The United Nations Office of the High Representative
for the Least Developed Countries,
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Small Island Developing States
(UN-OHRLLS)

Building Productive Capacities to Enhance Structural Transformation in Landlocked Developing Countries (LLDCs)

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Acronyms and Abbreviations

AfDB	African Development Bank
APoA	Almaty Programme of Action
ECE	Economic Commission for Europe
FDI	Foreign Direct Investment
G8	Group of Eight
GATT	General Agreement on Trade and Tariffs
GDP	Gross Domestic Product
HDI	Human Development Index
ICT	Information and Communication Technology
LLDC	Landlocked Developing Country
ODA	Official Development Assistance
LPI	Logistics Performance Index
MNC	Multinational Corporation
OECD	Organisation for Economic Cooperation and Development
SME	Small and Medium-sized Enterprises
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering and Math
TVET	Technical and Vocational Education and Training
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNIDO	United Nations Industrial Development Organization
UN-OHRLLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
UNSGSA	United Nations Secretary-General's Special Advocate for Inclusive Finance for Development
VPoA	Vienna Programme of Action
WTO	World Trade Organisation

Executive Summary

Landlocked developing countries (LLDCs) are confronted by structural challenges that are directly or indirectly related to their remote position from global markets that put them at a comparative disadvantage relative to other developing countries and severely constrain their growth and development prospects. In 2003, under the auspices of the United Nations, the Almaty Programme of Action was adopted that was specifically aimed at addressing the special needs of the LLDCs. Under the resolution 66/214 of the United Nations General Assembly, a ten-year review of the Almaty Programme of Action was undertaken in November 2014 to take stock of the performance of LLDCs over the past decade and adopted the Vienna Programme of Action (VPoA).

While the Almaty Programme of Action was focused on the development of transport systems and transit trade, it is important to emphasize that these issues are only part of the impediments to growth and development in LLDCs. The LLDCs also face other challenges critical for enhancing structural transformation that include inadequate supply of energy generation and transmission infrastructure as well as telecommunication and unskilled human resources. These issues have received greater emphasis in the VPoA.

Given the importance of structural transformation in promoting sustainable development of LLDCs, this report presents a strategy for accelerating the development of productive capacities in LLDCs, which is the most effective way to enable these countries to achieve the goals of sustainable growth and structural transformation. Productive capacity is the set of capabilities enabling a country to produce efficiently and competitively. It is a combination of physical, human, technological, institutional, and environmental assets that determine both the current level of efficiency and competitiveness as well as their dynamic path. Thus productive capacity determines not only how well a country is doing today but also how it is likely to perform in the future.

The report provides a detailed description of the main pillars of the productive capacity building framework for enhancing structural transformation in LLDCs and discusses how building capacity along these pillars will help address the structural challenges associated with LLDCs' geography: infrastructure, especially transport, power, and telecommunication; productive resources (natural resources and human resources); private sector development; regional integration; financing; science and technology; and institutions, policies and regulation.

The report also provides policy suggestions on how to structurally change the economy in the context of multiple competing priorities and limited resources. It spells out the role of policy makers and other stakeholders at national, regional and international levels. This information will be helpful in the implementation of the VPoA.

Transport infrastructure and the high costs of remoteness

Landlocked developing countries face special constraints due to remoteness relative to international markets that predispose them to perform less than coastal developing countries that have easier access to global markets. Moreover, and most importantly, the economic performance of LLDCs depends both on their own domestic circumstances as well as conditions in neighbouring and transit countries.

While the attention to the problems of LLDCs has typically focused on the implications of their long distance to markets, distance to markets is only one factor. The ability of LLDCs to achieve their potential depends, in the first instance, on their own domestic conditions, especially the quantity and quality of their infrastructure, such as, transport, power and information and communication technology (ICT). In addition to their own infrastructure, the economic performance of LLDCs depends also on the quality and quantity of infrastructure of their neighbours and especially those hosting transit corridors.

Transport infrastructure is an important determinant of economic performance in LLDCs. It comprises two key components. The first is the physical infrastructure namely roads, rail, ports and airports. The second component is soft infrastructure, which involves all the logistical facilitation services that affect the movement of goods and services.

The causes of high transport costs in LLDCs can be grouped into three broad categories: Factors related to quantity and quality of physical infrastructure; factors related to the industrial organization of the transport sector; and political factors.

It is important to emphasize that the factors of high transport costs pertain to conditions and the environment in the LLDC as well as in the neighboring and transit countries. In that sense, LLDCs are faced with several dimensions of dependence: dependence on their own infrastructure; dependence on neighbors' infrastructure; the political relations with neighbors; political stability in the neighboring and transit countries; and the quality and effectiveness of administration in the neighboring and transit countries.

The first implication of the foregoing discussion is that physical infrastructure is only part of the causes of high transport costs in LLDCs. The second implication is that LLDCs have control on only a subset of the components of the costs of transports; and in many cases it is not the most important component.

The negative effects of being landlocked arise through various channels. The main channel is through the negative effects on international trade. LLDCs are at a comparative disadvantage compared to coastal developing countries due to the asymmetric effects of remoteness on import and export prices and their implications on the terms of trade.

The second channel of the effects of being landlocked operates through the behaviour of the transit states which can artificially either exacerbate or ameliorate the effects of remoteness on the LLDCs. Transit states may regard LLDCs as captive buyers of their transit services. This puts them in a monopoly situation, enabling them to extract rents from their strategic geographical position.

Transit costs are also influenced by political factors in the transit country, relations between the transit country and the LLDC, and relations between transit country and other neighbouring states. The foregoing analysis suggests that for LLDCs, their trade is affected both by the economic costs of transit as well as the reliability of transit corridors. In fact, in some cases the reliability of transit may be a bigger problem than the direct costs of transit. This implies a need to promote diversification of transit routes as a means of resolving the problem of access to markets for LLDCs.

The costs of remoteness have dynamic and long-term implications on the economies of LLDCs. There are four key implications. The first implication of remoteness is that LLDCs are at a disadvantage in competing in the global production and trade systems due to high production costs arising from high import and export costs. The second implication of remoteness is that it makes it more difficult for LLDCs to develop dynamic comparative advantage in production and trade. The third implication of remoteness is that it is relatively more difficult for LLDCs to develop and retain their human capital base due to brain drain. The fourth implication, which derives from the previous three implications, is that LLDCs face higher difficulties in developing agglomeration economies on their territories. On the one hand they face challenges in developing domestic entrepreneurship because of the high production costs and the negative human capital effects of being landlocked. On the other hand, they face challenges in attracting foreign entrepreneurs because of the low productivity.

Information and communication technologies infrastructure

In addition to their geographical remoteness, LLDCs also exhibit major challenges in the area of information and communication technologies (ICTs). Yet, ICTs are an important driver of overall economic performance, competitiveness and integration into the global economy. For LLDCs, ICTs are especially important as they enable them to overcome some of the constraints due to remoteness, by facilitating access to information on global markets for producers and consumers. ICTs are also a critical channel for technology transfer, which is an important vehicle for productivity growth and economic transformation. LLDCs exhibit relatively low levels of development in the ICT sector as demonstrated by low rates of utilization of the internet, subscription to mobile telephony, and access to fixed telephone services.

Energy infrastructure

In addition to relatively weaker transport and ICT infrastructure, LLDCs also face severe challenges in access to energy. Moreover, there are substantial variations within LLDCs, with LLDCs in Africa fairing worse relative to their counterparts in other regions. LLDCs face challenges at three levels: generation, transmission, and utilization of energy. Most LLDCs have very low power generation capacity, despite substantial untapped potential including in renewable sources notably hydroelectricity, solar, and wind energy.

Finally it is important to note that other forms of infrastructure also depend on energy. The lack of adequate energy supply limits options for expansion of the transport infrastructure as it makes all options for power-propelled transport equipment unviable. It also severely undermines the development of information and telecommunication infrastructure which also relies on electricity. Thus it is important to think of infrastructure development as a comprehensive industry-wide strategy that takes into account all the interconnections between the various forms of infrastructure.

Performance of LLDCs during the implementation of the Almaty Programme of Action

> The 2003 Almaty Programme of Action was the first international policy framework dedicated explicitly and solely to the group of LLDCs. The Almaty Programme of Action was articulated around five major priority areas namely (a) fundamental transit policy issues, (b) infrastructure development and maintenance, (c) international trade and trade and trade facilitation, (d) international support measures and (e) implementation and review.

An important weakness of the Almaty Programme of Action was the strict focus on transport infrastructure and transit trade. Other dimensions of infrastructure, now recognised in the Vienna Programme of Action, are also critical for unlocking the productive capacity of these countries, especially generation and transmission of electricity and telecommunication infrastructure. Moreover, these countries need to address non-infrastructure impediments to production and trade, notably human capital, financing, technology, institutions and the regulatory framework. This report proposes a strategy for developing productive capacities in LLDCs that incorporates these important dimensions.

Overall the Almaty period can be characterized as an era of general improvement of macroeconomic performance in the majority of LLDCs, which was hampered by shocks, especially the recent food, fuel and financial crises. These countries have witnessed growth acceleration and have achieved substantially higher growth rates of per capita income.

The overall improvement in macroeconomic performance in LLDCs was accompanied by a general improvement in overall human development indicators. Overall, international trade by LLDCs expanded during the Almaty period with increasing exports and imports. Total trade for the group of LLDCs increased from $123 billion in 2004 to $434 billion in 2012, representing a 17 percent average annual increase. This was faster than the 10% growth recorded during 1990-2003 and 2.4% during the 1980s.

Structural transformation in LLDCs

While many LLDCs have been able to make progress in several areas of overall economic performance, trade and even in human development, the critical challenge remains their inability to initiate a sustained process of structural transformation of their economies. It involves the process of creating new areas of activities and the shifting of resources from low value-added and low productivity to higher value-added and high productivity activities. Structural transformation is an essential condition for successfully integrating in the global economy and achieving sustained, broad-based and employment-creating economic growth. The record of structural transformation in the Almaty period is rather disappointing for the majority of LLDCs. Two sets of indicators are used in this report to gauge progress in structural transformation in LLDCs. The first is the contribution of the key sectors to aggregate output; that is, the percentage of the value added of agriculture, manufacturing, and services in total GDP. The second set of indicators focuses on exports and specifically the degree of concentration as well as the technology content of exports.

Analysis of the trends in the sectoral composition of GDP shows a systematic decline in the contribution of agriculture and the manufacturing sector to GDP and an increase in the share of services in total output. The share of agriculture in total output increased in only a handful of LLDCs in the Almaty period relative to 1990-2003. The share of the manufacturing sector in GDP increased meaningfully in only three countries. In contrast, the share of services increased in almost all LLDCs.

The second concern is with regard to the manufacturing sector. The share of manufacturing production in GDP is a strong indicator of industrialization of an economy and a measure of the process of value addition in the production system. It is an indication of the creativity and innovation in the economy. The evidence shows that LLDCs have experienced a process of de-industrialization. In fact they have lost even the low industrial base that they started with prior to the Almaty Programme of Action.

This is a serious impediment to their medium and long term growth and development. Industrialization is in fact even more important for LLDCs relative to their coastal counterparts as it enables them to alleviate the impediments due to their landlocked position. In particular, through industrialization, countries are able to produce goods with a higher value to weight ratio, which reduces the relative cost of transport. Thus the development of manufacturing is critical for the ability of LLDCs to compete in global markets. It is therefore critical to reflect on the causes of this failure to industrialize and the strategies that can help LLDCs to reverse this course.

Private sector development

The private sector in LLDCs is predominantly composed of small and medium-sized enterprises (SMEs). It is dominated by informal activities, and it is characterized by low technical capacity and low productivity. The key constraints to private sector development as singled out in various firm level surveys include lack of access to stable long term financing, inadequate infrastructure, cumbersome regulation, and low human capital especially due to skills mismatches between training and the needs of enterprises.

Institutions and the regulatory environment

It is well recognized that the quality and efficiency of institutions and the regulatory environment are key factors of long-term economic growth. In the case of LLDCs, institutions and regulation are important tools for ameliorating the conditions for private sector activity. They specifically reduce the costs of doing business through lower political and economic uncertainty, transparency and predictability of the rules of the game, and by enforcing competitiveness.

Overall, while the majority of LLDCs have made substantial progress in improving political institutions, democratic governance and the rule of law, they have made much less progress in the areas of institutional support for private sector activity. In the 1980s and 1990s, the focus was on privatization, the retrenchment of the state, and economic liberalization in general; but this proved to be ineffective in stimulating a dynamic private sector. The institutional and regulatory environment in most LLDCs remains a constraint to private sector activities.

Why focus on productive capacity in LLDCs?

The analysis of the economic situation and performance of LLDCs over the past decades clearly shows that there is a need to rethink their development strategy for several reasons. First, the majority of the LLDCs, like other developing countries, continue to face high and stubborn levels of poverty as well as slow progress along important dimensions of economic development. Second, LLDCs face structural disadvantages due to their remote position relative to global markets. Hence, LLDCs need to develop production and trade systems that are less dependent on transport.

The third reason to rethink development strategy in LLDCs is that globalization continues to increase pressure to become competitive and innovative in order to gainfully integrate into the global system. Thus far, the production base in LLDCs continues to be narrow with a heavy dependence on primary commodities, and technology intensity is also very low, which is a major reason for the low productivity in most sectors, especially agriculture and manufacturing.

In this report, productive capacity is understood as the whole set of capabilities that enable countries to produce efficiently and competitively. It is the combination of physical, human, technological, institutional, and environmental assets that determine the level and dynamic path of a country's efficiency and competitiveness in production. In that sense, productive capacity is a critical determinant of not only the country's current economic performance but also its future performance internally and in comparison to other countries.

Seven main pillars of the strategy are emphasized: infrastructure, productive resources (natural resources, human capital), private sector development, regional integration, financing, science and technology, and institutions, policy and regulations. These pillars interact in a complex fashion in such a way that successful implementation of each pillar of the strategy depends and determines the success of implementation of the other pillars.

Pillar #1: Infrastructure

A key pillar of the strategy for productive capacity building in LLDCs is the development of infrastructure and associated services. While infrastructure is critical in all developing countries, in the case of LLDCs it is especially essential for alleviating the specific constraints due to remoteness. In particular, an efficient infrastructure base helps reduce the production and trade costs, which enables firms in LLDCs to competitively integrate into global markets.

For LLDCs, transport infrastructure is a critical element of the infrastructure network given their remote position relative to the sea. This includes roads, rail, and air freight. The road network includes both national roads as well as the transit corridors linking the LLDCs to the sea.

A key feature of the transport infrastructure for LLDCs is their reliance on transit systems that fall outside of their direct control. The complexity of transit systems implies that action has to be engaged at various levels. The focus of action should be especially on improving the maintenance of hard infrastructure, increasing efficiency in border crossing, promoting and enforcing competition in the trucking industry, and reducing corruption in the public sector, especially by eradicating informal charges incurred by trucking service providers.

In addition to transportation infrastructure, LLDCs must also scale up infrastructure in the energy sector, ranging from generation, to transmission, to utilization of electricity. They also need to scale up investment in ICTs. ICT infrastructure remains unreliable even when it is available, and it is expensive relative to the purchasing power of the population in LLDCs.

Pillar #2: Productive resources

a. Natural resource management

Some of the LLDCs are among the top resource-rich countries in the world; others have substantial reserves, and although they may not rank high on a global scale, they are in fact resource dependent in the sense that natural resources represent a large share of their exports of goods.

Many of the resource-endowed LLDCs have failed to utilize their resource endowment to develop a base for sustained long-run growth and development. It is therefore urgent for LLDCs to establish a strategy for maximizing the gains from natural resource endowment. Such a strategy should be organized around three interrelated objectives: maximizing revenue accruing to the producing LLDCs; moving up the value chain in the resource exploitation process; maximizing synergies with and spillover effects on non-resource sectors.

b. Human resource development

While there has been some progress since the turn of the century, developing countries in general still face substantial shortage in human capital at all levels of skills from semi-skilled to highly skilled labor. This is the result of a combination of inadequate investment in human capital as well as lack of alignment of the supply and demand sides of skills development. Traditionally, discussions on human capital have focused on formal schooling, while practically, human capital development encompasses a wider range of channels through which the productive capacity of the labor force is acquired and enhanced. These include pre-labor market training, on-the-job experience, health and nutrition, and "early life investments" or investments in children. Thus the productive capacity building strategy must take this comprehensive approach to human capital development.

The productive capacity building strategy for LLDCs must emphasize human capital for a number of important reasons: human capital enhances the productivity of physical capital in all sectors; it is an essential ingredient for innovation and technological progress, which are important drivers of economic dynamism and competitiveness; it is an important tool to reduce social inequalities through improved social mobility; and it is critically important for LLDCs to help alleviate the disadvantages of remoteness.

Pillar #3: Private sector development

Developing a vibrant and dynamic private sector is an indispensable element of the productive capacity building strategy for all developing countries in general and for LLDCs in particular. The development of the private sector requires a comprehensive strategy aimed at reducing production and trade costs, ensuring protection of property rights, and creating an overall conducive business environment. The proposed productive capacity building strategy for LLDCs aims to achieve these goals through investment in physical and soft infrastructure, increasing the quality of human capital, facilitating access to long-term investment capital and, stable and transparent institutions.

Pillar #4: Regional integration

As LLDCs are highly dependent on their neighbours for transport and trade, regional integration through development of regional transportation networks, improved trade facilitation, and strengthened connectivity is critical for building productive capacities of these countries. It is imperative to complete the numerous missing links in physical transport infrastructure, which requires forging sub-regional and regional cooperation on infrastructure projects, strengthening national budgets and international development

assistance, and enhancing the role of the private sector in infrastructure development. Furthermore, LLDCs need to exploit the potential regional integration benefits of increased intra-regional trade and intra-regional foreign direct investment, increased market size and access to regional and global value chains and increased connectivity to regional energy and ICT networks. Furthermore, all LLDCs should accede to key international conventions and agreements in order to significantly reduce transaction costs and facilitate trade.

Pillar #5: Financing productive capacity building

The shortage of investment capital constitutes one of the critical constraints to LLDCs' ability to address the other constraints to growth such as lack of inadequate infrastructure and shortage of skilled labor. Financing productive capacity building in LLDCs requires refocusing financial policies to develop financing institutions and instruments that meet the needs of the private sector and especially those of the rural sector. The strategy should be organized around three main pillars: infrastructure-focused finance; specialized agricultural and rural finance; and SME and informal sector friendly finance.

Pillar #6: Science, technology and innovation

Science, technology and innovation are important drivers of economic dynamism and determine both the level and trend of productivity in an economy over time. In the case of LLDCs, science, technology and innovation have an even more vital role than in other developing countries: (1) LLDCs can move up the value chain faster and increase the share of high-technology content output in their total production; (2) science and technology are essential for the development of efficient transportation networks that can enable LLDCs to connect to global markets more effectively and less expensively.

To make science, technology and innovation a major driver of their productive capacity building strategy, LLDCs need to substantially reconfigure their national policy frameworks in order to mainstream science, technology, and innovation. In particular, such reconfiguration involves interventions around the following dimensions:

- increasing the share of science, technology, engineering and mathematics (STEM) in the formal education system in ter ms of increased budgetary allocations, infrastructure, and enrollment;
- increasing opportunities for continuing education in science and technology;
- creating science and technology networks involving researchers, trainers, farmers, and industry;
- increasing the high-technology content of exports;
- increasing the share of foreign direct investment that promotes technology transfer, infusion of knowledge and technology in the domestic economy and moving up the value chain in production;
- increasing the share of foreign direct investment going to activities with high local labor intensity.

Pillar #7: Policies, regulation and institutions

The last pillar of the productive capacity building framework for enhancing structural transformation in LLDCs consists of the set of policies, regulation and institutions that enable and facilitate the implementation of the other pillars of the framework. Drawing on the experience over the past several decades, it is clear that economic policies in LLDCs will need to be substantially reconfigured, especially at three important dimensions. First, at the macro level, LLDCs need to move away from the tradition of macroeconomic policies designed to "do no harm" and instead adopt that are flexible and aimed to achieve real development goals beyond the traditional narrow goals of price stability.

The second innovation in policy design is to establish more systematic synergies between macroeconomic policies and sectoral policies, which traditionally have been designed and implemented in near complete isolation. Third macroeconomic and sectoral policies must be conceived as tools to stimulate industrial policy for structural transformation. Thus, in each LLDC the setting of goals and targets should be guided by careful examination of the country's endowment from a dynamic comparative advantage perspective.

One of the key prerequisites for the success of any development strategy is the existence of a set of efficient institutions and a regulatory framework that create an incentive structure that promotes predictability, transparency, accountability, responsible risk taking, and efficiency in both the private and public sector.

Policy suggestions

The objective of the proposed productive capacity building strategy for LLDCs is to focus policy on the priority factors that constitute the most binding constraints to productivity and growth in these countries so that unlocking those constraints will generate a substantial impetus on growth and structural transformation in these countries.

At the national level, governments in LLDCs need to put priority on alleviating the most binding constraints to productivity and trade. All LLDCs must put a *priority on infrastructure* with a focus on hard and soft transport infrastructure, energy infrastructure, and ICTs. With regard to resource mobilization, LLDCs should consider developing dedicated financing instruments for infrastructure. One option is to design domestic-currency infrastructure bonds targeted at specific infrastructure programs such as roads, power generation, and ICTs.

LLDCs need to scale up efforts in the area of *human resource development. Private sector development* is critical for the success of the proposed strategy. Thus LLDCs need to focus on creating an enabling environment for private business, and facilitating and incentivizing the channeling of financing into the private sector, including SMEs. The proposed development strategy requires LLDCs to bring *science, innovation and technology* at the center of development policy in two ways: increasing acquisition of skills in science and technology; increase the connection between training and practice, and the diffusion of scientific knowledge into industry, agriculture and private sector activity in general.

Finally, at the national level, LLDCs must also focus on improving *policy coordination*, and most specifically, the coordination between a flexible and developmental macroeconomic framework on the one hand and strategic sectoral policies on the other hand.

More than in other developing countries, economic performance in LLDCs depends heavily on things that take place outside of their own territory. In this regard, regional economic organizations serve as important frameworks for assisting LLDCs in driving their productive capacity building strategy especially in the area of transport infrastructure.

The development partners needs to do much more to support LLDCs in their effort to reduce the technological divide and embark on a technology intensive path of economic transformation. Thus, collectively and individually, development partners must promote flexible rules and frameworks for access to information and technology in favor of LLDCs. The international community can immensely help LLDCs' productive capacity building strategy by promoting more transparency and accountability in the global financial system for the specific purpose of curbing illicit financial flows from developing countries in general.

Finally, given the critical importance of trade for LLDCs, the international community can help these countries by promoting a fair global trading system. This will facilitate access to global markets for their exports and help them successfully integrate into the global economy.

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1. Introduction

Landlocked developing countries (LLDCs) are generally among the poorest of the developing countries. This can be demonstrated by the fact that about half of the LLDCs are also classified as least developed. LLDCs are confronted by structural challenges that are directly and indirectly related to their remote position from global markets that put them at a comparative disadvantage relative to other developing countries and severely constrain their growth and development prospects. Due to long distance from the sea, these countries face disproportionately high transport and transactions costs which are exacerbated by poor infrastructure, inefficient logistics systems, costly and cumbersome procedures along the transit corridors, weak institutions and poor regulation. These high costs undermine the capacity of LLDCs to take advantage of globalization as illustrated by low and stagnant share in international trade.

The difficult conditions faced by LLDCs have steered efforts by the international community to design special programs and frameworks to assist this group of countries reach their growth potential and accelerate their progress towards national and international development goals. In this context, in 2003, under the auspices of the United Nations, the Almaty Programme of Action was adopted by the Conference. It was specifically aimed at addressing LLDCs' special needs to accelerate economic development. The main objective of the Almaty Programme of Action was to "establish a new global framework for action for developing efficient transit transport systems in landlocked and transit developing countries" (United Nations, 2003, article 10). Under the resolution 66/214 of the United Nations General Assembly, a ten-year review of the Almaty Program of Action was undertaken in 2014 to take stock on the performance of LLDCs over the past decade. Based on the review, an outcome document – the Vienna Programme of Action - was adopted at the Conference in Vienna.

Compared to the Almaty Programme of Action, the three priorities found in APoA have been further reinforced and expanded in the VPoA. For example, infrastructure development and maintenance has been expanded to encompass energy and ICT infrastructure; the international trade and trade facilitation priority further seeks to increase value addition and manufactured component of LLDC exports and takes note of the importance of timely implementation of the WTO Trade Facilitation Agreement. In addition, the VPoA includes three new priorities on regional integration and cooperation, structural economic transformation and means of implementation. The structural economic transformation priority for example focuses on capacity building, increasing value addition, economic diversification, promoting services sector, and private sector development.

Developing productive capacities is among the integral elements for achieving the identified objectives in the VPoA. Paragraph 12 of the VPoA states the following: "…many LLDCs rely heavily on a few mineral resources and low-value agricultural products for their exports to a limited number of markets, making them highly vulnerable to commodity price and demand volatility. The problem is further exacerbated by their low productive capacities and structural weaknesses, which limit the adding of meaningful value to their exports and the diversification of their exports and markets" (Vienna Programme of Action, 2014).

While the Almaty Programme of Action largely focused on the development of transport systems, it is important to emphasize that transport costs are only part of the impediments to growth and development in these countries. As such, in addition to transport, the VPoA recognises that LLDCs also face challenges arising from inadequate supply of power generation and transmission infrastructure as well as information and communication

technology. Economic growth in these countries is also constrained by weak institutions and regulatory frameworks, low human capital, poor management of natural resources, inadequate financing, and low technology intensity of production. LLDCs must overcome these impediments in order to move to a path of productivity-led growth through structural transformation. In this context, this report presents a strategy for enhancing the development of productive capacities in LLDCs, which is the most effective way to enable these countries to achieve the goals of sustainable growth and structural transformation.

The notion of productive capacities as a constraint to development was explicitly referred to in the *Brussels Programme of Action for the Least Developed Countries for the Decade 2001-2010*. It has been emphasized in relation to trade in UNCTAD's reports and it was the theme of its 2006 LDCs Report (UNCTAD, 2006)[1]. However, the concept has far reaching meaning beyond trade. The present research uses the comprehensive definition of productive capacity proposed by UN-OHRLLS in 2013. "Productive capacity is the set of capabilities enabling a country to produce efficiently and competitively. They consist of a combination of physical, human, technological, institutional, and environmental assets that determine both the current level of efficiency and competitiveness as well as their dynamic path. Thus productive capacity determines not only how well a country is doing today but also how it is likely to perform in the future".

The design and implementation of a productive capacity building strategy requires the definition of goals that need to be achieved in a specified timeframe. By goal we imply a statement of a country's ambition in a specific domain. Setting clear and precise goals serves as a tool for communicating the policy stance and orientation of the country in a particular area. *Ex ante*, this helps the government to articulate its objectives and to establish a sense of urgency and purpose. *Ex post*, clear goals facilitate the evaluation of policy implementation and also help to establish credibility of policy. Moreover, clearly defined goals serve as an important instrument for resource mobilization at the national and international level. They also help to assess the degree of alignment of national policy with the global development agenda in a specific domain.

The operationalization of the goals of productive capacity building requires the identification of targets. To be effective, targets must be both ambitious to entice maximum efforts on the part of the intervening parties, but at the same time they have to be reasonable and practical. Setting unrealistic goals can become a disincentive for performance because a target that is perceived as unachievable undermines effort.

This report provides a framework for building productive capacities to enhance structural transformation in LLDCs and discusses how building productive capacity along the identified pillars in the framework will help address the structural challenges associated with LLDCs' geography. The report singles out seven pillars that are particularly pertinent for the special conditions of LLDCs. These are: infrastructure, especially transport, power, and telecommunication; productive resources (natural resources and human resources); private sector development; regional integration; financing; science and technology; and institutions, policies and regulation. Building productive capacity along these dimensions is especially important for LLDCs to enable them to develop economic activities that yield goods that are of higher value added, less dependent on transport or with lower transport costs.

The report also provides policy suggestions on how to operationalize the productive capacity building strategy in the context of multiple competing priorities and limited resources. It spells out the role of policy makers and other stakeholders at national, regional and international levels. It underscores that while the main responsibility for designing and implementing the productive capacity building strategy rests with governments of LLDCs, the success of the strategy will require effective cooperation at regional level and effective financial and technical support from the international community.

The report is organized as follows. The next section motivates why LLDCs deserve special attention given their particular circumstances. Section 3 reviews progress made since the enactment of the Almaty Programme of Action in 2003, by focusing on key growth and development indicators. Section 4 describes the productive capacity building framework for enhancing structural transformation in LLDCs, its main pillars and how building capacity along these pillars can help put these countries on a path of sustainable growth and structural transformation. Section 5 concludes with policy suggestions on how to operationalize the strategy.

[1] This is 1. Also see UNCTAD (2011).

2. Why a special attention on landlocked developing countries?

2.1 Transport infrastructure and the high costs of remoteness

Landlocked developing countries face special constraints due to remoteness relative to international markets that predispose them to perform less than coastal developing countries that have easier access to global markets. Moreover, and most importantly, the economic performance of LLDCs depends both on their own domestic circumstances as well as conditions in neighbouring and transit countries. In other words, the economic fate of LLDCs is dictated to some extent by factors that are under the control of other countries. For this reason, the analysis of development performance and the setting of global development strategy must pay special attention to the case of LLDCs.

The attention on the problems of LLDCs has typically focused on the implications of their long distance to markets. But in fact distance to markets is only one factor. The ability of LLDCs to achieve their potential depends, in the first instance, on their own domestic conditions, in particular, the quantity and quality of their infrastructure, especially transport, energy and ICT. Infrastructure determines the capacity to produce, the productivity of economic activity, and the capacity to compete on the international markets. The key distinguishing feature of LLDCs relative to their coastal counterparts is that in addition to their own infrastructure, their economic performance depends also on the quality and quantity of infrastructure of their neighbours and especially those hosting transit corridors. We return to this point later; but here we first examine some key features of infrastructure in LLDCs compared to other developing countries.

As can be seen in Table 1, the group of LLDCs is highly heterogeneous with regard to provision of transport infrastructure and the costs associated with international trade. The table presents indicators of road infrastructure, overall logistics performance indicator (LPI), and the average costs of import and export per container.

Transport infrastructure is an important determinant of economic performance in LLDCs. It comprises two key components. The first is the physical infrastructure namely roads, rail, ports and airports. The second component is soft infrastructure, which involves all the logistical facilitation services that affect the movement of goods and services. The overall efficiency of the transport logistics system is captured in the logistics performance index (LPI). The LPI is a summary indicator of six major dimensions that influence the cost of transport between a country and international markets. These include both hard infrastructure as well as soft infrastructure. The six dimensions are: efficiency of customs clearance process, quality of trade related and transport related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance. The information used to construct the index is collected through surveys of transport and transit service operators and users.

The availability and quality of the road infrastructure as well as soft and hard transit infrastructure are critical determinants of the costs of trade. In this respect, LLDCs are at a disadvantage relative to coastal countries with regard to the cost of access to markets. As can be seen in Table 1, LLDCs perform much worse than their coastal counterparts in road infrastructure and the overall quality of transport logistics. The percentage of paved roads

Table 1: Transport infrastructure and trade costs for LLDCs

Country	Paved roads (%), 2000-12	Logistic performance index (LPI)*, 2012	Average of Cost to export (US$ per container), 2012	Average of Cost to import (US$ per container), 2012
Afghanistan	26.8	2.3	3545	3830
Armenia	90.5	2.6	1815	2195
Azerbaijan	50.0	2.5	3430	3490
Bhutan	50.9	2.5	2230	2330
Bolivia	7.2	2.6	1425	1747
Botswana	34.1	2.8	2945	3445
Burkina Faso	4.2	2.3	2412	4030
Burundi	8.8	1.6	2965	5005
Central African Rep.	6.8	..	5491	5554
Chad	0.8	2.0	5902	8525
Ethiopia	13.0	2.2	2160	2660
Kazakhstan	91.0	2.7	4685	4665
Kyrgyz Rep.	91.1	2.4	4160	4700
Lao PDR	13.6	2.5	2140	2125
Lesotho	29.9	2.2	1695	1945
Macedonia, FYR	55.0	2.6	1376	1380
Malawi	45.0	2.8	2175	2870
Mali	19.8	2.3*	2202	3067
Moldova	86.0	2.3	1545	1870
Mongolia	3.5	2.3	2555	2710
Nepal	55.1	2.0	1975	2095
Niger	22.4	2.7	3676	3711
Paraguay	14.9	2.5	1440	1750
Rwanda	19.0	2.3	3245	4990
Swaziland	30.0	..	1880	2085
Tajikistan	..	2.3	8450	9800
Turkmenistan	81.2	2.5*	..	..
Uganda	23.0	2.8*	3050	3215
Uzbekistan	87.3	2.5	4585	4750
Zambia	22.0	2.3*	2765	3560
Zimbabwe	19.0	2.5	3280	5200
Average LLDCs	**41.9**	**2.4**	**3040**	**3643**
Coastal developing	**44.7**	**2.7**	**1268**	**1567**
Africa LLDCS	**20.1**	**2.4**	**3056**	**3991**
Asia LLDCs	**53.2**	**2.4**	**3814**	**4112**
Europe LLDCs	**76.1**	**2.5**	**2042**	**2234**

Source: World Bank, World Development Indicators; Doing Business Report.

Note: For LPI, * means that the figure is for 2010 due to missing value for 2012. Source: World Bank, World Development Indicators (online); for LPI, updates on http://search.worldbank.org/data?qterm=LPI&language=EN

Note:.. – not available

is 3 percentage points lower for LLDCs than coastal countries. Overall, the transport system is less efficient on average for LLDCs than coastal developing countries, with an average LPI score of 2.4 compared to 2.7 respectively. The biggest disparities are not between landlocked and coastal developing countries but mostly among LLDCs. This is clearly manifested by the large differences in average infrastructure measures across regions (0.8% of paved roads in Chad in comparison to 91.1% in Kyrgyz Republic). The LPI is more homogenous across LLDCs. European LLDCs emerge in best position compared to those in other regions for all the indicators presented in Table 1. In contrast, Africa has the weakest infrastructure scores. The percentage of paved roads in African LLDCs is half the average for LLDCs as a group (20.1% compared to 41.9%).

The overall weak transport infrastructure in LLDCs and the cross-country and cross-regional disparities in infrastructure are reflected in high levels of costs of transport and in high diversity of the costs across countries and r egions. As can be seen in Table 1, the cost of export varies from $1376 per container for Macedonia to $8450 for Tajikistan. Corresponding import costs for these two countries are $1380 compared to $9800. On average, transports costs are substantially higher for LLDCs compared to coastal countries. A study by the World Bank found that in 2008, the average cost in transport corridors in LLDCs in Africa, Asia and Latin America was about 56% higher than in coastal countries: $3,900 per container compared to $2,500, respectively (Arvis et al., 2011). There are also substantial variations across regions. In particular, African transport corridors exhibit significantly higher costs than in other developing regions (Teravaninthorn and Raballand, 2009). Some studies estimated average road transport costs in Africa to be between 40% and 100% higher than in South Asia (Rizet and Gwet, 1998). Transport costs in Africa represent 15-25 percent of import costs, which is four times higher than in other developing countries (MacKellar et al., 2002). Within Africa, transport costs are highest in some transport corridors of Central Africa, and lowest in East Africa with Southern Africa in the middle but substantially lower than in Central Africa (Teravaninthorn and Raballand, 2009).

The question is what causes the high transport costs in LLDCs in general and what explains the high disparities across regions and within regions. Answering these questions is important for designing appropriate policies aimed at ameliorating the problems faced by LLDCs in accessing international markets, improving their trade, and ultimately accelerating growth.

The causes of high transport costs in LLDCs can be grouped into three broad categories: Factors related to quantity and quality of physical infrastructure; factors related to the industrial organization of the transport sector and; political factors.

The first factor of the high costs of transport in LLDCs is poor physical infrastructure. In LLDCs as well as in developing countries in general, most international trade relies on the road infrastructure. The biggest challenge in this regard is the poor quality of the roads resulting from a combination of poor planning and execution of maintenance budgets and harsh weather that causes speedy deterioration of the infrastructure especially in tropical areas. Poor road conditions result in rapid decay of the transport equipment as well as high fuel consumption for trucks.

The second set of factors of high costs in LLDCs concerns the structure and organization of the transport industry in the LLDC and transit countries. Most specifically, it is the regulation of the trucking industry and connected services. In most transport corridors, the freight industry is oligopolistic and operators enjoy high market power resulting in high charges on transport services. This oligopolistic structure is often a result of the fact that operators in the sector have strong political connections that enable them to influence the regulation of the sector. In this regard, the transport industry has a rather complex political economy arising from the fact that it involves complex interplay between the public sector and the private sector. While the infrastructure is mostly public (except for rare cases of concessions of infrastructure to private operators; e.g., toll roads, ports, etc.), the exploitation of transit services that utilize the infrastructure is in the hands of private operators. For the infrastructure to be socially and financially viable, it has to mobilize a minimum threshold of utilization by private operators. Three implications arise from this unique structure. First, financial viability and long-term sustainability of investment in transport infrastructure is conditional on sufficient utilization by private operators. Second, the regulation and taxation of the transit industry must be designed in such a way that it enforces competition and generates public revenue, without discouraging private utilization of the infrastructure. Third, and as a result of the first two implications, the development of transport infrastructure involves more than physical expansion of the physical infrastructure. It includes strategies to improve the regulation, management, and facilitation of transit services. This is an important point to take into account when thinking about productive capacity building in LLDCs.

An important aspect of the industrial organization of the transport industry that merits special attention is the organization and facilitation of border crossing. Two points are worth emphasizing: 1) quotas and offloading requirements; 2) payments and delays at border crossing points. The cost of transport is influenced by high payments and long delays at the border crossing. The payments include formal or official payments as well as informal payments or bribery. These informal payments may be imposed at the discretion of the person behind the counter or at the road block, which means that they may be levied several times along the same corridor. Similarly the delays at the border crossing are a reflection of inefficiencies in service provision, but also deliberate foot dragging by the handlers to create opportunities for rent extraction. These delays add to the effective costs of transport and even result in real loss of value of the merchandises especially in the case of perishable goods.

It is important to emphasize that the factors of high transport costs described above pertain to conditions and the environment in

the LLDC as well as in the neighboring and transit countries. In that sense, LLDCs are faced with several dimensions of dependence (Faye et al., 2004): dependence on their own infrastructure; dependence on neighbors' infrastructure; the political relations with neighbors; political stability in the neighboring and transit countries; and the quality and effectiveness of administration in the neighboring and transit countries.

The first implication of the foregoing discussion is that physical infrastructure is only part of the causes of high transport costs in LLDCs. In fact the evidence suggests that in many countries it may be less important than the non-physical dimensions of transport costs. The second implication is that LLDCs have control on only a subset of the components of the costs of transports; and in many cases it is not the most important component. Table 2 provides some illustration with the case of Asian LLDCs. It appears that for the typical LLDC in this region, over 70% of the transport costs occur outside its borders where the goods spend 78 percent of the transport time. These facts have important implications for the design of strategies aimed at reducing transport costs in LLDCs. Specifically such strategies must include measures to improve physical as well as soft infrastructure and seek to address not only issues of availability but also reliability of transport and transit infrastructure.

Table 2: Transit cost and time in Asian landlocked countries in 2008

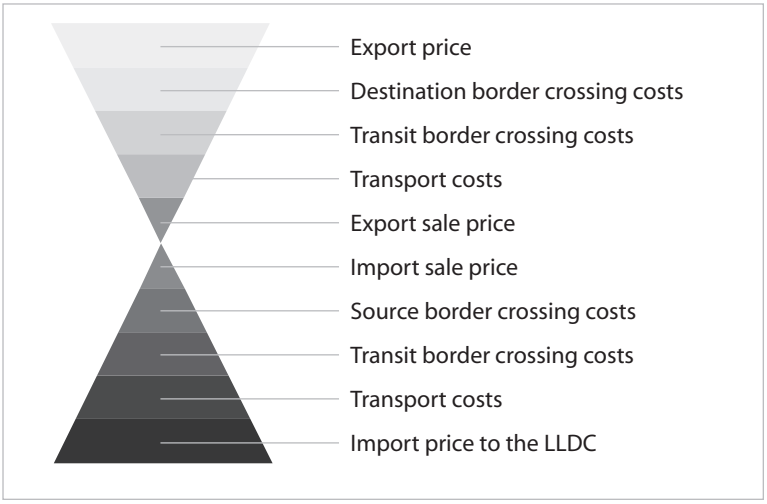
Cost element	Share in the costs (%)	Share in time (%)
Land transport in LLDC	27	22
Border crossing	7	14
Land transport in transit country Port	56	39
Port	10	25
Total land transport	**100**	**100**

Source: Arvis et al. (2011)

2.2 The consequences of remoteness – a focus on trade

The negative effects of being landlocked arise through various channels. The main channel is through the negative effects on international trade. LLDCs are at a comparative disadvantage relative to coastal developing countries due to the asymmetric effects of remoteness on import and export prices and their implications on the terms of trade. Between the LLDC and the international markets, goods and services incur two main types of costs: transport costs and border crossing costs. Border crossing costs include charges and fees at the entry and exit from the origin and destination country as well as border crossing into and out of the transit countries, which are either other landlocked intermediary countries or coastal countries.
The impact of being landlocked on trade costs and prices is illustrated in Figure 1. On the import side, the price of imports at arrival in the landlocked country is the purchase price in the origin country plus the transport costs and the border crossing costs. The more remote from the sea the country is the higher the final import price born by the importers in the country. The costs of transport and cross-border crossing depend both on geographical and physical factors, notably distance and the quality of transport infrastructure, as well as non-physical factors such as soft infrastructure, regulation, and security. A country may very well be relatively close to the sea but its costs may nonetheless be high if its transit neighbouring states have poor-quality infrastructure or are politically unstable. On the export side, the price of exports collected by the LLDC is lower than the final price paid by the trading partner with the difference being transport costs and cross-border costs. This is critically important in the particular case of LLDCs, which are typically price takers on international markets. This is due to the fact that many LLDCs export primary products whose prices are determined in the international markets. Thus countries that export agricultural products such as coffee, tea, and cotton, or mineral products such as gold, diamonds, copper and others, or oil and gas have little say

Figure 1: Remoteness and import-export prices



on the prices quoted on the international markets. Even for manufactured products, because LLDCs have to compete with other producers, they in fact also behave like price takers in the international markets. The implication is that compared to their coastal counterparts, LLDCs face a double challenge of having little control on the market price of their export products as well as little control on the intermediate costs of their product between the domestic producer and the final buyer. For example, a World Bank study estimated the cost of exporting a container from an LLDC at an average of about US$3,900 in 2008 compared to $2,500 per container from a coastal developing country. In the same study, exports from an LLDC faced transit time of about 47 days, compared to only 35 days from a coastal country (Arvis et al., 2011, p. 101). Overall, LLDCs are at severe comparative disadvantage relative to coastal developing countries.

Put together, the impact of transport costs and cross-border costs on imports and exports of LLDCs implies that an increase in these costs means double jeopardy. It raises the import bill while at the same time reducing the net export receipts. As can be seen in Figure 1, the export receipt band is thinner than the import bill block. As a result an increase in the costs of remoteness implies a direct deterioration of the terms of trade.

The second channel of the effects of being landlocked operates through the behaviour of the transit states which can artificially either exacerbate or ameliorate the effects of remoteness on the landlocked countries. Transit states may regard LLDCs as captive buyers of their transit services. This puts them in a monopoly situation, enabling them to extract rents from their strategic geographical position. However, rational transit states understand that their ability to generate revenue from transit operations derives from the use of these by their landlocked counterparts. Therefore, transit states are better off charging transit rates that do not kill the goose that lays the golden egg. In practice, this implies that they would want to charge transit rates that are consistent with the elasticity of supply and demand for these services (MacKellar and Wörgötter, 2000). This elasticity depends, among others, on the diversity of transit routes at the disposal of the landlocked developing country. Thus the dependence on one transit route exposes the landlocked country to high transit costs as a result of monopoly pricing by the transit and coastal countries along the transit corridor.

Transit costs are also influenced by political factors in the transit country, relations between the transit country and the landlocked country, and relations between transit country and other neighbouring states. In recent years, East Africa provided vivid illustration of these situations. In 2008, the post-presidential election conflict in Kenya severely disrupted the northern transit corridor that serves Burundi, Rwanda and Uganda and imposed severe costs on these countries. In the case of Burundi, the alternative is the route via Tanzania. But this corridor has been affected by traditional railway infrastructure. Another example is the case of Ethiopia which has been cut off from the sea due to the conflict with Eritrea.

The foregoing analysis suggests that for LLDCs, their trade is affected both by the economic costs of transit as well as the reliability of transit corridors. In fact, in some cases the reliability of transit may be a bigger problem than the direct costs of transit. This implies a need to promote diversification of transit routes as a means of resolving the problem of access to markets for LLDCs.

2.3 Dynamic and long-term implications of geographical remoteness

The costs of remoteness discussed above have dynamic and long-term implications on the economies of LLDCs. There are four key implications, which are briefly discussed below. These implications constitute powerful motivation for emphasizing and focusing on productive capacity building in LLDCs.

The first implication of remoteness is that LLDCs are at a disadvantage in competing in the global production and trade systems. These countries are penalized both on the import and export sides due to high transportation costs. The high costs of imports make their products and services relatively more expensive than those from developing coastal countries and from developed and emerging economies. The high transport costs associated with exports reduce the profitability of export-oriented firms in LLDCs. These high transportation costs exacerbate the impact of other structural constraints faced by LLDCs such as low technological capacity and low human skills.

The second implication of remoteness is that it makes it more difficult for LLDCs to develop dynamic comparative advantage in production and trade. High production and trade costs reduce productivity in all sectors where the input and output market prices are dependent or affected by transport costs. This is especially the case for primary and manufacturing sectors. Thus, LLDCs have difficulty creating and developing niche sectors as they are systematically outcompeted in international markets. As a result, LLDCs are trapped into low-productivity equilibrium and consequently settle on a low-growth path.

The third implication of remoteness is that it is relatively more difficult for LLDCs to develop and retain their human capital base due to brain drain. The low level of productivity and limited diversification of economic activity imply that skilled labor has fewer opportunities for employment. As a result, there is high temptation for skilled labor to migrate in search of better employment opportunities. At the same time, skilled labor migration has a relatively higher impact on LLDCs as the movement is more likely to

be in one direction given the inability of LLDCs to attract foreign human capital. These negative human capital impacts contribute to perpetuating the low-productivity and low-growth traps.

The fourth implication, which derives from the previous three implications, is that LLDCs face higher difficulties in developing agglomeration economies on their territories. On the one hand they face challenges in developing domestic entrepreneurship because of the high production costs and the negative human capital effects of being landlocked. On the other hand, they face challenges in attracting foreign entrepreneurs because of the low productivity. Without a critical mass of firms in the same industries, production and transaction costs remain high for individual producers, further depressing prospects for private sector-led industrialization.

2.4 Information and communication technologies (ICT) and Energy infrastructure

2.4.1 ICT Infrastructure

In addition to their geographical remoteness, LLDCs also exhibit major challenges in the area of information and communication technologies (ICTs). Yet, ICTs are an important driver of overall economic performance, competitiveness and integration into the global economy. For LLDCs, ICTs are especially important as they enable them to overcome some of the constraints due to remoteness, by facilitating access to information on global markets for producers and consumers. ICTs are also a critical channel for technology transfer, which is an important vehicle for productivity growth and economic transformation.

LLDCs exhibit relatively low levels of development in the ICT sector as demonstrated by low rates of utilization of the internet, subscription to mobile telephony, and access to fixed telephone services. As can be seen in Table 3, LLDCs trail behind their coastal counterparts in access to mobile telephony: 30 subscribers per 100 persons compared to 42 for coastal countries. The same holds for internet usage: 6.9 users per 100 persons compared to 12 for coastal countries. The remoteness of LLDCs contributes to some extent to the gaps in access to internet services. For example, the distance from submarine fiber optics lines makes it relatively more costly for LLDCs to access high speed internet compared to coastal countries. But these physical barriers can be overcome with appropriate strategy especially through regional cooperation.

Despite the fact that access and coverage remains insufficient in most LLDCs, there is reason for optimism going forward. Indeed, this group of countries has experienced rapid increase in the penetration of ICT infrastructure and services since the turn of the century. As can be seen in Figure 2, in the span of just over a decade, access to mobile phones and internet has dramatically increased in LLDCs in all regions, although sub-Saharan Africa lags behind. The ICT sector offers a potential avenue for dynamism in LLDCs that must be given serious consideration in development strategy at national and regional levels.

Figure 2: ICT penetration in LLDCs – mobile phone, 2000-12

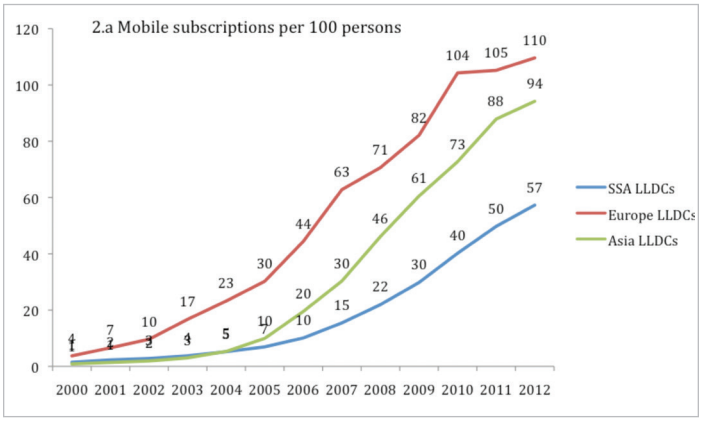
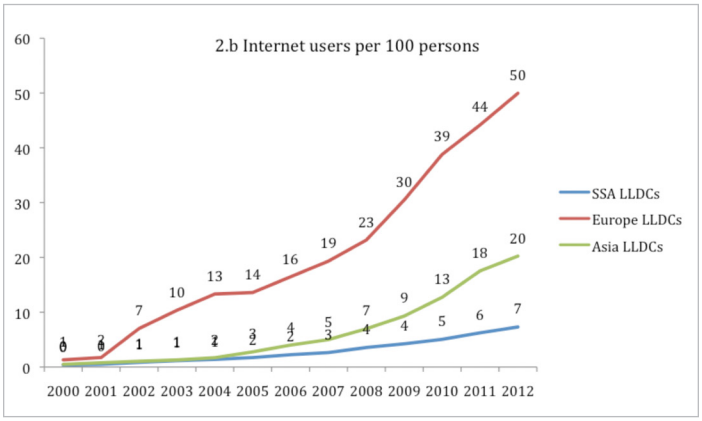


Figure 2: ICT penetration in LLDCs – internet, 2000-12



Source: International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates (online).

Table 3: ICT infrastructure indicators for LLDCs, average 2000-12

Country	Internet users (per 100 people)	Mobile subscriptions (per 100 people)	Telephone lines (per 100 people)
Afghanistan	2.1	18.7	0.1
Armenia	11.5	44.6	18.9
Azerbaijan	21.3	49.5	18.5*
Bhutan	7.4	24.7	3.8
Bolivia	11.7	40.1	7.4
Botswana	5.2	62.8	7.4
Burkina Faso	1.1	16.2	0.7
Burundi	0.6	7.5	0.4
Central African Rep.	0.9	8.2	0.2
Chad	0.9	11.3	0.2
Ethiopia	0.4	4.6	0.8
Kazakhstan	14.1	66.0	19.5
Kyrgyz Rep.	11.2	44.5	8.7
Lao PDR	3.2	30.9	1.5
Lesotho	2.6	22.9	1.8
Macedonia, FYR	32.9	64.4	23.7
Malawi	1.1	9.4	0.9
Mali	1.0	23.1	0.6
Moldova	18.8	47.4	25.8
Mongolia	8.0	47.1	6.3
Nepal	2.8	13.7	2.1
Niger	0.5	10.1	0.3
Paraguay	10.8	58.8	5.5
Rwanda	3.3	13.8	0.3
Swaziland	6.7	31.0	4.0
Tajikistan	5.3	36.1	4.5
Turkmenistan	1.9	22.4w	9.2
Uganda	5.2	17.3	0.5
Uzbekistan	10.5	29.7	6.8
Zambia	4.8	22.7	0.8
Zimbabwe	8.8	23.9	2.6
Average LLDCs	**6.9**	**29.8**	**5.6**
Coastal developing	**12.0**	**41.9**	**9.4**
Africa LLDCS	**2.9**	**19.0**	**1.4**
Asia LLDCs	**6.6**	**33.4**	**6.5**
Europe LLDCs	**21.1**	**51.5**	**22.8**

Source: International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates; * value is for 2012.

2.4.2 Energy infrastructure

In addition to relatively weaker transport and ICT infrastructure, LLDCs also face severe challenges in access to energy. Moreover, there are substantial variations within LLDCs, with LLDCs in Africa fairing worse relative to their counterparts in other regions. As can be seen in Table 4, average consumption of electricity in LLDCs located in Africa is about half the average in LLDCs as a whole. In addition to shortage of supply, regulatory inefficiencies and red tape increase the cost of access to electricity. In many LLDCs, it takes three or more months to get a connection to the grid. The monetary cost of electricity is very high; in Africa it is twice as high as the average for the group.

LLDCs face challenges at three levels: generation, transmission, and utilization of energy. Most LLDCs have very low power generation capacity, despite substantial untapped potential including in renewable sources notably hydroelectricity, solar, and wind energy. These countries lack the capacity to mobilize the large amounts of financing that are required to invest in major power generation projects. Thus the bulk of energy generation resources at their disposal remain idle. LLDCs also face challenges with regard to transmission of energy from the generation point to the end users. In particular, there are large gaps in access to power between the rural area and the urban area. Power generation and transmission typically relies on public financing, which is in short supply in these countries due to budget constraints and limited attractiveness of the energy sector vis-à-vis external private financing.

The lack of adequate energy supply is a serious structural constraint to economic development in LLDCs. It not only reduces overall economic performance in terms of growth but it is also a constraint to economic diversification. For example, in agriculture based LLDCs, economic diversification can be achieved through moving up the value chain by developing the agro-processing industry. However, this requires adequate supply of energy for transformation of the produce and conservation of raw material and manufactured output. In the absence of reliable public energy provision, private operators tend to rely on private power generators which are both expensive and bad for the environment.

Moreover, the shortage of energy supply has implications for health and poverty in general. Due to lack of clean heating and cooking energy, rural households are forced to rely on energy sources (such as kerosene and biomass) that expose them to major safety hazards. Women and girls are particularly heavily exposed as they are responsible for cooking and thus incur more risk due to indoor air pollution. The lack of access to energy for the poor, or "energy poverty" is an often overlooked and yet extremely development issue in LLDCs.

In this context, the United Nations Sustainable Energy for All (SE4ALL) initiative is important as it stresses among others, the need for universal access to modern energy services, increasing the use of renewable energy, improving energy efficiency and addressing the nexus between energy and health, women, food, water and other development issues. Finally it is important to note that other forms of infrastructure also depend on energy. The lack of adequate energy supply limits options for expansion of the transport infrastructure as it makes all options for power-propelled transport equipment unviable. It also severely undermines the development of information and telecommunication infrastructure which also relies on electricity. Thus it is important to think of infrastructure development as a comprehensive industry-wide strategy that takes into account all the interconnections between the various forms of infrastructure.

Table 4: Energy infrastructure indicators for LLDCs, average 2000-12

Country	Electricity consumption per capita (Kwh)	Time (number of days)	Cost (% of income per capita)
Afghanistan	..	109	1,731.7
Armenia	1505.7	242	98.9
Azerbaijan	..	241	570.8
Bhutan	..	..	..
Bolivia	491.3	42	952.3
Botswana	1383.8	121	389.1
Burkina Faso	..	158	10,956.6
Burundi	..	158	20,509.0
Central African Rep.	..	102	11,674.9
Chad	..	67	9,580.1
Ethiopia	36.1	95	1,879.5
Kazakhstan	4115.4	88	65.3
Kyrgyz Rep.	1481.1	159	2,256.4
Lao PDR	..	134	1,913.0
Lesotho	..	125	1,991.8
Macedonia, FYR	3268.2	107	258.6
Malawi	..	222	7,468.5
Mali	..	120	3,771.9
Moldova	1878.9	140	542.1
Mongolia	1312.3	104	742.7
Nepal	82.4	70	1,380.8
Niger	..	115	6,936.4
Paraguay	949.1	67	202.6
Rwanda	..	30	4,018.7
Swaziland	..	137	1,232.7
Tajikistan	2031.9	185	1,077.4
Turkmenistan	2075.4	..	..
Uganda	..	132	13,456.7
Uzbekistan	1708.7	108	1,159.6
Zambia	655.2	117	955.8
Zimbabwe	803.3	106	3,686.8
Average LLDCs	**1486.2**	**124**	**3,843.5**
Coastal developing	**1112.9**	**..**	**..**
Africa LLDCS	**719.6**	**120**	**6,567.2**
Asia LLDCs	**1829.6**	**120**	**1,290.9**
Europe LLDCs	**2217.6**	**183**	**367.6**

Source: World Bank, World Development Indicators (online); Doing Business Report (online).

3. Performance of LLDCs during the implementation of the Almaty Programme of Action

3.1 The Almaty Programme of Action as a reference

The 2003 Almaty Programme of Action was the first international policy framework dedicated explicitly and solely to the group of LLDCs. Previous policy frameworks did not distinguish LLDCs from other developing countries. Starting from the 1990s, there was increasing attention to the concerns and difficulties faced by LLDCs. This increased awareness derived from the recognition of the role of trade for growth on the one hand and the role of transport and transit for trade in the international policy frameworks and debates on the other hand. Under the Washington Consensus that dominated economic policy thinking in the 1980s and 1990s, trade was recognized as a major driver of long-run growth. In 1995, in the context of this heightened attention to the role of trade and trade policy the General Agreement on Trade and Tariffs (GATT) was transformed in the World Trade Organization (WTO) whose mandate was to facilitate trade as a tool for accelerating economic development.

At the dawn of the new century and in view of the fact that this group of countries remained among the poorest and most marginalized, the Millennium Declaration recognized the needs and special problems of LLDCs, and requested increased financial and technical assistance to the LLDCs. The combination of the increased attention to the role of trade in the growth process and the increasing recognition of the special concerns and needs of LLDCs formed the basis for the formulation of the Almaty Programme of Action (APoA).

The APoA was articulated around five major priority areas namely (a) fundamental transit policy issues, (b) infrastructure development and maintenance, (c) international trade and trade and trade facilitation, (d) international support measures and (e) implementation and review. The APoA had the central focus on transport infrastructure and transit trade. Other dimensions of infrastructure are also critical for unlocking the productive capacity of these countries, especially generation and transmission of electricity and telecommunication infrastructure. Moreover, these countries need to address non-infrastructure impediments to production and trade, notably human capital, financing, technology, institutions and the regulatory framework. This report reviews the progress made in LLDCs in major areas of economic development and proposes a strategy for developing productive capacities that can enhance structural transformation in LLDCs, which incorporates these important dimensions.

The next section presents indicators of growth and its drivers – with an emphasis on investment, saving and trade –, development and economic transformation in LLDCs and in comparison to other groups of developing countries as well as by region. The objective is to assess progress made along these dimensions in the period following establishment of the APoA compared to the previous period in the post-1990 era. The statistics presented compare the record over 1990-2003 to that over 2004-12. This information is timely given the adoption of the Vienna Programme of Action, a successor of the APoA, in November 2014.

3.2 Overall macroeconomic performance

Overall, the Almaty period can be characterized as an era of general improvement of macroeconomic performance in the majority of LLDCs. The positive macroeconomic trend was however hampered by covariate shocks such as the 2007/8 food, fuel and financial crises. The LLDCs have witnessed growth acceleration and have achieved substantially higher growth rates of per capita income. As can be seen in Table 5, real per capita GDP increased during 2004-12 compared to 1990-2003 in all LLDCs except Botswana, Mali, Swaziland and Zimbabwe. In addition to the increased performance in the Almaty period, another important feature of LLDCs is the large diversity across the group in terms of economic growth. The group includes eleven countries with high average growth rates above 5% in 2004-12, but also seven countries with anaemic growth rates of 2% or less. Another noteworthy feature is that the high-growth countries include those that had experienced contraction in the previous period, notably Azerbaijan, Ethiopia, Mongolia, and Turkmenistan. In those countries, the Almaty period is a period of not only recovery but also genuine growth acceleration.

Table 5: Macroeconomic performance indicators pre- vs. Almaty (1990-2003 vs. 2004-2012)

Country	Real GDP per capita growth (annual %)		Domestic investment* (% of GDP)		Domestic saving (% of GDP)	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Afghanistan	4.2	5.9	14.6	19.3	-27.3	-20.5
Armenia	2.1	6.7	20.4	33.2	-3.8	12.2
Azerbaijan	-1.8	12.6	27.1	26.7	15.9	52.5
Bhutan	5.1	6.5	44.8	49.6	30.2	33.5
Bolivia	1.3	2.9	16.3	15.5	9.9	21.5
Botswana	3.6	3.4	26.6	28.5	39.0	35.4
Burkina Faso	2.3	3.0	20.1	19.9	7.4	10.2
Burundi	-2.7	0.6	7.9	18.8	-4.4	-10.1
Central African Republic	-1.9	0.9	10.5	11.3	3.8	1.1
Chad	0.5	4.3	19.7	22.4	-1.2	33.4
Ethiopia	-0.3	7.4	18.0	23.6	9.5	4.7
Kazakhstan	0.6	5.6	21.8	26.1	21.2	41.5
Kyrgyz Republic	-2.3	2.7	16.5	23.4	7.1	-2.9
Lao-PDR	3.8	5.8	16.0	27.8	6.4	18.0
Lesotho	2.4	3.4	55.9	25.7	-44.7	-40.0
Macedonia, FYR	-1.0	3.2	17.0	18.9	8.2	4.5
Malawi	1.1	2.5	14.8	21.1	3.4	5.3
Mali	1.8	1.0	23.1	21.3	9.0	11.3
Moldova	-5.0	4.3	17.7	25.9	13.8	-12.8
Mongolia	-0.1	7.4	24.6	35.9	15.0	33.6
Nepal	2.1	3.0	20.1	20.9	11.8	7.1
Niger	-1.2	-0.7	10.1	27.7	3.3	8.8
Paraguay	-0.0	2.0	17.4	15.6	26.8	22.2
Rwanda	1.7	5.4	13.9	19.4	-5.1	2.8
Swaziland	2.0	0.4	17.7	12.1	4.9	4.1
Tajikistan	-5.4	4.9	14.1	17.0	14.6	-17.3
Turkmenistan	-0.1	9.3	35.5	35.6	32.9	59.0
Uganda	3.1	3.6	17.0	22.5	5.1	11.9
Uzbekistan	-0.8	6.4	25.4	22.2	23.1	26.8
Zambia	-1.1	3.4	14.5	21.6	8.4	27.0
Zimbabwe	-1.5	-1.6	17.0	8.0	14.5	-8.4

Country	Real GDP per capita growth (annual %)		Domestic investment* (% of GDP)		Domestic saving (% of GDP)	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
LLDCs Weighted average**	**0.4**	**4.9**	**20.4**	**23.8**	**15.1**	**28.0**
Coastal Weighted average	**3.2**	**5.5**	**23.6**	**28.8**	**25.1**	**32.1**
Africa LLDCs Weighted average	**0.8**	**3.4**	**18.5**	**21.9**	**10.1**	**12.8**
Asia LLDCs Weighted average	**0.1**	**5.5**	**23.2**	**26.3**	**20.0**	**34.4**
Europe LLDCS Weighted average	**-0.7**	**7.0**	**21.8**	**22.9**	**12.1**	**36.0**

Source: Calculations using data from The World Bank's World Development Indicators.

Notes: * Domestic investment is measured by gross fixed capital formation. ** Weighted averages are calculated by using nominal GDP as weight.

During the Almaty period, high growth has been accompanied by an increase in domestic investment and saving in the majority of LLDCs. This is good news given that domestic investment and saving are critical for both the level and sustainability of long-run growth. Indeed a key perennial challenge for developing countries in general has been their inability to achieve and sustain high domestic investment rates on the one hand and their inability to close the investment-saving gap on the other hand. Thus, improvement in investment and saving is a much welcome development for LLDCs. Nonetheless, behind the average numbers lie substantial disparities across countries in this group. Domestic investment and savings remain very low in many LLDCs. Seven of these countries experienced a decline or stagnation in investment; ten countries had a similar fate with regard to domestic saving. The group also includes countries with perennial negative saving rates due to consistently large budget deficits that are not compensated with private saving.

We can conclude that while overall macroeconomic performance has improved in LLDCs in general, the picture hides wide diversities in the group, with the largest differences observed in the areas of saving and investment. This suggests that the cross country disparities in growth within the group are likely to persist over time. The cross country disparities in economic performance also suggest that there may be important lessons that LLDCs can learn from their successful peers in designing their development strategies. In Africa, for example, Ethiopia offers a good example of a country that has performed very well despite the fact that it does not have natural resources. The country has benefited from a policy that has focused on developing infrastructure and stimulating new export-oriented activities that expand the potential of the agriculture sector. These include horticulture, leveraging its vast land and the leather industry, leveraging its substantial stock of cattle. Very importantly the country has also benefited from competent management of the macroeconomic policy that has brought stability, which is a key factor of economic growth. In Asia, Mongolia has made impressive progress in developing its economy. Over the past decade, per capita income has increased five-fold, to more than US$3,000. This growth was spearheaded by, among others, foreign direct investment-financed development of the mining sector and scaled-up public investment, including in transportation infrastructure. The strong growth of the economy has helped reduce poverty. Between 2010 and 2012, poverty declined by more than 11 percentage points, to 27 percent of the population in 2012 (IMF 2014).

LLDCs would benefit from learning from such success stories in designing policies that are tailored to their specific needs, capacity and resource endowment. Most importantly the evidence suggests it is indeed possible for an LLDC to achieve high growth rate despite the constraints associated with remoteness to markets.

3.3 Progress in human development

The overall improvement in macroeconomic performance in LLDCs has also been accompanied by a general improvement in overall human development indicators. As can be seen in Table 6, the human development index has increased in all LLDCs from 1990-2003 to 2004-12, except for Lesotho and Zimbabwe, which experienced a slight decline from 0.45 to 0.44 and from 0.40 to 0.37, respectively. However, there is also substantial variation across the group in the rate of improvement in human development. On the positive side, ten countries have recorded an increase in HDI by 20 percent or more during the Almaty period. On the negative side, two countries have regressed in human development (Lesotho and Zimbabwe), one has stagnated (Swaziland), and five have seen only minor increases in HDI of less than 10 percent over the same period (Zambia, Tajikistan, Botswana, Moldova, Kyrgyz Republic).

Table 6: Progress in human development 1990-2012, before vs. after the Almaty Program of Action

Country	Overall HDI		Education index		Health index	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Afghanistan	0.24	0.35	0.14	0.31	0.38	0.44
Armenia	0.64	0.72	0.70	0.76	0.78	0.85
Azerbaijan	..	0.73	..	0.76	0.72	0.79
Bhutan	..	0.53	..	0.35	0.58	0.73
Bolivia	0.59	0.66	0.62	0.73	0.64	0.72
Botswana	0.59	0.62	0.55	0.67	0.59	0.51
Burkina Faso		0.32		0.18	0.46	0.54
Burundi	0.27	0.33	0.19	0.33	0.41	0.46
Central African Republic	0.30	0.33	0.22	0.30	0.41	0.42
Chad	0.29	0.33	0.18	0.21	0.47	0.46
Ethiopia	0.28	0.36	0.17	0.26	0.46	0.59
Kazakhstan	0.66	0.74	0.69	0.83	0.71	0.73
Kyrgyz Republic	0.60	0.61	0.67	0.72	0.73	0.74
Lao PDR	0.42	0.52	0.34	0.44	0.60	0.73
Lesotho	0.45	0.44	0.44	0.49	0.53	0.42
Macedonia, FYR	..	0.73		0.68	0.82	0.86
Malawi	0.32	0.39	0.31	0.42	0.42	0.51
Mali	0.24	0.33	0.12	0.24	0.41	0.48
Moldova	0.62	0.65	0.66	0.71	0.75	0.77
Mongolia	0.56	0.65	0.58	0.70	0.66	0.75
Nepal	0.37	0.45	0.28	0.35	0.60	0.75
Niger	0.22	0.29	0.10	0.16	0.39	0.53
Paraguay	0.60	0.66	0.51	0.63	0.77	0.82
Rwanda	0.27	0.41	0.24	0.38	0.31	0.54
Swaziland	0.52	0.52	0.47	0.57	0.54	0.43
Tajikistan	0.57	0.60	0.67	0.71	0.68	0.74
Turkmenistan		0.69		0.74	0.68	0.71
Uganda	0.34	0.44	0.35	0.47	0.42	0.51
Uzbekistan		0.64		0.71	0.74	0.75
Zambia	0.39	0.42	0.43	0.49	0.39	0.43
Zimbabwe	0.40	0.37	0.48	0.56	0.51	0.44
Average LLDCs	**0.43**	**0.51**	**0.41**	**0.51**	**0.57**	**0.62**
Coastal developing	**0.54**	**0.60**	**0.46**	**0.56**	**0.68**	**0.74**
Africa LLDCs	**0.35**	**0.39**	**0.30**	**0.38**	**0.45**	**0.49**
Asia LLDCs	**0.49**	**0.58**	**0.48**	**0.59**	**0.64**	**0.71**
Europe LLDCs	**0.63**	**0.71**	**0.68**	**0.73**	**0.77**	**0.82**

Source: Calculations using data from The UNDP's Human Development Report database[2].

[2] The education index is calculated based on mean years of schooling (of adults) and expected years of schooling (of children). The mean years of schooling is the average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level. The expected years of schooling is the number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrollment rates persist throughout the child's life.

The health index is calculated as life expectancy at birth expressed as an index using a minimum value of 20 years and observed maximum value over 1980-2010.

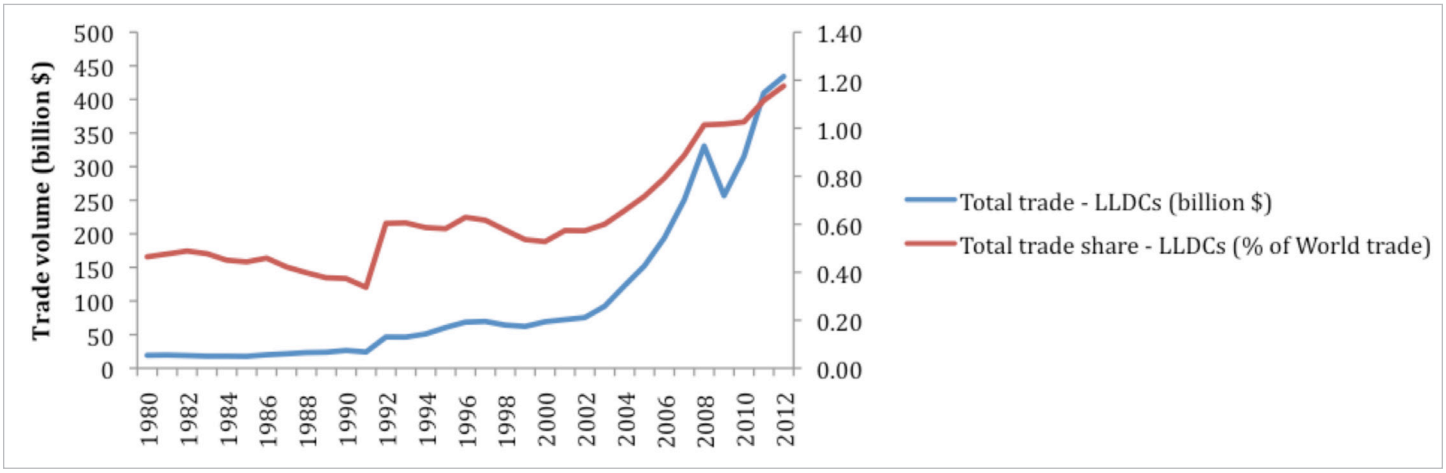
It is worth noting that the countries that have made the largest improvements are those that were at the bottom of the scale in the pre-Almaty period. This can be clearly seen on Figure 3. The leading countries in that regard are Rwanda, Afghanistan, Mali, Niger, Ethiopia, and Uganda. In that sense there has been convergence in human development characterized by catching up by countries that started at lower levels of human development. This is a positive development for the group as a whole but most importantly for the least developed countries within LLDCs.

Figure 3: Change in human development in LLDCs during the Almaty period

3.4 Performance in international trade

Overall international trade by LLDCs has expanded during the Almaty period with increasing exports and imports. Total trade for the LLDC group increased from $123 billion in 2004 to $434 billion in 2012, representing a 17 percent average annual increase (Figure 4). This was faster than the 10% growth recorded during 1990-2003 and 2.4% during the 1980s. Along with total volume of trade, LLDCs' share in world trade also increased from 0.7% in 2004 to 1.2% in 2012. This represents an average annual increase of 7.6%, which is a substantial improvement compared to the 1980s where the group's share in world trade contracted at 2.3% per annum. But it is clear that this group of countries remains relatively marginalized in global trade despite some improvements.

Figure 4: Volume and share of trade by LLDCs in world trade, 1980-2012



Source: Computed using data from UNCTAD database (online).

Source: http://hdr.undp.org/en/data-explorer.

The overall positive performance of the group as a whole hides substantial diversity across countries, as can be seen in Table 7. In addition to Chad that saw an explosion of its exports due to oil discovery, leading performers in export growth are non-mineral resource countries such as Uganda, Bolivia, Rwanda, and Lesotho where exports increased by more than 50%. Ethiopia follows closely with a 46% increase in exports over the Almaty period relative to the 1990-2003 period. But on the other end, exports contracted in eight LLDCs and rose by 5% or less in four others.

Table 7: Trade and trade balance, 1990-2012, pre- vs. Almaty period

Country	Exports (% of GDP)		Imports (% of GDP)		Total trade (% of GDP)		Trade balance (% of GDP)	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Afghanistan	38.0	19.7	79.8	59.5	117.8	79.2	-41.8	-39.8
Armenia	30.0	22.4	55.3	43.7	85.3	66.1	-25.3	-21.4
Azerbaijan	40.0	60.0	48.5	34.4	88.5	94.4	-8.5	25.6
Bhutan	31.0	42.0	45.3	57.9	76.3	99.9	-14.3	-16.0
Bolivia	21.0	39.1	27.6	33.8	48.6	72.9	-6.6	5.4
Botswana	50.3	45.9	40.2	42.5	90.5	88.4	10.1	3.4
Burkina Faso	10.5	13.0	24.1	26.2	34.6	39.2	-13.6	-13.2
Burundi	8.1	8.0	21.7	37.1	29.8	45.1	-13.7	-29.1
Central African Rep.	16.4	12.2	23.3	22.4	39.7	34.6	-6.9	-10.2
Chad	16.4	50.5	39.5	40.0	55.9	90.5	-23.1	10.5
Ethiopia	9.3	13.6	17.9	32.5	27.2	46.1	-8.5	-18.9
Kazakhstan	44.1	49.5	45.6	36.2	89.7	85.7	-1.5	13.3
Kyrgyz Republic	35.8	49.3	46.3	76.8	82.1	126.1	-10.5	-27.5
Lao PDR	24.8	34.5	36.8	44.2	61.6	78.7	-12.0	-9.7
Lesotho	33.0	50.0	133.5	116.1	166.5	166.1	-100.5	-66.1
Macedonia FYR	38.4	48.1	49.4	68.0	87.8	116.1	-11.0	-19.9
Malawi	25.2	26.5	38.8	44.4	64	70.9	-13.6	-17.9
Mali	23.3	26.6	37.4	37.5	60.7	64.1	-14.1	-10.9
Moldova	46.1	44.7	61.6	86.7	107.7	131.4	-15.5	-42.0
Mongolia	45.7	56.8	57.6	66.3	103.3	123.1	-11.9	-9.5
Nepal	19.6	12.3	30.4	32.4	50	44.7	-10.8	-20.1
Niger	16.5	19.1	23.5	38.3	40	57.4	-7.1	-19.2
Paraguay	52.5	53.5	44.9	47.3	97.4	100.8	7.6	6.2
Rwanda	6.5	11.8	25.5	28.3	32	40.1	-19.0	-16.5
Swaziland	69.0	69.4	82.2	77.3	151.2	146.7	-13.2	-8.0
Tajikistan	55.9	23.4	62.6	59.9	118.5	83.3	-6.7	-36.4
Turkmenistan	67.2	69.2	66.3	44.8	133.5	114	0.9	24.4
Uganda	10.2	19.4	22.2	30.2	32.4	49.6	-12.0	-10.7
Uzbekistan	28.2	37.4	30.9	33.2	59.1	70.6	-2.7	3.7
Zambia	31.4	40.3	39.4	36.2	70.8	76.5	-8.0	4.0
Zimbabwe	33.5	40.0	35.5	60.6	69	100.6	-2.0	-20.6
Average LLDCs*	**32.3**	**41.8**	**38.6**	**39.0**	**70.9**	**80.8**	**-6.4**	**2.8**
Coastal developing	**23.1**	**30.1**	**23.2**	**28.9**	**46.2**	**59.0**	**-0.1**	**1.2**
Africa LLDCs	**23.4**	**29.2**	**32.5**	**39.4**	**55.9**	**68.6**	**-9.0**	**-10.3**
Asia LLDCs	**37.7**	**44.5**	**42.1**	**38.1**	**79.8**	**82.6**	**-4.4**	**6.4**
Europe LLDCs	**39.0**	**52.0**	**50.5**	**40.0**	**89.5**	**92.1**	**-11.5**	**12.0**

Source: Calculations using data from The World Bank's World Development Indicators.

Note *: Group averages are weighted by nominal GDP.

Total trade contracted in ten countries and increased by 10% or less in four other countries. On balance, the trade position improved for the majority of LLDCs. For the group as a whole, the trade balance improved from a deficit to a surplus (from -6.4% to 2.8% of GDP). In fact six LLDCs went from a trade deficit in 1990-2003 to a trade surplus in the Almaty period (Azerbaijan, Bolivia, Chad, Kazakhstan, Uzbekistan and Zambia). The improvement was especially higher in the group of European LLDCs compared to other regions. But an important concern is the substantial deterioration of the trade balance in several countries resulting from a combination of slow growth in exports and fast increase in imports. In the case of the group of LLDCs in Africa, the trade balance deteriorated in the Almaty period (from -9% to -10% of GDP). Therefore, trade imbalance remains a structural problem for a substantial number of LLDCs.

3.5 Structural transformation

While many LLDCs have been able to make progress in several areas of overall economic performance, trade and even in human development, the critical challenge remains their inability to initiate a sustained process of structural transformation of their economies. It involves the process of creating new areas of activities and the shifting of resources from low value-added and low productivity to higher value-added and high productivity activities. Structural transformation is an essential condition for successfully integrating in the global economy and achieving sustained, broad-based and employment-creating economic growth. The record of structural transformation in the Almaty period is rather disappointing for the majority of LLDCs. Here we present two sets of indicators to gauge progress in structural transformation in LLDCs. The first is the contribution of the key sectors to aggregate output; that is, the percentage of the value added of agriculture, manufacturing, and services in total GDP. The second set of indicators focuses on exports and specifically the degree of concentration as well as the technology content of exports.

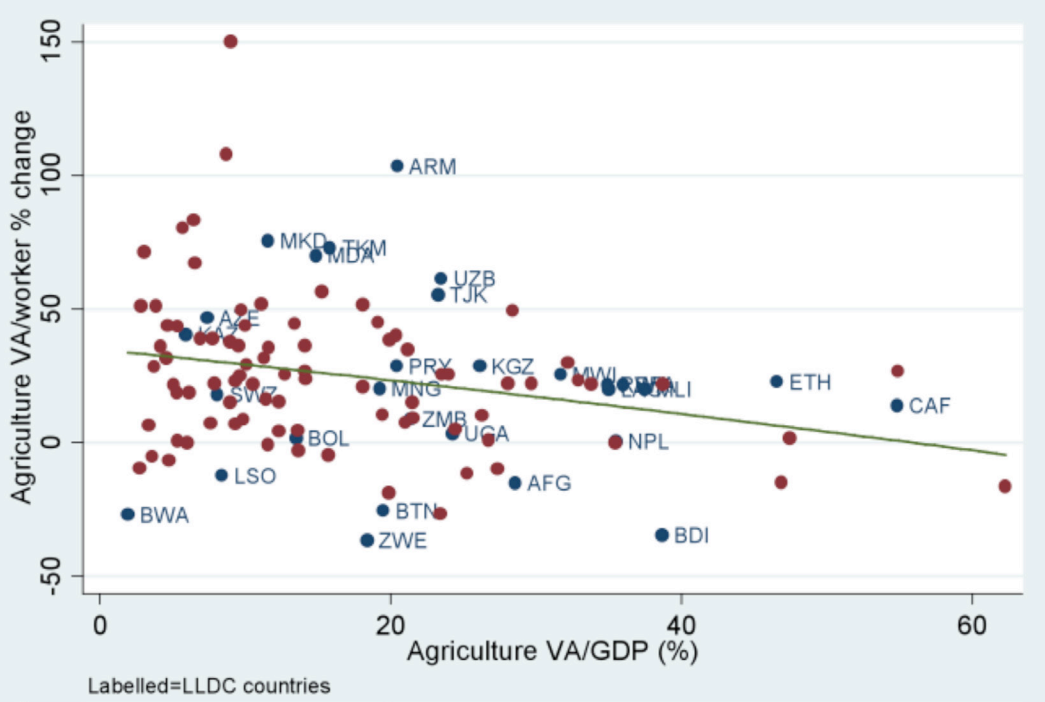
Analysis of the trends in the sectoral composition of GDP shows a systematic decline in the contribution of agriculture and the manufacturing sector to GDP and an increase in the share of services in total output (Table 8). The share of agriculture in total output increased in only four LLDCs in the Almaty period relative to 1990-2003: Burkina Faso, Central African Republic, Paraguay and Zimbabwe. The share of the manufacturing sector in GDP increased meaningfully in only three countries – Swaziland, Turkmenistan and Uzbekistan. In contrast, the share of services increased in all LLDCs except for four countries – Azerbaijan, Bolivia, Chad, and Zimbabwe.

These developments raise two main concerns. The first concern is with regard to the agricultural sector. The decline in the share of agriculture to GDP in LLDCs is problematic given that it is not accompanied by a reduction in the share of employment in the sector. This would require an increase in productivity to enable the transition of labor toward other sectors notably the manufacturing sector and services. In contrast, in the case of LLDCs, the decline in the share of agriculture in GDP has been accompanied by a decline in productivity. In Figure 5, average agriculture productivity measured by the value added per worker is plotted against the average size of the agriculture sector over the period 2004-12 for all developing countries. LLDCs are labelled for comparative purposes and to focus the attention on their position relative to other developing countries. Two facts emerge from the graph. First, countries with a larger agricultural sector have also lower productivity in agriculture. Second, non-landlocked countries are relatively more concentrated in the top left corner of the scatter points, indicting lower size of agriculture and higher productivity. In contrast, as we move to higher size of agriculture sector and lower productivity, the points are dominated by LLDCs. Therefore, compared to other developing countries, LLDCs have both lower productivity in agriculture and a higher size of agriculture sector.

In Figure 6, the size of the agriculture sector is plotted against agriculture productivity growth measured by the percentage change of the agriculture value added per worker between the pre- and Almaty period; i.e., 1990-2003 relative to 2004-12. The same picture emerges as in the case of the level of productivity. Here also, non-landlocked countries are clustered on the top left of the figure, indicating that these countries have both relatively smaller agriculture sector and higher productivity growth. Within LLDCs, it is also the case that the countries that have experienced more rapid increase in agriculture productivity are among those with relatively small size of the agriculture sector. The low productivity growth in agriculture must therefore feature prominently in the discussions on how LLDCs can move to a path of higher growth rate in the VPoA era. A key part of the strategy is to increase productive capacity geared to transforming agriculture into a launching pad for industrialization in addition to guaranteeing food security.

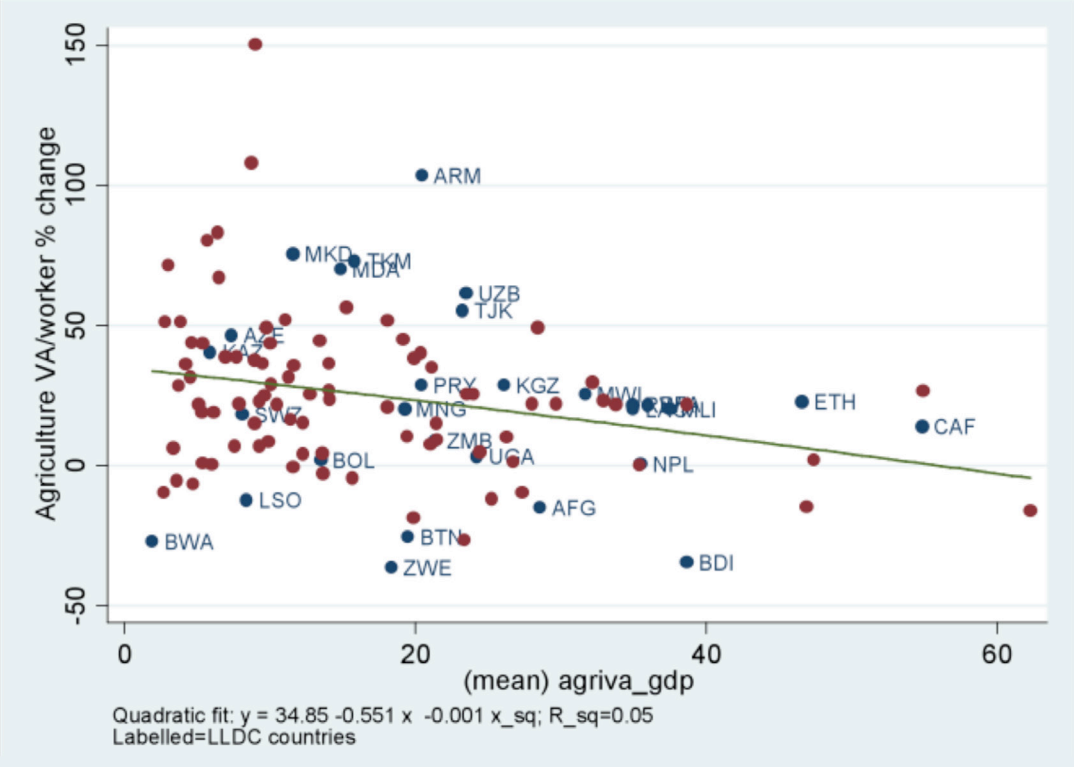
The second concern is with regard to the manufacturing sector. The share of manufacturing production in GDP is a strong indicator of industrialization of an economy and a measure of the process of value addition in the production system. It is an indication of the creativity and innovation in the economy. The evidence presented in Table 8 shows that LLDCs have failed along all these critical dimensions of economic transformation. The data shows that in contrast LLDCs have experienced a process of 0de-industrialization. In fact they have lost even the low industrial base that they started with prior to the Almaty Plan of Action. This is a serious impediment to their medium and long term growth and development. Industrialization is in fact even more

Figure 5: Agriculture sector: size and productivity, average over 2004-12



Source: World Bank, World Development Indicators (online)

Figure 6: Agriculture sector: size and productivity growth, pre- vs. Almaty period



Source: World Bank, World Development Indicators (online)

Table 8: Structural transformation – contribution of main sectors to GDP (%)

Country	Agriculture		Manufacturing		Services	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Afghanistan	38.1	28.6	17.9	16.0	38.6	45.7
Armenia	32.0	20.5	24.6	11.5	30.8	38.6
Azerbaijan	23.4	7.4	12.2	6.1	37.2	27.7
Bhutan	30.5	19.5	9.1	8.4	36.7	38.0
Bolivia	16.0	13.5	17.2	14.1	52.7	50.7
Botswana	3.7	1.9	4.9	3.8	41.8	56.1
Burkina Faso	34.6	36.0	14.7	10.0	44.3	44.4
Burundi	48.3	38.7	11.0	11.9	32.4	42.9
Central African Rep.	50.9	54.9	9.5		30.0	30.8
Chad	37.4	14.7	10.5	5.8	48.2	31.0
Ethiopia	54.8	46.6	4.8	4.5	34.1	41.2
Kazakhstan	12.7	5.9	15.2	12.9	51.4	53.1
Kyrgyz Republic	39.7	26.1	19.1	16.1	33.2	48.6
Lao PDR	52.7	35.0	12.3	8.5	28.3	37.3
Lesotho	16.5	8.4	17.4	17.2	44.9	57.5
Macedonia, FYR	12.8	11.6	24.1	16.7	53.6	59.8
Malawi	37.4	31.7	14.9	11.3	41.3	50.0
Mali	44.3	37.5	5.8	3.2	36.6	39.5
Moldova	31.9	14.9	21.8	14.2	38.6	70.3
Mongolia	27.8	19.3	12.7	6.8	41.7	44.4
Nepal	42.1	35.5	8.8	7.3	37.5	47.9
Niger	39.3	..	6.5	..	43.3	
Paraguay	17.3	20.4	14.8	12.5	46.4	48.2
Rwanda	39.3	35.0	11.1	6.5	43.3	50.4
Swaziland	11.6	8.1	38.0	41.4	44.4	45.5
Tajikistan	29.8	23.3	27.8	15.7	33.0	48.7
Turkmenistan	23.1	15.9	20.0	32.6	32.3	39.4
Uganda	42.1	24.2	7.3	7.7	40.5	50.5
Uzbekistan	33.1	23.5	10.9	11.7	38.9	46.8
Zambia	21.5	21.4	18.4	10.2	43.2	45.7
Zimbabwe	16.9	18.4	19.4	16.7	52.5	49.0
Average LLDCs*	**27.0**	**16.5**	**13.7**	**11.7**	**42.9**	**46.8**
Coastal developing	**13.5**	**10.5**	**21.7**	**21.0**	**51.8**	**52.0**
Africa LLDCs	**32.9**	**30.2**	**11.4**	**9.1**	**41.4**	**46.0**
Asia LLDCS	**25.6**	**13.0**	**14.1**	**13.0**	**42.7**	**49.5**
Europe LLDCs	**22.7**	**9.7**	**18.9**	**9.4**	**41.0**	**37.5**

Source: Calculations using data from The World Bank's World Development Indicators.

Note *: Group averages are weighted by nominal GDP.

important for LLDCs relative to their coastal counterparts as it enables them to alleviate the impediments due to their landlocked position. In particular, through industrialization, countries are able to produce goods with a higher value to weight ratio, which reduces the relative cost of transport. Thus the development of manufacturing is critical for the ability of LLDCs to compete in global markets. It is therefore critical to reflect on the causes of this failure to industrialize and the strategies that can help LLDCs to reverse this course.

The failure to develop the manufacturing sector is reflected in the high concentration of exports. The first two columns in Table 9 provide details on the concentration index for LLDCs in 1990-2003 and 2004-12. A higher number means higher concentration or less diversification. In fact export concentration has increased in 14 countries in the group. The high concentration is a result of the predominance of natural resources, namely oil, gas and minerals. The share of natural resources in total exports has increased in the majority of LLDCs during the Almaty period relative to 1990-2003. In a sense, the majority of these countries have moved in the wrong direction in terms of building resilience of their economies. Indeed higher export concentration especially in natural resources further exposes these countries to the damaging effects of fluctuations in the global demand and prices of commodity products. As was seen during the 2008-09 global recession, a collapse in demand and prices of these products caused large drops in growth and a deterioration of macroeconomic balances. In the case of LLDCs in Africa, oil and mineral rich countries experienced more severe contraction compared to the non-resource countries.[3]

Moreover, the difficulties experienced by LLDCs in moving up the value chain in their exports are illustrated by the low and stagnant technology content of their exports. The last two columns of Table 9 show the share of high-technology exports in total exports. The share is very low for all LLDCs with a couple of exceptions – Kazakhstan (21%) and Tajikistan (42% in the pre-Almaty period)[4]. The low technology content is an important impediment to the LLDCs' ability to compete in global markets. This further entrenches these countries in their dependence on primary raw commodities. Thus, building capacity to innovate, transfer, absorb and utilize technology in the industrial sector must be a major component of the post-2015 development strategy for LLDCs. This is discussed in the next section.

Table 9: Export concentration and high-technology content of exports, 1990-2012 – pre- vs Almaty period

Country	Export concentration index		Resource exports: ore, metal, oil (% of total exports)		High technology content of exports (% of total exports)	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Afghanistan	0.31	0.27	NA	NA	NA	NA
Armenia	0.26	0.25	27.8	38.0	4.3	1.5
Azerbaijan	0.55	0.78	79.5	89.4	6.9	1.6
Bhutan	0.34	0.35	32.5	39.8	0.5	1.8
Bolivia	0.21	0.42	48.1	73.8	20.5	9.6
Botswana	0.72	0.67	7.1	14.7	0.4	0.6
Burkina Faso	0.58	0.59	1.0	0.7	4.4	7.8
Burundi	0.64	0.47	1.7	6.5	4.4	6.1
Central African Republic	0.53	0.38	24.1	33.9	0.4	7.5
Chad	0.73	0.85	NA	NA	NA	NA
Ethiopia	0.51	0.37	2.1	1.3	0.2	3.9
Kazakhstan	0.37	0.59	65.3	82.6	6.5	20.7
Kyrgyz Republic	0.25	0.21	24.4	18.6	9.5	3.5
Lao PDR	0.31	0.33	NA	NA	NA	NA
Lesotho	0.37	0.39	0	1	0	0
Macedonia, FYR	0.15	0.19	12	11	2	2
Malawi	0.62	0.53	0	3	1	2
Mali	0.64	0.57	1	3	7	5
Moldova	.	.	2	5	7	5
Mongolia	0.37	0.45	48	68	1	2

[3] See various editions of the African Economic Outlook (from 2009 to 2013); accessible online at www.africaneconomicoutlook.org.
[4] For Tajikistan data on high technology content of exports are not available in World Development Indictors for the Almaty period.

Table 9: Export concentration and high-technology content of exports, 1990-2012 – pre- vs Almaty period

Country	Export concentration index		Resource exports: ore, metal, oil (% of total exports)		High technology content of exports (% of total exports)	
	1990-2003	2004-12	1990-2003	2004-12	1990-2003	2004-12
Nepal	0.29	0.14	2	5	1	0
Niger	0.37	0.39	58	52	8	6
Paraguay	0.36	0.35	1	11	2	8
Rwanda	0.53	0.45	22	37	17	13
Swaziland	0.27	0.23	1	1	0	0
Tajikistan	0.46	0.51	69.7	NA	41.8	NA
Turkmenistan	0.55	0.61	71.0	NA	5.5	NA
Uganda	0.51	0.22	3.4	4.9	6.9	10.8
Uzbekistan	0.45	0.28	NA	NA	NA	NA
Zambia	0.54	0.61	76.4	80.2	3.8	4.6
Zimbabwe	0.27	0.21	14.4	29.6	1.4	4.7
Average LLDCs	**0.42**	**0.49**	**31.7**	**51.7**	**5.7**	**10.1**
Coastal developing	**0.18**	**0.20**	**18.8**	**21.6**	**11.1**	**16.4**
Africa LLDCs	**0.51**	**0.47**	**13.9**	**19.2**	**3.2**	**5.2**
Asia LLDCs	**0.39**	**0.49**	**54.5**	**72.8**	**6.9**	**17.5**
Europe LLDCs	**0.36**	**0.6**	**40.5**	**64.8**	**4.9**	**1.9**

Source: Calculations using data from The World Bank's World Development Indicators.

3.6 Private sector development

The importance of the private sector in building the base for sustained economic growth cannot be overemphasized. As recognised in paragraph 62 of the VPoA, "the private sector contributes to economic growth and poverty eradication through the building of productive capacity, creation of decent jobs, promotion of innovation, economic diversification and competition". However, private sector development in most LLDCs is still in its early stages and it is confronted with structural challenges that limit its expansion and dynamism. The private sector in LLDCs is predominantly composed of small and medium-sized enterprises (SMEs). It is dominated by informal activities, and it is characterized by low technical capacity and low productivity. The key constraints to private sector development as singled out in various firm level surveys include lack of access to stable long term financing, inadequate infrastructure, cumbersome regulation, and low human capital especially due to skills mismatches between training and the needs of enterprises. The skills shortage is a result of both rapid technological change and inadequate policies in the areas of education and training. In particular, many LLDCs have de-emphasized vocational training in favor of general college-bound education at the high school level[5]. This is partly to blame for the rising level of unemployment among the educated youth and the widening skills gaps in the modern sector.

As indicated above, a major constraint to private sector development in LLDCs is the lack of access to financing. In particular, the private sector faces severe constraints in accessing stable financing to meet its long-term investment needs. As a result, the private sector has not been able to achieve and sustain high levels of investment, which is a major driver of long-term growth. Table 10 presents data on private investment and credit to the private sector before and after the launch of Almaty Programme of Action. On the one hand, the data show that private investment is generally low in many LLDCs and it is on average lower than in coastal developing countries (15 percent of GDP in 2004-12 compared to 17% in coastal countries). In fact, in nine countries, the private investment to GDP ratio has declined in the Almaty period. On the other hand, domestic credit to the private sector in LLDCs is less than one third of the average for coastal developing countries (21% compared to 70% in the 2004-12 period). Only eight LLDCs have a ratio of private sector credit to GDP above 25 percent.

As can be seen in Table 10, only a small fraction of the population in LLDCs benefits from services from the formal financial system. On average less than a quarter of the adult population has an account with a formal financial institution. The lack of access to financial services and credit in particular constitutes a major constraint to entrepreneurship and dynamism of the private sector

[5] See AfDB et al. (2009) for analysis and evidence on African countries.

Table 10: Private investment, private credit and access to formal financial services in LLDCs

Country	Private investment (% of GDP)		Access Credit to private sector (% of GDP)to financial services		Access to financial services
	1990-2003	2004-12	1990-2003	2004-12	Adults with an account at a formal institution (%), 2011
Afghanistan				8.0	9.0
Armenia		25.5	10.4	20.9	17.5
Azerbaijan	27.1	16.9	5.2	15.0	14.9
Bhutan	43.0	38.2	8.4	31.0	
Bolivia	9.4	7.0	48.8	39.9	28.0
Botswana	15.2	18.0	13.2	24.6	30.3
Burkina Faso	10.5	9.4	11.0	17.7	13.4
Burundi	0.2	10.8	15.1	17.7	7.2
Central African Republic	4.9	6.7	5.0	8.2	3.3
Chad	12.5	14.1	4.4	4.3	9.0
Ethiopia	9.6	7.4	16.0	20.5	
Kazakhstan	20.0	21.2	16.1	42.4	42.1
Kyrgyz Republic	10.8	18.0	5.8	10.1	3.8
Lao, PDR	8.9	18.5	7.9	10.6	26.8
Lesotho	40.0	17.2	18.0	11.8	18.5
Macedonia, FYR	11.3	12.7	26.5	37.2	73.7
Malawi	5.6	12.3	8.4	12.9	16.5
Mali	13.8	12.6	14.5	18.6	8.2
Moldova	15.4	23.9	10.2	31.8	18.1
Mongolia	21.9	29.8	10.5	38.7	77.7
Nepal	13.8	17.2	22.1	44.4	25.3
Niger	4.1	21.6	6.7	10.7	1.5
Paraguay	..	..	23.3	25.7	21.7
Rwanda	6.8	9.3	8.4	11.0	32.8
Swaziland	12.2	5.6	15.0	22.8	28.6
Tajikistan	7.4	5.9	16.6	12.3	2.5
Turkmenistan		16.2	2.8	..	0.4
Uganda	11.4	17.0	5.8	12.7	20.5
Uzbekistan	18.5	18.4	..	..	22.5
Zambia	6.4	16.4	7.4	11.4	21.4
Zimbabwe	14.4	5.0	37.1	26.1	39.7
Average LLDCs	**13.0**	**15.4**	**14.0**	**21.3**	**21.9**
Coastal developing	**14.4**	**17.0**	**52.1**	**70.2**	**33.4**
Africa LLDCs	**11.2**	**12.8**	**15.1**	**16.1**	**20.7**
Asia LLDCs	**18.3**	**19.6**	**15.8**	**39.5**	**23.3**
Europe LLDCs	**21.5**	**11.8**	**12.6**	**22.1**	**31.0**

Source: World Bank, World Development Indicators (online); Global Financial Inclusion database (online).

in LLDCs. While small and medium enterprises make the bulk of the private sector and are major contributors to employment creation, they lack the necessary capital to expand their activities and meet the growing demand for jobs especially from the educated youth. As the public sector in most LLDCs has reached its employment creation capacity, it is imperative to bring financing for private enterprises, especially SMEs, at the forefront of the development strategy in LLDCs.

3.7 Institutions and the regulatory environment

It is well recognized that the quality and efficiency of institutions and the regulatory environment are key factors of long-term economic growth. In the case of LLDCs, institutions and regulation are important tools for ameliorating the conditions for private sector activity. They specifically reduce the costs of doing business through lower political and economic uncertainty, transparency and predictability of the rules of the game, and by enforcing competitiveness. Thus, efficient institutions and effective regulation are key to increasing productivity and competitiveness. For LLDCs, institutions and regulation are especially essential for the effective functioning of national transport systems and regional transit systems. This is critical for reducing the costs associated with trade.

Overall, while the majority of LLDCs have made substantial progress in improving political institutions, democratic governance and the rule of law, they have made much less progress in the areas of institutional support for private sector activity. As can be seen in Table 11, starting a business takes on average 6 more days in LLDCs compared to coastal countries (25.5 days vs. 31.2), although there is little difference in terms of actual monetary costs (43 percent of per capita income vs. 42%). The legal system also remains ineffective in enforcing contracts and in protecting investor rights in LLDCs.

Nonetheless, since the turn of the century, there has been some notable progress in reforms that support private sector activity. The World Bank's 2014 *Doing Business* report notes that low-income countries narrowed the regulatory gap since 2009 twice as fast as high-income countries (World Bank, 2014). Some LLDCs have been singled out as strong performers in business regulation. Azerbaijan and Rwanda are among the top countries with the highest improvement in regulatory reforms in 2012/13. Burundi was rated among the top fragile states which ranked among the top 50 countries with the highest improvement in business regulatory environment between 2005 and 2012. In turn, Bhutan was singled out as "setting the frontier" in the area of enforcing contracts in the 2014 *Doing Business* report. These examples suggest that the constraints to private business are surmountable with appropriate targeted and sustained reforms. In other words, improving relative competitiveness is perfectly in reach for all LLDCs.

Table 11: Some indicators of institutional and regulatory environment for private business in LLDCs

Country	Starting a business		Enforcing contracts		Investor protection	
	Time (days)	Cost (% of per capita income)	Paid-in minimum capital (% of per capita income)	Time (days)	Cost (% of claim)	Investor protection index (0 lowest -10 highest)
Afghanistan	5.0	14.4	0.0	1642.0	25.0	1.0
Armenia	4.0	1.1	0.0	570.0	19.0	6.7
Azerbaijan	7.0	1.0	0.0	237.0	18.5	6.7
Bhutan	32.0	5.0	0.0	225.0	0.1	3.7
Bolivia	49.0	71.6	1.8	591.0	33.2	4.0
Botswana	60.0	1.2	0.0	625.0	39.8	6.0
Burkina Faso	13.0	44.5	306.2	446.0	81.7	3.7
Burundi	5.0	17.5	0.0	832.0	38.6	6.3
Central African Rep.	22.0	162.0	411.4	660.0	82.0	4.0
Chad	62.0	186.3	251.6	743.0	45.7	3.3
Ethiopia	15.0	100.1	184.2	530.0	15.2	3.3
Kazakhstan	12.0	0.6	0.0	370.0	22.0	6.7
Kyrgyz Rep.	8.0	2.7	0.0	260.0	37.0	6.7
Lao PDR	92.0	6.7	0.0	443.0	31.6	1.7
Lesotho	29.0	11.4	0.0	615.0	31.3	5.0
Macedonia	2.0	1.9	0.0	604.0	28.8	7.0
Malawi	40.0	120.1	0.0	432.0	94.1	5.3
Mali	11.0	76.7	295.2	620.0	52.0	3.7
Moldova	7.0	5.4	8.1	337.0	28.6	5.3
Mongolia	11.0	1.5	0.0	314.0	30.6	6.7
Nepal	17.0	34.6	0.0	910.0	26.8	5.3
Niger	17.0	80.1	527.8	545.0	59.6	3.3
Paraguay	35.0	44.2	0.0	591.0	30.0	5.7
Rwanda	2.0	4.4	0.0	230.0	78.7	6.7
Swaziland	38.0	27.7	0.4	956.0	56.1	4.3
Tajikistan	33.0	25.6	0.0	430.0	25.5	6.7
Turkmenistan						
Uganda	32.0	78.3	0.0	490.0	44.9	4.7
Uzbekistan	8.5	3.5	0.0	195.0	22.2	4.0
Zambia	6.5	26.8	0.0	611.0	38.7	5.3
Zimbabwe	90.0	141.2	0.0	410.0	113.1	4.3
Average LLDCs	**25.5**	**43.3**	**66.2**	**548.8**	**41.7**	**4.9**
Coastal developing	**31.2**	**41.9**	**123.7**	**704.2**	**41.3**	**4.8**
Africa LLDCs	**29.5**	**71.9**	**131.8**	**583.0**	**58.1**	**4.6**
Asia LLDCs	**24.3**	**10.5**	**0.0**	**532.1**	**24.5**	**4.7**
Europe LLDCs	**5.0**	**2.4**	**2.0**	**437.0**	**23.7**	**6.4**

Source: World Bank – IFC, Doing Business database (online)

4. Building productive capacity in LLDCs

Why focus on productive capacity?

The analysis of the economic situation and performance of LLDCs over the past decades as presented in the previous section clearly shows that there is a need to rethink their development strategy for several reasons. First, globalization continues to increase pressure to become competitive and innovative in order to gainfully integrate into the global system. Thus far, LLDCs have performed poorly on this dimension. Their production base continues to be narrow with a heavy dependence on primary commodities, which often have low value addition. Technology intensity is also very low, which is a major reason for the low productivity in most sectors, especially agriculture and manufacturing. Thus, in rethinking their development strategy, LLDCs must consider measures to increase the technological intensity of production as part of their industrial policy, which will help them develop dynamic comparative advantages and increase their international competitiveness.

Second, the majority of the LLDCs, like other developing countries, continue to face high and stubborn levels of poverty as well as slow progress along important dimensions of economic development. Despite the recent growth resurgence since the turn of the century, the majority of the people in LLDCs continue to live in extreme poverty and lack access to basic social services such as clean drinking water and modern sanitation. This report emphasizes that one major innovation in policy design for the LLDCs to achieve rapid increase in living standards for the majority of their population is to focus on building productive capacities in these countries.

The third reason to rethink development strategy is that LLDCs face structural disadvantages due to their remote position relative to global markets. LLDCs need to develop production and trade systems that are less dependent on transport. Specifically, on the one hand this means producing goods that are efficient to transport in the sense of having high value relative to weight. On the other hand it means developing efficient transport and transit systems both within the countries and in regional transport corridors. Thus the productive capacity building strategy for LLDCs must naturally have a heavy focus on transport and transit systems.

The remainder of this section describes the key elements of a productive capacity building strategy for LLDCs aimed at helping them to address the structural challenges associated with remoteness, to compete internationally and accelerate growth and development. The discussion draws heavily from the productive capacity building framework for least developed countries developed by the UN-ORLLS in the *State of Least Developed Countries Report 2013* (UN-OHRLLS, 2013a). The discussion focuses on particular elements of the framework that are especially pertinent for the case of LLDCs. Seven main pillars of the strategy are emphasized: infrastructure; productive resources (natural resources, human capital); private sector development; regional integration; financing; science and technology; institutions, policies and regulations (Figure 7). These pillars interact in a complex fashion in such a way that successful implementation of each pillar of the strategy depends and determines the success of implementation of the other pillars.

Figure 7: Framework for Building Productive Capacities to Enhance Structural Transformation in LLDCs

Thematic Pillars	Key Intervention Areas	Outcomes
Infrastructure	• Infrastructure development and maintenance in LLDCs and transit neighbours • Complete missing links connecting LLDCs and transit countries • Improve intermodal connectivity	• Reduced transport and transaction costs • Increased trade competitiveness and revenue for traders
Productive resources (natural and human)	• Utilise resource endowment to develop a base for sustained economic growth • Develop appropriate human capacity	• Maximised synergies between primary and secondary/ tertiary sectors • Increased ability to attract FDI
Private sector development	• Develop a vibrant and dynamic private sector, especially SMEs • Create industrial clusters • Attract more diversified FDI • Promote Public-Private Partnerships	• Export growth • Technology transfer • Employment creation
Regional integration	• Opening up markets • Ensure sound cross-border political relations with transit countries	• Expansion of market access • Reduced transport and transaction costs • Increased competitiveness
Financing	• Mobilize adequate domestic and external (ODA and aid for trade) resources • Refocussing resources towards, inter alia, infrastructure needs, establishing and maintaining effective transit transport systems and integration into the global economy	• Reduced transport and transaction costs • Increased participation of LLDCs in global trade
Science and technology	• Diversify production and export structures by increasing value addition • Develop industries (e.g. manufacturing and service sectors), which are less affected by transport costs relative to value of goods • Encourage FDI in high-value sectors	• Reduced dependency on low value primary commodities • Increased competitiveness and revenue for producers • Structural economic transformation attained
Institutions, policies and regulations	• Implementation of harmonised, simplified and standardised rules and documentation, between LLDCs and transit countries	• Reduced travel time along corridors • Reduced port and border delays • Reduced transaction costs

Thematic Pillars

4.1 Infrastructure

> Good roads, canals, and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon a level with those in the neighbourhood of the town. They are upon that account the greatest of all improvements.
> - Adam Smith, **The Wealth of Nations** (chapter 11).

A key pillar of the strategy for productive capacity building in LLDCs is the development of infrastructure and associated services. While infrastructure is critical in all developing countries, in the case of LLDCs it is especially essential for alleviating the specific constraints due to remoteness. In particular, an efficient infrastructure base helps reduce the production and trade costs, which enables firms in LLDCs to competitively integrate into global markets. Good infrastructure contributes to raising the returns to capital, which helps boost domestic investment while attracting foreign capital. At the regional level, a good infrastructure network helps develop network economies and transform the region into an engine of growth and development.

As shown in Section 2, the infrastructure network in most LLDCs exhibits structural weaknesses both in terms of quantity or inadequate supply as well as quality or efficiency. Designing a strategy for developing productive capacity therefore entails a detailed examination of the weaknesses and potential strengths of each element of the infrastructure network so as to establish measures to alleviate these weaknesses and harness existing potential. Figure 8 summarizes the main issues and weaknesses of the key dimensions of infrastructure in LLDCs. While the identified weaknesses naturally present challenges for these countries, they also represent opportunities for investment that can be exploited to mobilize domestic and external resources. This presentation is obviously general and does not apply to each single LLDC. Each country must undertake its own

Figure 8: Main issues and opportunities in productive infrastructure networks in LLDCs

Infrastructure		Issues	Opportunities
Transport	▸ Roads ▸ Rail ▸ Ports ▸ Air freight	• National level: poor maintenance; ineffective linkage of markets and regions; • Regional level: poor boarder connections; Reliability of transit corridors • Geographical coverage; old; financial viability • Congestion; lack of hubs • Expensive due to low-value exports	• Expanding national networks; Improving regulation of transit corridors • Repairing existing networks; expanding coverage • Developing regional ports • Improving regional connections
Energy	▸ Generation ▸ Transmission	• Low generation; reliability • Weak coverage in rural areas; waste on transmission networks	• Diversify sources - renewable energy potential (solar, hydraulic, wind) • Private sector involvement and public sector utility reforms • Increasing coverage in rural areas
ICTs	▸ Fixed telephone ▸ Mobile telephone ▸ Internet	• Low coverage; cumbersome regulation • Weak connectivity • Low coverage; low speed	• Multiple uses beyond communication (e.g., mobile banking) • Overcome geographical remoteness
Agriculture infrastructure	▸ Irrigation infrastructure ▸ Soil fertility conservation infrastructure	• Irrigation infrastructure • Soil fertility conservation infrastructure • Unexploited hydraulic capacity • Inadequate prevention of degradation of arable land • Weak coverage in rural areas; financing agriculture infrastructure; gender mainstreaming	I• ntegrating infrastructure with agricultural policy • Integrate nature conservation and soil protection Integrate science and technology
Social infrastructure	▸ Health ▸ Education	• Health facilities in rural areas; poor quality • Universal education; education of girls and women, shortage of science and technology infrastructure	• Expanding coverage • Expanding physical space; expanding technology and science infrastructure

specific diagnostic analysis of the infrastructure network in order to design appropriate intervention strategies to increase both the capacity and efficiency of infrastructure at national and regional level. Note that while the discussion typically focuses on 'productive infrastructure', social infrastructure – such as education and health infrastructure – is also critically important for building productive capacity in LLDCs. In particular, social infrastructure is essential for human capital development, which is an important factor of productive capacity.

4.1.1 Transport infrastructure

At the domestic level, the challenge is to identify priority infrastructure given limited resources and urgent development goals. For LLDCs, transport infrastructure is a critical element of the infrastructure network given their remote position relative to the sea. This includes roads, rail, and air freight. The road network includes both national roads as well as the transit corridors linking the LLDCs to the sea. The main challenge regarding the road infrastructure is that LLDCs depend not only the capacity and quality of their own roads but also on those in neighboring and transit countries. Thus the policy for improving the road network involves a major dimension of cooperation.

The primary alternative mode of transportation besides roads is rail. Relative to road transport, rail has important advantages including lower tariffs, shorter transit time, and more reliable transit time. The low tariffs of rail transport are especially advantageous for LLDCs which predominantly export goods with low value to weight ratios such as raw material. The potential of this mode of transportation remains underexploited in most developing regions due to inadequate infrastructure, poor conditions of existing rail, and low traffic. The low traffic makes the maintenance and operation of some railroads financially unstainable. However, there are important reasons to maintain rail routes even when they have low rates of return. For one, this enables LLDCs to avoid the disadvantages associated with the monopoly of single road corridors including high costs and risks of interruption due to political instability and technical problems. Moreover, most LLDCs are situated at long distances from the sea, which should justify the high terminal costs which are compensated by the lower en-route costs compared to road corridors. The challenge is to mobilize sufficient investment capital in the rail sector to harness its potential. As this agenda involves multiple stakeholders, success requires a regional approach and a coordinated response by LLDCs as well as their neighbors and transit countries.

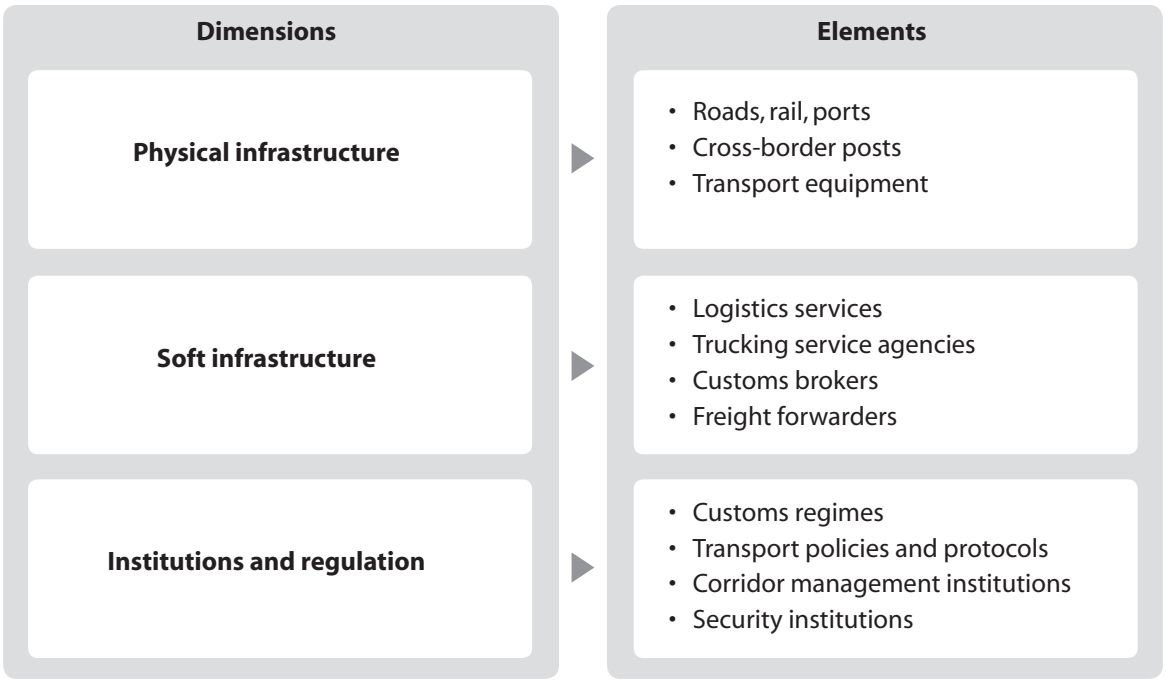
The second alternative transport infrastructure, air freight, is the least developed in LLDCs where very few have national air carriers. Thus connectivity within continents remains low, especially in Africa. While air freight reduces transit costs, it requires high value to weight ratios for the goods to be transported. It is therefore not practical for exporting primary products. Hence it is not an immediate priority for the transport strategy for most LLDCs.

Importance of the transit systems

A key feature of the transport infrastructure for LLDCs is their reliance on transit systems that fall outside of their direct control. A transit system can be defined as "the infrastructure, legal framework, institutions, and procedures serving trade corridors, seen as a whole" (Arvis et al., 2011, p. 7). It comprises the hard infrastructure, soft infrastructure, institutions and policies that facilitate the provision of services enabling the movement of goods across borders. Figure 9 summarizes the structure of transit systems.

The complexity of transit systems implies that action has to be engaged at various levels. A transit system is as efficient as its weakest link. This puts a heavy premium on coordination among countries and all the involved players in the public sector and the private sector. In light of the evidence presented earlier in this report, the focus of action should be especially on improving the maintenance of hard infrastructure, increasing efficiency in border crossing, promoting and enforcing competition in the trucking industry, and reducing corruption in the public sector, especially by eradicating informal charges incurred by trucking service providers.

Figure 9: Structure of transit systems



4.1.2 Energy infrastructure

In addition to transportation infrastructure, LLDCs also face severe constraints due to inadequate infrastructure in the energy sector. As shown earlier (Table 1), the problem is especially severe for LLDCs in Africa. LLDCs face problems ranging from generation, to transmission, to utilization of electricity. Because power generation has not kept pace with the expansion of urbanization and industrialization, these countries experience severe excess demand for electricity, resulting in frequent and costly power blackouts and rationing of electricity. This forces enterprises to invest in private fuel-powered generators, which are both costly and bad for the environment.

The shortage of power supply constitutes a severe constraint on economic diversification as it raises production costs. Thus for instance, the development of domestic processing of natural resources – both mining and agriculture – is hindered by inadequate power supply to transformation and storage facilities. As a result, LLDCs are unable to compete in moving up the value chain in the natural resources and agricultural sectors. Another challenge in the power sector is inefficient transmission and utilization of electricity, resulting in high wastage of power between the generation point and the end user. Therefore, in addition to scaling up power generation, LLDCs also need to scale up efforts to improve efficiency in the transmission and utilization of electricity and facilitate enhanced structural transformation.

Information and communication technologies (ICTs)

With regard to information and communication technologies infrastructure, while there has been substantial improvement in access to mobile telephony over the past two decades, much less progress has been recorded in the case of fixed telephony. In fact mobile telephony has enabled people in LLDCs to leapfrog in the area of telecommunication, thus enabling rapid penetration of telecommunication services in the rural areas.

Internet usage also remains low in LLDCs. It is nearly absent in the rural areas. In addition, even when it is available, the internet is slow, unreliable, but still expensive relative to the purchasing power of the population in these countries. Moreover, a major constraint to the expansion of information and communication technologies infrastructure and services is the shortage of power supply. This underscores the critical importance of power generation and transmission for building productive capacities in LLDCs.

4.2 Productive resources

4.2.1 Natural resource management

Some of the LLDCs are among the top resource-rich countries in the world, including Botswana which is the second diamond producer accounting for 25% of the world production, Kazakhstan and Chad which are among leading producers of oil and natural gas (see Table 12 for a classification of LLDCs by resource endowment). Others have substantial reserves, and although they may not rank high on a global scale, they are in fact resource dependent[6] in the sense that natural resources represent a large share of their exports of tangible goods. Some LLDCs are heavily dependent on agricultural products for example: Burkina Faso – cotton; Burundi – coffee, tea; Ethiopia – coffee, tea; Malawi – tobacco; Paraguay -– soy beans; Rwanda – coffee, tea; and Uganda – coffee. In that sense natural and agricultural resources are a vital part of the economies of most LLDCs.

Many of the resource-endowed LLDCs have recorded impressive growth rates during resource booms, especially during the period leading to the recent global economic crisis. However, these countries have failed to utilize their resource endowment to develop a base for sustained long-run growth and development. Growth remains erratic and subject to shocks to commodity prices. The resource revenues have not helped LLDCs to develop other activities outside the resource sector, which remains an island in these economies. In fact some resource-rich countries have been outperformed by resource-scarce countries, illustrating the 'resource curse' or 'paradox of the plenty'(Auty and Mikesell, 1998; Sachs and Warner, 1995, 1997)[7]. It is therefore urgent for LLDCs to establish a strategy for maximizing the gains from natural resource endowment. Such a strategy should be organized around three interrelated objectives: maximizing revenue accruing to the producing LLDCs with fair and equitable contracts; moving up the value chain in the resource exploitation process; maximizing synergies with and spillover effects on non-resource sectors. These are described in the following paragraphs.

Table 12: Mineral, oil and natural gas resource endowment of LLDCs

Oil and natural gas	Minerals	Mineral, oil and natural gas Resource-scarce
Azerbaijan	Afghanistan: wide variety*	Armenia
Bolivia	Armenia: copper	Bhutan
Chad	Azerbaijan: bitumous minerals	Burkina Faso
Kazakhstan	Bolivia: zinc	Burundi
Kyrgyzstan	Botswana: diamonds	Ethiopia
Mongolia	Central African Rep: diamonds	Lao PDR
Turkmenistan	Kazakhstan: copper, iron ores	Lesotho
Uzbekistan	Kyrgyzstan: gold	Macedonia
	Mali: gold	Malawi
	Mongolia: copper, gold	Moldova
	Tajikistan: silver, aluminum	Nepal
	Uzbekistan: copper	Niger
	Zambia: copper	Paraguay
	Zimbabwe: nickel	Rwanda
		Swaziland
		Uganda

Sources: Economist Intelligence Unit; UN Statistics Division.

Note *: According to the United States Geological Survey, Afghanistan has abundant mineral resources which are still underdeveloped. The key ones include copper, iron and gold. Source: http://pubs.usgs.gov/of/2007/1214/PDF/0.1-summary-FINAL.pdf

[6] The threshold for resource dependence is typically set at 25% of total exports

[7] Evidence from empirical studies suggests that the relationship between long-run economic growth and natural resources depends on other factors including institutions, management capacity, and the learning process (Stijns, 2005). Moreover, the issue is resource dependence, not resource endowment. The former is bad for growth whereas the latter is good for growth (Ding and Field, 2005).

Reaching the full potential of revenue generation from natural resources

To maximize revenue from natural resources, resource-endowed LLDCs need to follow a two-pronged approach: (1) maximize direct taxation of natural resource exploitation and trade; (2) maximize the government's share in resource rents. Resource-rich LLDCs and developing countries in general typically generate an unsatisfactory level of taxesw from natural resources, partly because of structural inefficiencies of the tax system[8], and partly because of tax avoidance and evasion by multinational corporations engaged in the exploitation and trade of natural resources[9]. Governments in LLDCs therefore need to both increase the efficiency of their own tax systems and combat tax evasion by MNCs in the natural resource sector (see Ndikumana, 2013 for some policy recommendations in this area). Addressing tax evasion by multinational corporations (MNCs) is an uphill struggle for LLDCs for two main reasons. First, the major international corporations involved in natural resources enjoy substantial economic and political power and can influence or obstruct interventions by the tax authorities in both LLDCs as well their countries of origin. This enables MNCs to enjoy impunity for financial crimes. The second reason is the lack of a coordinated strategy at the international level against corporate tax evasion. Recent initiatives by the G8 and the OECD[10] are good steps in the right direction but they need to be scaled up and supported by strong political will from all the countries to succeed.

Moving up the resource value chain

Resource-rich LLDCs need to reform their production systems and move away from the traditional specialization in exports of low-value added natural resources and agricultural products. In this context, these countries need to build the capacity to increase domestic content of their natural resource exports. Increasing the processing of natural resources domestically not only increases export revenue, but also creates opportunities for job creation and spillover effects on other domestic activities. To achieve these goals, LLDCs need to increase investment in technical capacity and specialized know-how required for the transformation of natural resources and negotiation of contracts with MNCs engaged in the sector. Resource-rich countries should set up clear targets in terms of domestic value-added content of exports, percentage of domestic consumption of processed products that are manufactured domestically and public investment in capacity building in management of natural resources. These targets must be integrated into the overall national development strategy.

Leveraging natural and agricultural resources to achieve structural transformation

An important cause of the so-called resource curse is the failure of resource-rich countries to utilize the resource endowment to stimulate economic transformation. The resource curse is generally the outcome of two main phenomena. The first is that governments engage in pro-cyclical fiscal policy characterized by public expenditure booms directed to the non-tradable sector and skewed toward consumption rather than investment. The resulting growth surges fade away as commodity booms recede, while at the same time the non-resource sector is atrophied through the relative price effect. The second phenomenon is the decay of institutions which causes a waste of resources and undermines *private sector development* and non-resource industries in general.

The question then is: how can LLDCs utilize their resource endowment to stimulate economic transformation? To do so, they must design a strategy around three key pillars: reinvesting natural resource rents; contributing to domestic financial development; promoting private sector development with an explicit focus on the small and medium enterprise sector.

The first pillar amounts to maximizing the reinvestment of natural resource rents into other forms of capital and establishing enforceable formal rules that prevent the government from increasing recurrent expenditures during resource booms. Given that natural resources are non-renewable, the depletion from exploitation must be compensated by the creation of equally productive new capital. Thus the well-being of future generations is not compromised by excess consumption by the current generations; that is, the Solow-Hartwick rule (Hartwick, 1977; Solow, 1974, 1986).

The second pillar is the maximization of the contribution of natural resources to domestic financial sector development, especially the mobilization of long-term investment capital. Most resource-rich LLDCs have underdeveloped financial systems. This is both a cause and an effect of the fact that very little of the resource revenues are cycled in the domestic financial system. As little revenues from natural resources are intermediated in the domestic system, the natural resource sector contributes very little to financial sector development. One way to enhance positive externalities of natural resource exploitation on domestic financial systems is to provide incentives or even requirements for MNCs to retain some of their profits in the domestic financial

[8] See AfDB et al., (2010) and Ndikumana and Abderrahim (2010) for an analysis in the case of African countries.

[9] See Action Aid (2010) for an illustration of tax dodging by multinational companies and Ndikumana (2013) for a general discussion of the problem of corporate corruption and tax evasion including in the natural resource sector.

[10] This is 10. See OECD's recent report on measures to combat illicit financial flows from developing countries (OECD, 2013).

system as term deposits or other forms of financial assets. In turn, banks must be incentivized to intermediate these additional resources efficiently, especially by lending to productive and employment-generating sectors. This includes establishing funding mechanisms targeting small and medium enterprises especially in industry, agriculture and agro-business.

4.2.2 Human resource development

While there has been some progress since the turn of the century, developing countries in general still face substantial shortage in human capital at all levels of skills from semi-skilled to highly skilled labor. This is the result of a combination of inadequate investment in human capital as well as lack of alignment of the supply and demand sides of skills development. While, discussions on human capital have traditionally focused on formal schooling, in practice human capital development encompasses a wider range of channels through which the productive capacity of the labor force is acquired and enhanced. These include pre-labor market training, on-the-job experience, health and nutrition, and "early life investments" or investments in children. Thus the productive capacity building strategy must take this comprehensive approach to human capital development in order to enhance structural transformation[11].

The productive capacity building strategy for LLDCs must emphasize human capital for a number of important reasons. First, developing human capital enhances the productivity of physical capital in all sectors. Therefore, increasing investment in human capital is an essential complement to investment in physical capital especially infrastructure. This enables LLDCs to reap the full benefits of increased physical capital in terms of higher growth.

Second, human capital development is an essential ingredient for innovation and technological progress, which are important drivers of economic dynamism and competitiveness. A skilled labor force is the engine for the discovery of new technology (invention) as well as the transfer and adoption of externally generated technology. Hence, the ability of LLDCs to "catch up" with emerging and advanced economies is conditional on sustained investment in human capital. LLDCs must give equal attention to both quantitative acquisition of skills and the quality of skills generated through human capital investment. Thus targets for human capital development must include both quantitative and qualitative indicators of skills development and skills adequacy relative to labor demand implied by a dynamic and globally integrated economy.

Third, investing in human capital is an important tool to reduce social inequalities through improved social mobility. LLDCs must therefore aim to establish and develop systems of access to education and other forms of skills acquisition that are equitable and affordable for all social groups. Social mobility is a key ingredient for social stability, which in turn is essential for sustainable development.

Lastly and very importantly, human capital development is critically important for LLDCs to help alleviate the disadvantages of remoteness. A strong human capital base will enable these economies to develop production systems that are technology intensive, highly productive, diverse, which will help them (1) increase the technology content of their exports, (2) increase the value-weight ratio of their exports, (3) gain market share in the service industry that relies on skills and technology, (4) use more rapid means of transportation of their exports. Moreover, LLDCs need to put emphasis on linking the supply and demand side of skills development even more than their non-landlocked counterparts because they need to do more to retain their skilled labor and contain the brain drain. In other words, LLDCs not only have to do all that other developing countries need to do in human capital development, but they also have to do it better to gain and maintain a competitive edge to make themselves attractive to their own skilled labor as well as foreign skilled labor.

[11] One of the limitations of empirical research linking growth to human capital has been the focus on schooling as a measure of human capital. In addition to the fact that it is difficult to find comparable measures of schooling (one year of schooling does not carry the same skills content everywhere), there are also other channels of skills acquisition, which are (even) harder to measure and operationalize in empirical research. For a recent review of these issues and additional references on the topic, see Hanushek (2013).

4.3 Private sector development

Developing a vibrant and dynamic private sector is an indispensable element of the productive capacity building strategy for all developing countries in general and for LLDCs in particular. The private sector is the main driver of diversification of the production system through innovation and entrepreneurship. In particular, it is essential for developing the industrial and manufacturing sectors, which have traditionally lagged behind in LLDCs as documented in the previous section. The development of the private sector requires a comprehensive strategy aimed at reducing production and trade costs, ensuring protection of property rights, and creating an overall conducive business environment. Investment in physical and soft infrastructure, increasing the quality of human capital, facilitating access to long-term investment capital, and stable and transparent institutions as suggested in the framework on building productive capacities to enhance structural transformation, may help achieve these goals.

The private sector plays an even greater role in the case of LLDCs. It is a vital partner to the public sector in the operation of the transport system that links these countries to global markets. In particular, the private sector is responsible for utilizing and managing transit systems between LLDCs and sea ports. While the public sector is responsible for building hard infrastructure such as roads, ports, airports, and others, these are utilized by private operators such as trucking companies, forwarders, air freight careers, and others. Thus, the returns to public infrastructure are heavily dependent on the extent to which the private sector is enabled and incentivized to utilize them.

4.4 Regional integration

As recognized earlier in this report, LLDCs are highly dependent on their neighbours' infrastructure; the political relations with neighbours; political stability in the neighbouring and transit countries; and the quality and effectiveness of administration in the neighbouring and transit countries. Similarly, the VPoA emphasizes that close cooperation with the transit countries is a sine qua non for improved connectivity in transport, energy, and information and communications technology. The costs of reaching international markets for LLDCs do not depend only on their geography, policies, infrastructure and administration procedures, but also on those of neighbouring countries. As such, regional integration through development of regional transportation networks, improved trade facilitation, greater intraregional trade, common regulatory policies, border agency cooperation, harmonized customs procedures to expand regional markets and strengthened connectivity is critical for building productive capacities in LLDCs.

During the implementation of the APoA, notable progress was made in reviewing regulatory frameworks applicable to transit transport and trade to eliminate inefficiencies and non-physical barriers to cross-border transport and to improve connectivity. In addition, many LLDCs in collaboration with transit developing countries made efforts towards streamlining and standardising border facilities and procedures to increase efficiency and reduce delays. There was also increased establishment, adoption and implementation of regional and sub-regional transit facilitation agreements.

Although considerable progress had been achiewved during the implementation of the Almaty programme over the past decade, there remains much more work to be done in order to fully address the special needs and problems of the LLDCs. Improving the physical transport infrastructure and closing the infrastructure gap requires forging sub-regional and regional cooperation on infrastructure projects, strengthening national budgets and international development assistance, and enhancing the role of the private sector in infrastructure development. LLDCs need to exploit the potential regional integration benefits of increased intra-regional trade and intra-regional foreign direct investment, increased market size and access to regional and global value chains and increased connectivity to regional energy and ICT networks. Furthermore, all LLDCs should accede to key international conventions and agreements in order to significantly reduce transaction costs and facilitate trade[12]. At the moment, accession to these conventions is low (as evidenced in Table 13) despite the efforts of the UN system, in particular UN-OHRLLS and ECE, in encouraging LLDCs to accede.

[12] There are over 50 UN conventions on international transport and trade facilitation. Seven of them are especially relevant as they provide at least the minimum level of international harmonization to transit trade and border crossing for LLDCs as identified by UNESCAP in its resolution 48/11. There are other relevant international conventions such the Revised Kyoto Customs Convention (1999).

Table 13: Status of accession to or ratification of select United Nations Conventions by LLDCs and transit countries as at 30 June 2014

Convention	Number of LLDCs	Number of transit countries
Convention on Road Traffic (1968)	13	12
Convention on Road Signs and Signals (1968)	8	9
Customs Convention on the International Transport of Goods under Cover of TIR Carnets (1975)	11	5
Customs Convention on the Temporary Importation of Commercial Road Vehicles (1956)	6	3
Customs Convention on Containers (1972)	6	3
International Convention on the Harmonization of Frontier Controls of Goods (1982)	11	3
Convention on the Contract for the International Carriage of Goods by Road (1956)	10	2
International Convention on the Simplification and Harmonization of Customs Procedures, as amended (1999)	14	15

Sources: UNECE, Summary List of International UNECE Transport Agreements and Conventions[13]; WCO, List of the Contracting Parties to the Revised Kyoto Convention[14]

4.5 Financing productive capacity building

The shortage of investment capital constitutes one of the critical constraints to LLDCs' ability to address the other constraints to growth such as lack of inadequate infrastructure and shortage of skilled labor. Financial systems in LLDCs as in most developing countries have not contributed to promoting productive capacity due to various structural inefficiencies. In particular, the cost of credit is high due to high interest rates and non-interest costs. Moreover, credit is skewed on the short end of the term structure, which is a constraint to long-term investment in the private sector. In the supply of credit, banks tend to ration against productive sectors such as industry and agriculture, which happen to be the most important drivers of growth and employment creation[15]. Access to credit is especially limited for micro, small, and medium-sized enterprises (MSMEs) although these are in fact the real "engines of rural growth" (World Bank, 2008). Even when MSMEs can access credit, they incur exorbitant costs. Effective borrowing costs can be as high as 25% even when advertised interest rates range from 8% to 12% (World Bank, 2008). The high borrowing costs are a result of both supply-side factors (e.g., lack of competition in the banking sector) and demand-side factors (e.g. lack of collateral and high correlated risk of activities in these sectors).

Financing productive capacity building in LLDCs requires refocusing financial policies to develop financing institutions and instruments that meet the needs of the private sector and especially those of the rural sector. The strategy should be organized around three main pillars: infrastructure-focused finance; specialized agricultural and rural finance; and SME and informal sector friendly finance.

Infrastructure financing

Alleviating the disadvantages associated with remoteness requires scaling up investment into infrastructure with the special focus on transport infrastructure and networks, energy and telecommunication. With regard to transport, the challenge is that a substantial fraction of the transport infrastructure lies outside of individual LLDCs' territorial boundaries. This implies that the strategy for financing transport infrastructure in LLDCs comprises a major regional dimension. Regional infrastructure falls in the domain of 'regional public goods' which are typically difficult to finance because the gains are non-excludable. This puts a heavy premium on coordination and political dialogue between LLDCs and transit states. Given the nature of the regional infrastructure, LLDCs need strong support from regional financial institutions as well as international development financing institutions to mobilize both public and private capital. While this constitutes a challenge for the donor community, it is also an opportunity given the potentially high returns to investment in regional infrastructure in terms of promoting growth, employment creation and poverty reduction in landlocked and transit countries.

[13] Source: http://www.unece.org/trans/conventn/legalinst.html

[14] http://www.wcoomd.org/en/topics/%20facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv/instruments.aspx

[15] A study on Burundi found that agriculture received less than one percent of total bank credit during 2000-08, while industry accounted for a mere 2 percent (Nkurunziza et al., 2012). In the same period, agriculture accounted for over 40 percent of GDP and employed 84 percent of the population.

Financing power generation and transmission also requires innovative strategies, especially to incentivize private financing. The generation of power requires large-scale investments which often exceed the financing capacity of individual governments in LLDCs, including domestic revenue and external borrowing capacity. Thus, governments in LLDCs need to find ways to attract private financing into the energy sector. In addition, investments in the energy sector are risky and of long term gestation, which also discourages private investment. Therefore, the strategy to scale up financing for power generation must consider measures to reduce investment risk in the sector including through guarantee mechanisms and public-private partnerships.

Financing agriculture and rural development

In addition to transport infrastructure, LLDCs need to channel more financing into agricultural infrastructure. The strategy must take into account the specialized nature of agricultural infrastructure as well as its wide scope which includes irrigation, conservation, and preservation infrastructure which are all vital to increasing productivity as well as reducing post-harvest waste of agricultural output.

LLDCs also need to design effective mechanisms for increasing access to finance in the rural areas which are the sources of livelihood for the majority of their population. As the World Bank's *Investment in Agriculture Sourcebook* puts it, "constraints to agricultural development are many". Access to financial service is only one response to these constraints, but improvements in the provision of – and access to – financing for agriculture can meet a range of needs, and it can be critical to the success of agricultural development programs" (World Bank, 2011)[16]. Increasing access to finance for the rural sector and agriculture requires doing things differently because of the special features of the economic activity in this sector (World Bank, 2011)[17]. In particular, financing agriculture must confront the following realities: high and interrelated covariant risks due to fluctuations in production and prices; dispersed demand for financial services in the majority of LLDCs where population density is particularly low; high information and transaction costs for financial service providers; seasonality of agricultural production; and lack of usable collateral. Given these specific features and needs of the agricultural sector, it is important to adopt a tailored approach to promoting access to financial services in the rural sector. In particular, the approach must include the following: integration of financial policy and agricultural policy; designing a special model of financing for small holder farmers, which includes flexible repayment conditions to match production and income cycles as well as investment term structure in the rural area; protecting the poor and minimize the risk of financial distress due to borrowing beyond capacity especially for farmers at the very bottom of the income pyramid.

Access to finance for SMEs and the informal sector

SMEs and other informal sector operators are often characterized by a lack of stable income flow; lack of collateral; and weak entrepreneurial capacity. These constraints and the relatively high and correlated risk of their activities pose challenges to the standard market based financial intermediation. Meeting the financing needs of SMEs and the informal sector therefore in general requires credit schemes that are flexible and accompanied by programs that help to build entrepreneurial capacity for informal sector operators. More broadly, inclusive finance and an expansion of access to affordable and responsible financial products and services to poor and vulnerable populations (UNSGSA, 2013) is critical in LLDCs. Such financial services involve a wide range of financial products including credit, savings, insurance and payments, which can help people improve their income and welfare. In other words, financing the informal sector requires addressing supply-side problems (from the lender's perspective) as well as demand-side problems (on the borrower side).

4.6 Science, technology and innovation

Science, technology and innovation are important drivers of economic dynamism and determine both the level and trend of productivity in an economy over time. They are therefore critically important for the ability of a country to both harness its physical and human resource endowment as well as compete in the global economy.

In the case of LLDCs, science, technology and innovation have an even more vital role than in other developing countries. This is because technology and innovation can help LLDCs overcome structural constraints due to remoteness. First, by investing heavily in the development, transfer and absorption of technology and by fostering innovation, LLDCs can move up the value chain faster and increase the share of high-technology content output in their total production. This in turn enables them to reduce the cost of bringing their products to remote markets thanks to a higher value to weight ratio. As indicated earlier, most exports from LLDCs are still dominated by low-value primary products and have very low technology content (see Table 9). This is an illustration of the lack of dynamism in these economies.

[16] World Bank (2011) Investing in Agriculture – Sourcebook. Module 8, page 2.

[17] World Bank (2011) Investing in Agriculture – Sourcebook. Module 8, page 1.

Second, science and technology are also critical for the development of efficient transportation networks that can enable LLDCs to connect to global markets more effectively and less expensively. Mastering science and technology is important for not only building efficient transport systems, but also for maintaining them.

At the moment, LLDCs are at the bottom of the scale in terms of science and innovation and in the capacity to generate, transfer and absorb new technology. But this can be turned into a comparative advantage. Indeed, LLDCs can take advantage of their 'late comer' position in order to leapfrog to modern technology to drive their growth process. Because these countries do not have to invest in the discovery, testing, and application of new technology, they can apply the existing cutting edge technology to meet their needs. However, there are important constraints that may limit the ability of LLDCs to leapfrog. The first constraint is the high cost of technology acquisition due to protectionist practices enforced through rigid intellectual property rights and patents. The second constraint is LLDCs' own limited capacity to acquire and adapt technology to their needs and circumstances. It is for this reason that LLDCs must establish science, technology and innovation as their cornerstone of their human capital development strategy. Moreover, science and technology must be mainstreamed into sectoral policies, especially agriculture and manufacturing sector strategies (see Juma, 2011 for a discussion in the case of agriculture). At the same time, it is critically important to insure close interactions between the generation of science and technology in knowledge institutions and their application in the real sectors such as agriculture and the manufacturing sector. Traditionally these interactions have been ineffective, resulting in minimal gains from government investment in science and engineering. The most visible case is agriculture where even when countries have invested in scientific research there has been little impact on agricultural productivity (Juma, 2011). In fact as indicated earlier, agricultural productivity has been declining over the past three decades in the majority of LLDCs.

There are two channels through which LLDCs can acquire technology (Isaksson and Ng 2006). First, they can domestically produce knowledge through research and development. To make this possible, LLDCs need to establish clear and consistent national policies on research and knowledge generation with effective mechanisms for incentivizing private creativity and innovation, rewarding excellence in science and technology and protecting scientific and technological rights while preventing counterproductive monopolization of knowledge. The second mode of acquisition of technology is through international exchange including through trade and foreign direct investment. In this regard, LLDCs need to explore formal agreements for exchange of technology and encourage trade and foreign direct investment that promote value addition to natural resources and that fosters the creation and expansion of activities outside of the natural resource sector. This may be achieved by providing fiscal incentives and credit facilities to domestic and foreign investors who are engaged in activities with demonstrated high value content and high technology intensity. In addition, development partners should contribute to the efforts of LLDCs by sharing innovative technologies, scientific knowledge and technical know-how, and best practices as agreed in the VPoA.

To make science, technology and innovation a major driver of their productive capacity building strategy, LLDCs need to substantially reconfigure their national policy frameworks in order to mainstream science, technology, and innovation. In particular, such reconfiguration involves interventions around the following dimensions (UN-OHRLLS, 2013b):

- increasing the share of science, technology, engineering and mathematics (STEM) in the formal education system in terms of increased budgetary allocations, infrastructure, and enrollment;
- increasing opportunities for continuing education in science and technology;
- creating science and technology networks involving researchers, trainers, farmers and industry;
- increasing the high-technology content of exports;
- increasing the share of foreign direct investment that promotes technology transfer, infusion of knowledge and technology in the domestic economy and moving up the value chain in production;
- increasing the share of foreign direct investment going to activities with high local labor intensity.

To design and implement a productive capacity strategy driven by science and technology, LLDCs need strong support and cooperation from the international donor community – both the public sector as well as private players. Private investment cannot suffice to finance science and technology especially given the public-good nature of technology and innovation. For this reason, it is critically important to mobilize sufficient public investment through both general government budget as well as dedicated funds for science and technology. Besides scaling up financing for technology, the global community must commit to avoiding all forms of protectionism against technology acquisition and transfer. In particular, they should support flexible use of intellectual property rights especially when such flexibility directly or indirectly benefits LLDCs and developing countries in general. The promotion of science and technology transfer should feature prominently in all new global strategies aimed at supporting growth and sustainable development in LLDCs. In this regard, the promotion of science, technology and innovation should be a key pillar of the post-2015 development strategy.

4.7 Policies, regulation and institutions

The last pillar of the productive capacity building framework for enhancing structural transformation in LLDCs consists of the set of policies, regulation and institutions that enable and facilitate the implementation of the other pillars of the framework. In other words, the ability of LLDCs to develop their productive capacity hinges on the establishment of the right set of policies at the macro and sectoral level, an effective regulatory system and a set of institutions that stimulate and support the functioning of a dynamic private sector and provide a foundation for a socially and politically stable environment. These elements are briefly described below.

Macro and sectoral policies

Drawing on the experience over the past several decades, it is clear that economic policies in LLDCs will need to be substantially reconfigured, especially at three important dimensions. First, at the macro level, LLDCs need to move away from the tradition of macroeconomic policies designed to "do no harm" and instead adopt *developmental macroeconomic policies* that are flexible and aimed to achieve real development goals beyond the traditional narrow goals of price stability. Under the new scenario, macroeconomic policies must be conceived and used as tools for industrial policy and productive capacity building. To achieve this objective, LLDCs need to rethink their macroeconomic policy orientation with three key important features in mind: a broad mandate, real targeting, and flexibility. They must overcome the tradition of confining macroeconomic policy to short-run goals of macroeconomic stabilization. Thus the mandate of macroeconomic policy should be broadened to include short term as well as long term goals, and the set of targets should be expanded to include *real targets* corresponding to national developmental needs. Specifically, while the pursuit of price stability will remain an important goal, macroeconomic policies must also be used as tools for employment creation and growth, which in the past have taken a second order of importance relative to inflation.

With the reconfigured macroeconomic policy framework, LLDCs will need to expand their tool kit to match the expanded set of goals. Thus, in addition to standard tools of macroeconomic policy, they must exploit the full potential of financial and credit policies especially to reduce the costs of investment capital through low long-term interest rates. This will help to mobilize long-term investment capital into infrastructure, especially transport, energy and telecommunication, and other key employment-creating and growth-driving sectors including the manufacturing, small-holder agriculture sector, and small and medium enterprises.

The second innovation in policy design is to establish more systematic synergies between macroeconomic policies and sectoral policies. Traditionally these two sets of policies have been designed and implemented in near complete isolation. Yet, the success of sectoral policies requires a supportive macroeconomic environment. On the one hand, a restrictive macroeconomic stance, which is typically achieved through contractionary interest rate and fiscal policies, ultimately hinders domestic investment and constrains the mobilization of long-term investment capital for the development of infrastructure, agriculture and industrialization. On the other hand, loose macroeconomic policies characterized by monetary financing of excessive government consumption is also a constraint to productive capacity building as it maintains high macroeconomic uncertainty and undermines the mobilization of long-term investment capital. LLDCs need to shift to a new policy framework where macroeconomic policies are explicitly conceived to induce and facilitate the channeling of resources into strategic economic activities such as export oriented manufacturing as well as infrastructure and agriculture.

Third macroeconomic and sectoral policies must be conceived as tools to stimulate industrial policy for structural transformation. Thus, in each LLDC, the setting of goals and targets should be guided by careful examination of the country's endowment from a dynamic comparative advantage perspective. The success of LLDCs in reaching higher and more sustainable growth hinges fundamentally on their ability to initiate and sustain a process of structural economic transformation. Economic transformation must be embedded into and constitute the ultimate goal of all strategies and programs at both macro and sectoral levels. Increased value addition and economic diversification are key to such structural economic transformation. Ultimately, improving the manufacturing capacity of landlocked developing countries — including their contribution to regional and global value chains — can achieve the triple objective of creating better-paying jobs, increasing revenue and reducing the bulk of their primary export (Vienna Programme of Action, 2014).

Institutions and regulation – national and regional dimensions

One of the key prerequisites for the success of any development strategy is the existence of a set of efficient institutions and a regulatory framework that create an incentive structure that promotes predictability, transparency, accountability, responsible risk taking, and efficiency in both the private and public sector. This is true for both developed and developing countries. But the premium on efficiency of institutions and regulation is even higher in the case of LLDCs. This is because in these countries more than in non-landlocked countries, there is a higher premium on the efficiency of the public sector in the provision of public

goods (infrastructure), a higher premium on effective interaction between the public sector and the private sector, and a higher premium on coordination of policies across countries (i.e., between the LLDCs and transit states). Therefore efforts to improve the institutional and regulatory framework must be exerted simultaneously at the national and regional level.

While all areas and sectors of economic activity require and benefit from efficient institutions and regulation, this report puts a particular emphasis on the case of the transport sector in the case of LLDCs. This is the sector that exemplifies the particularity of LLDCs regarding the three premiums stated above. At the national level, governments in LLDCs must build infrastructure that is reliable and efficient. In addition to having effective planning and execution of public infrastructure budgets and programs, this also involves incentivizing public-private partnerships in the financing and management of public infrastructure. At the same time, LLDCs must establish institutions and a regulatory framework that encourage optimal utilization of the public transportation infrastructure by private operators. Indeed, while it is important to build infrastructure, it is also vital that this infrastructure generates trade and other new economic activities. Roads and railways are good for growth only if there are trucks and trains riding on them. While the public sector builds infrastructure, it is actually the private sector that utilizes them. It is therefore important to have an institutional and regulatory environment that incentivizes dynamism in the private sector.

At the regional level, LLDCs must engage in effective negotiation and coordination with their neighbours and other countries along transit corridors. Managing transport corridors is especially difficult because of the fact that they require complex institutional and operational structures; they involve many parties including multiple stakeholders, notably governmental agencies, transport companies, logistics service providers and trade agencies; thus it is often difficult to agree and establish a single point of coordination; and they involve multiple sources of funding. The multiplicity of funding sources is especially important because it increases the premium on coordination (among corridor members and among funders). This coordination problem often results in underfunding due to the 'regional public good' nature of the infrastructure and costly delays in disbursement of allocated funds.

As recognised in paragraph 17 of the VPoA, partnership between LLDCs and transit countries is mutually beneficial for the improvement and constant maintenance of their infrastructure connectivity and of technical and administrative arrangements in their transport, customs and logistic systems. Investing in efficient transit transport systems, strong collaborative efforts in multi-modal transport infrastructure development and interlinkage, the promotion of an enabling legal environment and institutional arrangements, and strong national leadership on cooperative arrangements between LLDCs and transit countries are crucial for achieving structural transformation and sustainable economic growth and development.

Good institutions and effective regulation of transit systems and transport corridors are also essential for ensuring competitiveness in service provision which keeps costs low. Indeed, lack of competition in the trucking industry and related services is a major driver of the high transport costs observed in many corridors in developing regions. Moreover good institutions and especially good governance reduce the indirect costs of transportation associated with informal payments or bribery along the various nodes of the transport corridor.

Alongside its importance in facilitating the establishment, maintenance, and operation of regional transport corridors, effective regulation of transit corridors is also needed to maximize government revenue. A substantial number of private operators including trucking agencies, freight forwarders, and customs brokers are in the informal or semi-formal sector. As a result, these operators do not pay taxes despite the often high volume and profitability of their activities. This implies substantial revenue losses for the government. The ability of LLDCs to develop strong transport infrastructure at national and regional level therefore requires reform of the regulation of the transport sector to increase tax revenue mobilization by bringing into the tax net the majority of private operators.

In addition to not paying taxes, informal and semi-formal private operators in transit corridors are not adequately insured. This imposes risk on all parties involved with the transport of goods including equipment owners, as well as buyers and sellers of the transported goods. Improving regulation and better coordination of regulatory frameworks at the regional level are critically important for the safety of all stakeholders. It is important, however, to underscore that regulation must be aimed at facilitating movement of goods and must not impose unnecessary additional costs that may drive out effective private service providers in the sector.

5 Policy suggestions

The proposed framework for building productive capacities to enhance structural transformation in LLDCs focuses on seven pillars that are especially critical given the needs and circumstances of this group of countries. It is not intended to be exhaustive. In other words, there are several elements that are pertinent which have been deliberately left out. The objective is to focus policy on the priority factors that constitute the most binding constraints to productivity and growth in these countries so that unlocking those constraints will generate a substantial impetus on growth and structural transformation in these countries. However, even as selective as the design of the proposed strategy is, its implementation will require even further selectivity in focusing policy interventions. In this context this section presents some policy suggestions to guide action in the design and implementation of the proposed strategy. In simple words, if LLDCs and their regional and international partners cannot do everything to alleviate the structural constraints to productive capacity building, they will be served by focusing interventions on the elements described below.

5.1 Action at the national level

At the national level, governments in LLDCs need to put priority on alleviating the most binding constraints to productivity and trade. Given limited resources, each country must design its own specific short term and medium term plan for productive capacity building that is likely to generate both quick wins in the short term as well as substantial gains in the long run. While policy choices in this regard will be country specific, there are nonetheless common elements of the national strategy that apply to all LLDCs generally.

All LLDCs must *prioritise infrastructure* development and maintenance with a focus on hard and soft transport infrastructure, energy infrastructure, and information and communication technologies. This report emphasizes the fact that the various dimensions of the infrastructure network are interrelated and must therefore be developed in a coherent fashion. In particular, adequate supply of energy is critical for reaping the potential benefits that may arise from a strong transportation infrastructure, and it is essential for the development of the ICTs. Sufficient and low cost energy supply is needed to operate certain modes of transport systems, notably commuter trains. Moreover, adequate energy supply is critical for the diversification of economic activity, notably through moving up the value chain in agriculture and natural resource exploitation. Efforts at the national level must be at two fronts: mobilizing more resources, domestically and from external sources to finance infrastructure programs; improving governance in the infrastructure sectors to raise efficiency, reduce costs, and minimize waste (especially in the case of energy).

With regard to resource mobilization, LLDCs should consider developing dedicated financing instruments for infrastructure. One option is to design domestic-currency infrastructure bonds targeted at specific infrastructure programs such as roads, power generation, and ICTs. The saving capacity in LLDCs and in developing countries tends to be underestimated; and the banking system is not equipped or even incentivized to optimize domestic saving mobilization. Experience has shown that infrastructure bonds are a powerful means of mobilizing savings. Although Kenya is not an LLDC, its experience is revealing and can be emulated by LLDCs. In 2009, as part of its counter-cyclical policy program, the government of Kenya issued its first infrastructure bond to the tune of $232 million, which was oversubscribed by 45 percent (Brixiova and Ndikumana, 2013). The next two issues in the same year were twice oversubscribed. This goes to demonstrate the substantial untapped saving capacity in developing countries.

LLDCs need to scale up efforts in the area of *human resource development*. In particular, they need to focus on both the demand and supply side of human capital development. LLDCs have traditionally focused on quantitative measures of human capital development, namely raising enrollments and school completion rates. They have paid less attention to the demand side of skills vis-à-vis the needs by the production sector, resulting in deepening mismatch between supply and demand of skills, which is notably the primary cause of the growing youth unemployment in the developing world. Going forward, LLDCs need to redirect attention to closing the skills gap by increasing the connection between training and the needs of the job market. They specifically need to address the problems associated with the transition between school and work, notably through a restructuring of the curriculum in general education programs to include practical skills acquisition, and expanding technical and vocational education and training (TVET) programs. This will be supplemented by provision of opportunities for on-the-job training through collaboration between government and the private sector. The productive capacity building strategy therefore needs to go beyond the existing targets in education under the MDGs and include goals related to: transition from formal education to employment; integration of women in the formal labor markets; employment for skilled and unskilled youth; transition from TVET to employment; the share of TVET in the education system; partnership between government and the private sector in skills development.

Private sector development is critical for the success of the proposed strategy. Thus, LLDCs need to focus on creating an enabling environment for private business, and facilitating and incentivizing the channeling of financing into the private sector, including SMEs. In this regards, LLDCs need to strengthen targeted reforms that reduce the cost of doing business, improve efficiency of the legal and regulatory framework, and increase competition in the private sector. Evidence presented in this report demonstrates that reforms along these margins are fully in reach for all LLDCs provided commitment at the highest level.

The proposed development strategy required LLDCs to bring *science, innovation and technology* at the center of development policy in two ways: increasing acquisition of skills in science and technology; increase the connection between training and practice, and the diffusion of scientific knowledge into industry, agriculture and private sector activity in general. To achieve the first goal, LLDCs need to increase the intensity of teaching in science, technology, engineering and math (STEM) in secondary schools and higher education. The strategy will require both a scaling up of resources into the science and technology component of education both through reallocation of national budgets and mobilizing more public and private external support.

Finally, LLDCs must also focus on *improving policy coordination*, and most specifically, the coordination between a flexible and developmental macroeconomic framework on the one hand and strategic sectoral policies on the other hand. In this context, the LLDCs must be ready to challenge the orthodoxy and to withstand the pressure from the advocates of the status quo. These countries cannot afford a 'business as usual' approach to macroeconomic and sectoral policy making. They must embark on a course of policy design and implementation where goals and targets are selected on the basis of careful examination of national development goals as well as analysis of country specific endowment rather than ready made one-size fit all conventional models. Pursuing the latter route has certainly not served LLDCs well. At the sectoral level, the emphasis must be on promoting structural transformation notably through consistent and systematic increase in productivity in key sectors especially agriculture and the manufacturing sector. A key anchor to this structural transformation is the scaling up of investment in science and technology both in terms of domestic knowledge generation as well as transfer and domestication of imported technology.

5.2 Action at the regional level

More than in other developing countries, economic performance in LLDCs depends heavily on things that take place outside of their own territory. Their ability to alleviate the constraints associated with remoteness is contingent on their success in forging effective partnerships with their neighbours to establish and operate efficient links to global markets; i.e., regional transport corridors. In this regard, bilateral institutional arrangements as well as regional economic organizations serve as important frameworks for assisting LLDCs in driving their productive capacity building strategy especially in the area of transport infrastructure. The future of LLDCs is closely linked to that of their regional groupings. These countries have a high stake in the efficient functioning of regional economic organizations and therefore must take a leading role in consolidating regionalism.

Just like at the national level, efforts at the regional level must also be prioritized given the multitude of needs and limited resources. In this regard, LLDCs and their regional partners must establish a timeline for interventions in the key areas of infrastructure and trade facilitation. The key priorities should include: efficient maintenance of the existing physical infrastructure; building new or expanding existing regional infrastructure hubs (e.g., regional ports and transit facilities) to maximize financial sustainability through increased utilization; establishing regional funding mechanisms for regional infrastructure; establishing regional technical capacity building programs to provide the required skills to operate and maintain regional infrastructure networks and; harmonizing regulatory frameworks for infrastructure management and utilization; and ratification and effective implementation of relevant legal instruments.

5.3 Role of development partners

It is expected that the design and implementation of the productive capacity strategy to enhance structural transformation is primarily the responsibility of LLDCs. However, given their limited means, LLDCs also need strong support from their partners and the international community generally. As recognized in the VPoA, "the support of development partners is needed to complement the efforts of landlocked developing countries to establish and maintain effective transit transport systems, integration into the world economy, structural transformation of their economies and enhancement of their productive capacities". The VPoA further encourages the development partners to provide targeted technical and financial support to help LLDCs achieve the objectives identified in the Programme of Action.

Development partners can help leverage private investment by de-risking investments through among others, interest rate subsidies, upfront capital investment through ODA and blending of investments. Resources for investment in most LLDCs are predominantly foreign, with the main sources being ODA, FDI and remittances. Since the adoption of the Almaty Programme of Action, the development finance flows to LLDCs have continued to increase over the years. ODA has increased from $16.5 billion

to $22.6 billion from 2003 to 2012. FDI represents a major proportion of private capital flows and is considered to be the most stable form of foreign capital. During the implementation of the APoA, FDI increased from $8.9 billion to about $35 billion during the same period.

In the context of this report, the development partners need to provide adequate financing to support the key pillars of the capacity building strategy especially infrastructure, trade facilitation, human capital development and regional integration. The development partners should scale up its assistance for the development of regional public goods, especially transport corridors. This involves funding as well as technical assistance for the design, construction, maintenance and management of regional infrastructure. In this regard, regional development banks should play a leading role in mobilizing official development aid as well as playing a catalytic role in incentivizing private investment into regional infrastructure. At the same time regional development banks should lead the way in improving the aid frameworks for regional public goods. In particular, they should promote and advocate an increase in the share of funding dedicated to regional public goods while also championing more flexible modalities for the allocation and disbursement of aid for regional infrastructure benefiting LLDCs.

In addition, the development partners need to do much more to support LLDCs in their effort to reduce the technological divide and embark on a technology intensive path of economic transformation. Thus, collectively and individually, development partners must promote flexible rules and frameworks for access to information and technology in favor of LLDCs. They should elaborate rules for technology transfer that give preferential treatment to LLDCs which are systematically at the bottom of the innovation pyramid so as to enable them to slowly catch up with emerging and developed countries.

The international community can immensely help LLDCs' to structurally transform their economies by promoting more transparency and accountability in the global financial system for the specific purpose of curbing illicit financial flows from developing countries in general. This would not only help LLDCs keep their capital onshore, but it would also increase the effectiveness of foreign financing by sealing the 'revolving door' whereby borrowed funds often end up financing capital flight (see, among others, Ndikumana and Boyce, 2011).

Given the critical importance of trade for LLDCs, the international community can help these countries by promoting a fair global trading system. This will facilitate access to global markets for their exports and help them successfully integrate into the global economy. Thus the global dialogue on assistance to LLDCs must continue to accord a high place to trade facilitation and preferential market access for LLDCs.

South-South and triangular cooperation can also play a very important role in complementing the efforts of countries to raise public resources domestically. Such kind of cooperation can contribute towards areas such as transfer of technology and innovations, capacity building, provision of market access, increased investment and sharing of knowledge and best practices on issues relating to transit transport systems and trade facilitation.

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