td>
<td>85 mn€ 36%</td>
<td>50 mn€ 21% 236 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moldova</td>
<td>53 mn€ 12% 22 mn€ 5%</td>
<td>334 mn€ 75%</td>
<td>36 mn€ 8% 445 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>- - 676 mn€ 70%</td>
<td>183 mn€ 19%</td>
<td>106 mn€ 11% 965 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tajikistan</td>
<td>62 mn€ 17% 153 mn€ 42%</td>
<td>120 mn€ 33%</td>
<td>29 mn€ 8% 365 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>1 mn€ 2% 2 mn€ 5%</td>
<td>- - 37 mn€ 93%</td>
<td>40 mn€</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>6 mn€ 52% - -</td>
<td>6 mn€ 48%</td>
<td>- - 12 mn€</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


---

\textsuperscript{53} The latest available detailed review of South-South Cooperation was undertaken in early 2016: http://ssc.undp.org/content/dam/ssc/documents/HLC%20Reports/SSC191/SSC191English.pdf

\textsuperscript{54} The 13 founding members of OPEC are: Algeria, Ecuador, Gabon, Indonesia, Isl. Rep. Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, Venezuela.
Table 10: OPEC Fund for International Development (OFID cumulative financial support to landlocked developing countries (1976-2016) (status as of May 2016, rounded figures)

<table>
<thead>
<tr>
<th>Country</th>
<th>Agriculture</th>
<th>Energy</th>
<th>Transport and ICT</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mn US$</td>
<td>%</td>
<td>mn US$</td>
<td>%</td>
<td>mn US$</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>4</td>
<td>29</td>
<td>6 52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>74</td>
<td>100</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>8</td>
<td>18</td>
<td>30 68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td>13</td>
<td>7</td>
<td>15 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botswana</td>
<td>-</td>
<td>-</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>37</td>
<td>15</td>
<td>18 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burundi</td>
<td>69</td>
<td>39</td>
<td>16 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chad</td>
<td>22</td>
<td>19</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>16</td>
<td>3</td>
<td>75 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kazakhstan*</td>
<td>60</td>
<td>100</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>-</td>
<td>-</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lao PDR</td>
<td>17</td>
<td>16</td>
<td>4 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesotho</td>
<td>12</td>
<td>20</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>10</td>
<td>7</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mali</td>
<td>68</td>
<td>28</td>
<td>14 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Niger</td>
<td>35</td>
<td>18</td>
<td>11 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mongolia*</td>
<td>65</td>
<td>-</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>57</td>
<td>23</td>
<td>27 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td>4</td>
<td>2</td>
<td>15 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rwanda</td>
<td>12</td>
<td>7</td>
<td>35 22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swaziland</td>
<td>-</td>
<td>-</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tajikistan</td>
<td>-</td>
<td>-</td>
<td>11 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>-</td>
<td>-</td>
<td>- -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Funding provided as loan.


5.6. Innovative policies and models for transport project financing

Review of fuel levies

Shortage of funding needed for investment in public transport infrastructure is not a problem limited to LLDCs alone. It is a rather frequent constraint hampering development of sustainable transport in the majority of developing countries. However, in a growing number of countries and cities, government departments and municipal authorities have successfully developed strategies to mobilize additional budgets for transport infrastructure. Fuel levies target motorists and aim to generate the funds needed for construction and maintenance of the roads they use. Whereas some LLDCs, such as Lao PDR and Nepal, generate significant Central Road Funds from domestic users, revenues from fuel levies in some other LLDCs still remain low. LLDCs with high prices and/or high taxes on gasoline include Mali, Former Yugoslav Republic of Macedonia, Burundi, Zimbabwe, Paraguay, Zambia, Central African Republic, Malawi, and South Sudan. Diesel fuels are priced high in Rwanda, Burundi, Zimbabwe, Malawi, South Sudan and Uzbekistan. (GIZ, 2014)

Further domestic fuel policy and fuel price policy reforms, elimination of indirect subsidization of motor fuels, and similar fiscal measures can significantly improve prospects for domestic mobilization of funding for sustainable transport, in particular for LLDCs where fuel prices remain relatively low. However, fuel price policies are typically politically sensitive and any reform measures should thus be carefully considered in close consultation with all concerned stakeholders.

Land value capture

Land value capture is another important transport infrastructure financing option successfully used in a growing number of developing countries. Construction of transport infrastructure can lead to significant gains in commercial value of land. In land value capture, public entities charge land owners or tenants who directly or indirectly benefit from the transport infrastructure project with separate fees, such as incremental land taxes or betterment fees. Revenues from advertising and parking fees can also generate significant contributions to transport budgets, including in LLDCs.

Public-Private Partnerships (PPPs) and blended financing options

The 2030 Agenda for Sustainable Development points to partnerships with the private sector as one of the important means of implementing the SDGs. The Addis Ababa Action Agenda further recognizes that both public and private investment have key roles to play in infrastructure financing, including public-private partnerships. PPPs have the potential to leverage the expertise, innovation, and financial resources of both sectors and their comparative advantages. The nature of PPPs means that the availability, quality, and resilience of infrastructure and public services can be increased, while the risk involved in providing them is shared with the private sector. Through PPPs, the quality and efficiency of service delivery can be greatly improved, while freeing up public resources for other expenditures. While PPPs can be effective solutions for infrastructure funding, their sustainability needs
to be ensured and countries need to consider the potential risks and limitations associated with them.

Various innovative models of blended finance partnerships have also been tested and proven to be useful for financing transport infrastructure projects. “Viability gap public funding” is a financing mechanism through which the public sector commissions a private entity to build, operate and partly finance a transport infrastructure project. In other models, the public sector assumes certain operational risks or provides certain fixed or variable “annuity concessions” over an agreed long-term period to subsidize projected shortfalls between operating costs and operating revenues.

Governments can also offer guarantees to the private sector to assure them of a certain level of revenue for example for a minimum number of vehicles at an agreed toll level or that they will honour loans taken by the private sector in the event of a problem with repayment or during certain phases of the project when the risk of default is at its highest.

“Blended financing” allows the public sector to implement transport projects without financing or operating them in full, by attracting other sources. These options combine the knowledge, expertise and resources of the public and private sector to broaden the scope, range and effectiveness of investments. Given the limited public sector resources in many LLDCs, these options should be further explored.

Regional infrastructure financing initiatives

Regional infrastructure financing initiatives can provide a conducive framework for multilateral public-private partnerships. Under the auspices of the International Road Transport Union (IRU), several cross-border (sub-)regional model highway initiatives (MHI) and regional infrastructure funds (RIF) have been established, in particular in Central Asia and Eastern Europe, with a view to bring regional and international public and private partners together to enhance transit transport corridors. RIFs can pool resources, including investment in stock capital, commercial loans, institutional investments, multilateral financial resources, insurance companies’ resources and other financing from capital markets. Through the integrated planning of model highway, MHI and RIF can diminish the risks of market failure in the development of vital ancillary roadside infrastructure. Implementation of the integrated MHI and RIF approach could prove beneficial for other landlocked and transit developing countries in other developing regions. (IRU, 2012)

5.7 Climate Financing

Global climate financing continues to fall short of expectations and needs for mitigation and adaptation. However, several windows for co-financing of sustainable transport policies and projects in developing countries, including landlocked developing countries, are available, and new and additional resources for climate financing have been pledged by developed countries for the foreseeable future.55

Green Climate Fund (GCF)

The Green Climate Fund (GCF) is expected to become the most significant mechanism of financial support from industrialized countries to developing and newly industrialized countries for climate change mitigation, adaptation to the impacts of climate change, and protection and afforestation of tropical forests (REDD+). As of September 2016, the Green Climate Fund has raised US$ 10.3 billion equivalent in pledges from 43 governments. The objective is for all pledges to be converted into contribution agreements within one year from the time at which they are made. (GCF, 2016) The level of climate funding currently available is still much below the envisaged level of US$ 100 billion per year from the year 2020 onwards, which were pledged by industrialized countries at the Conferences of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen (COP 15, 2009) and Paris (COP 21, 2015). However, the institutionalization of the climate funding mechanism and the related procedures is making progress.

In 2015, the GCF Board approved a first batch of 8 projects, including one to be implemented in a landlocked developing country (Malawi), but none in the transport sector. As of 15 May 2016, the GCF pipeline comprised 41 public and private sector project proposals, which would request a total GCF funding of US$ 2.4 billion, towards an aggregate investment volume of US$ 6.6 billion.

The GCF Board expects 24 of the 41 proposed projects to be approved with the next 12 months, including 2 transport related programmes to be implemented in Africa and in the Asia-Pacific region. One transport sector proposal has been submitted by a public sector entity, and one by a private sector entity. Further detailed information on the candidate projects is not as yet available as the projects in the pipeline are still under review. LLDCs interested in making a project

55 Detailed information on the text and the status of ratification of the UNFCCC Paris Agreement of 2015 is accessible here: http://unfccc.int/paris_agreement/items/9485.php
submission are recommended to familiarize themselves with GCF project application procedures and project evaluation criteria. Cost-effective project proposals with high long-term impacts in terms of mitigation or adaptation will be given particular attention.

Table 11: GCF Project pipeline: Funding request by result area (in %) (as of 15 May 2016)

<table>
<thead>
<tr>
<th>Mitigation</th>
<th>52%</th>
<th>9%</th>
<th>2%</th>
<th>4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy access and generation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REDD &amp; land use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptation</td>
<td>15%</td>
<td>9%</td>
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<td>Health, food and water security</td>
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Nationally appropriate mitigation actions on sustainable transport (“Transport NAMAs”)

Since 2010, developing countries have the option to initiate and register Nationally Appropriate Mitigation Actions (NAMAs) with the UNFCCC. Unlike the UNFCCC Clean Development Mechanism, which was designed to create bilateral partnerships on mitigation action between industrialized and developing country entities, NAMAs can be designed and implemented unilaterally by developing countries. Developing countries can seek recognition as well as technical or financial support for the implementation of their NAMA projects. The UNFCCC NAMA registry has been operational since 2013 and already registered 150 transport related emission mitigation projects and programmes. Despite high prospects of considerable mitigation and sustainability benefits, only 11 NAMA initiatives have reportedly secured funding support. Among the LLDCs, six countries have registered NAMA initiatives, including Azerbaijan, Bhutan, Ethiopia, Kazakhstan, Lao PDR and Uganda. In order to support NAMA initiatives, a NAMA Facility was established in 2012 as a joint initiative of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and the UK’s Department of Energy and Climate Change (DECC), contributing €120 million. Two additional donors, the Danish Ministry of Climate, Energy and Building (MCEB) and the European Commission joined the facility in 2015, providing additional funds of €12 and €15 million respectively. NAMA initiatives are widely expected to receive greater support in future, once the GCF will be fully operational and better funded by donor countries. (Carbon Market Watch, 2015)

6.0. Conclusions

Achieving sustainable transport is of particular importance for LLDCs. Sustainable transport provides services and infrastructure for the mobility of people and goods in a manner that is safe, affordable, accessible, efficient, and resilient, while minimizing carbon and other emissions and environmental impacts.

Landlocked developing countries are amongst the most vulnerable countries, and they are at a significant structural economic disadvantage due to geographic remoteness, lack of direct access to the sea, higher than average transport costs for both exports and imports, and limited integration into the world economy. For LLDCs to increase prosperity, overcome poverty, and accelerate economic growth, their better integration in the world economy and their more beneficial participation in global trade are urgently needed. Sustainable transport infrastructure and services offer a key to help enable economic growth, structural transformation and greater socio-economic prosperity in LLDCs.

For LLDCs, accelerating progress and achieving more sustainable transport solutions is both urgent and possible. With better coordinated local and national transport policies and interventions, and additional cooperation and support from transit countries and international trading partners, including additional means of implementation, LLDCs can progress towards achieving sustainable transport infrastructure, systems and services, and ensure that they are not being left behind in the continuing rapid globalization process.

The High-level Meeting on Sustainable Transport of Landlocked Developing Countries in Santa Cruz, Bolivia (Plurinational State of) on 13-14 October 2016, and the Global Sustainable Transport Conference in Ashgabat, Turkmenistan on 26-27 November 2016, provided opportunities for consultation on common approaches to face the persistent challenges and on new collaborative project initiatives to enhance sustainable transport in LLDCs.

For a detailed listing of NAMA projects and proposals please see: http://www.transport-namadatabase.org/
7.0. Recommendations

7.1 Sustainable transport for the achievement of the SDGs in landlocked developing countries

The 2030 Agenda for Sustainable Development, the Addis Ababa Action Agenda, and the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024 provide a comprehensive guiding framework for multilateral development cooperation in support of LLDCs. All efforts necessary should be undertaken by all parties to advance the implementation of these agreements and achieve sustainable transport.

Principles of planning for sustainable transport development

Each landlocked developing country will have to determine its own national policy for enhancing sustainability of transport in accordance with its own priorities and projected transport demand, while giving due consideration to the global initiatives.

Transport investment decisions must be based on long-term planning and projections, taking into account all essential economic, social and environmental aspects. LLDCs should seek to strengthen their local and national transport policies and infrastructure planning in this regard.

LLDCs should ensure regular collection and analysis of relevant trade and transport data to inform and enable rational policy and investment decision making.

Access to transport in rural areas

LLDCs should strengthen their relevant national and local departments and agencies with a view to expand the network of rural all-weather roads, maintain them in good condition, and ensure adequate transport services in rural areas.

Sustainable urban transport

City governments and local authorities should formulate and implement integrated urban transport development plans, with the aim of making inner-city walking safe and convenient, providing additional and more efficient and affordable urban public transport options, reducing inner-city traffic congestions, and preventing degradation of urban air quality from transport emissions.

Policies and plans for intermediate and long-term development of sustainable transport systems in LLDCs should take advantage of available fuel efficient transport technologies and any other options for protecting air quality and mitigating future transport emissions, in particular in urban areas.

Land transport infrastructure

Improved and well maintained domestic road and railway infrastructure enables mobility of passengers and goods between cities and provinces and enhances national economic integration. LLDCs should seek to mobilize domestic funding, where possible, and strengthen National Road Funds or similar institutions to ensure the development and maintenance of national roads and other essential transport infrastructure.

Road safety

LLDCs should actively participate in global efforts to achieve the SDG target of halving the number of global deaths and injuries from road traffic accidents by 2020. LLDCs should, in this regard, develop national road safety strategies and plans.

Climate change: additional risks, costs and need for resilient infrastructure

Potential impacts of climate change and related risks for sustainable transport and infrastructure development in LLDCs should be anticipated in the planning and construction of resilient transport infrastructure.

Air connectivity

Many LLDCs have significant unused natural and cultural tourism potentials. LLDCs should strive for improvements in national airport infrastructure, aviation support and a more liberal regulation of passenger air transport businesses, in order to open new economic development prospects and enhance structural transformation, especially through the development of international tourism.

7.2 Enhancing efficient transit transport systems for economic growth and greater participation of landlocked developing countries in global trade

Multimodal transport corridors: closing missing links

Multimodal transit transport corridors provide crucial routes for exports and imports of LLDCs. LLDCs and transit countries should collaborate to create such corridors.

Coordinated efforts should be undertaken to invest in missing links and to upgrade national and international transport corridor infrastructure. Donor country governments and the
private sector should strengthen ongoing national and regional efforts undertaken by LLDCs to develop the necessary transport infrastructure for sustainable development.

**Reduction of travel time, time spent at border and at modal transfer points**

LLDCs should deepen their multi-stakeholder cooperation with transit and other partner countries, with a view to improve transit transport infrastructure and reduce travel and transport time along international transit transport corridors, including time spent at borders and modal transfer points.

**Effective transit transport corridor management**

Collaborative institution building and effective transit transport corridor management organizations should involve all concerned public and private sector stakeholders, including the relevant authorities of LLDCs and transit countries. Transit countries should make sure that support is provided to ensure unhindered, smooth, safe and efficient transit of goods and services to and from the LLDCs.

Trade, customs and transport authorities must work together at bilateral and regional levels to streamline, harmonize and modernize customs and border crossing procedures and formalities and promote border crossing facilitation.

**7.3 Enabling a conducive legal framework for transit transport**

**Development and implementation of international law on freedom of transit, transport and trade facilitation**

All transit countries should ensure full implementation of the principles of freedom of transit for passengers and goods, as enshrined in international law by the Barcelona Convention of 1922.

Landlocked and transit developing countries that have not yet done so should consider acceding to the United Nations conventions and agreements on trade and transit facilitation, including the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention, 1975) and the International Convention on the Harmonization of Frontier Control of Goods (1982).

WTO members, including landlocked and transit developing countries that have not yet done so, should also ratify the WTO Trade Facilitation Agreement.

**Bilateral and regional cooperation**

Bilateral and regional cooperation offer landlocked and transit countries significant opportunities to identify issues, harmonize policies and implement joint trade facilitation measures. Bilateral arrangements should go beyond the international conventions and frameworks to provide best possible cooperation between LLDCs and transit and other countries in the respective regions.

**Modernizing and increasing efficiency of border crossing and procedures**

Landlocked and transit developing countries should modernize administrative procedures, implement necessary reforms, facilitate cross-border transport and trade, and reduce transport costs, with assistance and guidance of partners such as the World Customs Organization.

Customs authorities in landlocked and transit developing countries should receive equipment, capacity building and any other support necessary to modernize and facilitate customs and border crossing procedures.

LLDCs and transit countries need to develop effective, time-bound and problem-solving mechanisms to fully and effectively implement their bilateral and regional transit arrangements.

**Regional agreements on dry ports**

Asian LLDCs and transit developing counties that have not yet done so should consider acceding to the Intergovernmental Agreement on Dry Ports (2016), which is expected to help improve logistic efficiency, reduce transport costs, and enhance the sustainability of the regional transport system.

Landlocked and transit developing countries in Africa and Latin America may consider initiating similar regional cooperation instruments on dry ports in their respective regions.
7.4 Mobilizing resources and other means of implementation for sustainable transport in landlocked developing countries

Measures and technologies for more efficient sustainable transport

LLDCs may encourage transport operators to modernize their fleets or adopt technologies and measures that increase fuel economy and efficiency and/or reduce environmental impacts in terms of local air pollution or greenhouse gas emissions. LLDCs may seek to increase domestic sources of financing for transport, including using fuel price reforms, where appropriate.

Capacity development

International sustainable transport partnerships, think tanks, development agencies, the United Nations, and other international organizations should continue and expand their capacity building programmes for the benefit of LLDCs.

Official development assistance

Most LLDCs are faced with a widening gap between the levels of financial resources required and available. In line with Target 17.2 of the 2030 Sustainable Development Agenda, developed countries should fully implement their official development assistance commitments.

ODA to LLDCs should be increased, including for policies and projects aimed at enhancing sustainable transport.

International financial institutions

Global and regional multilateral financial organizations should increase their engagement for an accelerated implementation of the transport infrastructure development plans benefitting LLDCs. Launching additional projects or programmes dedicated to sustainable transport in LLDCs should be considered.

Private sector engagement and FDI

LLDCs should continue to encourage domestic and foreign private sector investment in the modernization and expansion of sustainable transport infrastructure and services for both passengers and freight. Enabling regulatory environments and adequate business confidence will be essential for accelerating progress and mobilizing private sector investments.

Public-private partnerships

Donor countries, international financial institutions and the concerned private sectors should provide financial resources to close the missing links in the transit transport infrastructure connecting LLDCs.

Landlocked and transit developing countries should further explore innovative financing options and public private partnerships.

South-South and Triangular Cooperation

Landlocked and transit developing countries may consider to expand mutually beneficial South-South and triangular cooperation, in particular in transport, trade and infrastructure development.

Public and private sector institutions engaged in South-South and Triangular Cooperation may consider launching a special programme for enhancing transport infrastructure development in LLDCs.

Climate financing

Significant additional sources of climate financing should be made available to LLDCs, including for climate change mitigation, and the development of resilient infrastructure and sustainable transport systems.

Structural economic transformation

International financial institutions, ODA donors and the private sector should increase their engagement and investment to advance industrialization and structural economic transformation in LLDCs, by supporting domestic processing of primary commodities and raw materials, local value addition, employment, and export diversification.

Transit transport corridors and dry ports can provide the infrastructure for economic corridors and the creation of special export or manufacturing zones. The linkages are crucial and can generate mutually reinforcing support for sustainable transport development and economic transformation.
7.5 Global follow-up processes for achieving a sustainable transport future for all

The persistent challenges and structural economic disadvantages faced by LLDCs, resulting from geographic remoteness, higher than average transport costs for both exports and imports, and greater vulnerability due to limited integration in regional and world markets, should be fully recognized by the international community.

Achievement of a sustainable transport future for all will require continued regional and international solidarity and cooperation, as well as additional technical and financial support for sustainable transport development in LLDCs.

The First Global Sustainable Transport Conference in November 2016 provided the opportunity for policy dialogue amongst the stakeholder on the nature of sustainable transport and its role in supporting the achievement of the SDGs. The future meetings of the Global Infrastructure Forum and the Global Partnership for Sustainable Transport will also provide useful opportunities to identify potential corporate partners for new collaborative projects in sustainable transport and infrastructure development.

LLDCs may consider establishing a global inventory of profiles of transport and trade facilitation projects for which they seek international implementation partners and/or technical and financial assistance.
References and further reading


