ACCELERATING SDG 7 ACHIEVEMENT

POLICY BRIEF 14

ACHIEVING SDG 7 IN LANDLOCKED DEVELOPING COUNTRIES

POLICY BRIEF #14

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Developed by

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

In collaboration with

United Nations Industrial Development Organization (UNIDO)

Key Messages

There are 32 landlocked developing countries (LLDCs) with special development challenges due to their lack of access to the sea, remoteness, and isolation from world markets. They face high transit costs and difficult procedures in having to cross neighbouring transit countries, which themselves are often affected by similar economic and infrastructure challenges.

The average proportion of the LLDC population with access to electricity rose from 34.5 per cent in 2000 to 56.3 per cent in 2017, but with wide disparities between urban and rural areas, and between countries in Africa compared to those in Latin America and the Euro-Asia region.

Investments in renewable energy infrastructure, along with information and communications technology, are priorities for LLDCs in order to structurally transform their economies towards growth and sustainable development. The renewable energy share in total final energy consumption is close to 62 per cent. However, about 350 million people out of a total population of 500 million rely on biomass for cooking, underscoring the urgent need for improved access to clean and modern cooking energy.

In 2014 the UN General Assembly adopted the Vienna Programme of Action for LLDCs for the Decade 2104-2024 (VPoA), which stressed the importance of access to affordable, reliable renewable energy for economic development. A comprehensive high-level midterm review on the implementation of the VPoA will be held in December 2019, as a plenary meeting of the General Assembly.

Many of the LLDCs have adopted sustainable energy targets in the context of the Paris Agreement's Nationally Determined Contributions or other policy documents. However, despite growing investments over the past decade, sustainable energy markets have not reached economies of scale in LLDCs, and SDG 7 targets cannot be attained by 2030 in business-as-usual scenarios.

While fossil fuel technologies like diesel generators are widely available, the supply chains and logistics for sustainable energy technologies remain underdeveloped and they are often not available, lacking in quality or perceived as not mature enough. Moreover, the lack of a domestic renewable energy industry has led to severe sustainability and maintenance issues for energy projects in various LLDCs.

Many policies and programmes to promote sustainable energy focus on creating demand for products and services, and tend to ignore supplier-oriented actions to strengthen domestic innovation systems, productive industrial capacities and entrepreneurship. Therefore, the domestic and job creation effects along the value chain of sustainable energy investments (in manufacturing and distribution, project planning and development, construction and installation, operation and maintenance, and decommissioning and recycling) remain very limited. Equipment and services continue to be imported, further catalysed by export-driven donor programmes, and lack of business and sustainability models.
Since markets for sustainable energy products and services in LLDCs tend to be small and fragmented, there is a need for cross-country partnerships, cooperation, and integrated markets to address some of the existing demand and supply barriers for sustainable energy market development.

UNIDO, in partnership with various regional organisations and communities, launched the Global Network of Regional Sustainable Energy Centres (GN-SEC) Programme to create and operate sustainable energy centres. Through cross-border approaches and methodologies, the centres can complement and accelerate national efforts in the areas of policy and regulation, capacity development, knowledge and data management, and awareness raising, as well as increased and targeted investment, innovation, and entrepreneurship.

Action-oriented policy recommendations for Landlocked Developing Countries for the next 5 years to promote energy connectivity and energy security.

LLDCs and transit developing countries need to accelerate preparation of power projects (including renewables) and scale up projects on cross border inter-connectors to enable LLDCs experiencing power shortfalls to purchase power from neighboring countries and regional power pools to ensure energy security. The international community is called upon to provide technical and financial support to these efforts.

LLDCs and transit developing countries with support from their development partners should support expansion and upgrading of supply, transmission and distribution, infrastructure and increase investments in improving energy efficiency.

LLDCs should strive to improve transformational energy access that goes beyond meeting basic household needs but includes electricity for productive use that can transform the economies of LLDCs including through renewable energy mini-grids and off-grids.

LLDCs need to intensify the implementation of Rural Electrification Programmes to promote universal access to electricity. These can be funded through state fiscal mechanisms and by international and regional development aid.

It is important to urgently increase access to clean and modern cooking energy, in order to reach universal access to clean cooking by 2030.

LLDCs and transit developing countries with support from their development partners are encouraged to support creation of regional sustainable energy centres and their efforts to boost integrated and inclusive regional LLDCs markets for sustainable energy products and services through joint interventions in the areas of policy and standards, knowledge management, and capacity building, as well as promotion of investment, entrepreneurship, and innovation.

Encourage private sector participation in the development of country's energy sector, in a manner that promotes use of energy in productive sectors.

LLDCs need to strengthen sustainable energy entrepreneurship and innovation, including the promotion of women entrepreneurs.

The international community is called upon to provide technical assistance and capacity building support to strengthen the capacity of LLDCs to develop bankable project proposals in order for them to take full advantage of climate funding for energy projects.

The United Nations systems in particular UNIDO, OHRLLS, and UNFCCC should consider providing platforms and other practical measures to foster enhanced sharing of experiences amongst LLDCs on enhancing sustainable energy.

Landlocked Developing Countries and the Midterm Review of the Vienna Programme of Action

The **32 landlocked developing countries (LLDCs),** with a total population of 500 million, face development challenges related to their geographical disadvantages. Lack of territorial access to the sea, remoteness and isolation from world markets, multiple border crossings, cumbersome transit procedures, inadequate infrastructure and high transit costs continue to impose serious constraints on the overall socio-economic development of landlocked developing countries. Sustainable energy plays a particularly valuable role in helping LLDCs tackle these issues.

The deployment of sustainable energy technologies is considered as an effective tool to tackle economic productivity and competitiveness, energy security, energy access and affordability, and negative externalities of conventional energy systems (e.g., GHG emissions, local pollution) simultaneously and in an integrated way. Sustainable energy is also needed to support faster customs clearance, border crossing, and tracking of shipment that is in transit and other trade facilitation processes that are important for lowering trade costs. Investment in energy infrastructure, along with information and communications technology, is a key priority for LLDCs as it underpins the ability of LLDCs to structurally transform their economies. Furthermore, renewable energy will promote growth and sustainable development and help LLDCs transition towards a low carbon economy.

The importance of sustainable energy is clear. However, the LLDCs still face daunting challenges in achieving universal access to energy, energy efficiency, and in scaling up renewable energy production and use. While the average proportion of population with access to electricity rose from 34.5 per cent in 2000 to 56.3 per cent in 2017, wide disparities between urban and rural areas exist in LLDCs. Furthermore, about 350 million people rely on biomass for cooking, underscoring the urgent need for improved access to clean and modern cooking energy. Other challenges include: lack of adequate financial resources to invest in expanding access, improving efficiency and increasing renewables, capacity constraints in policy formulation and effective implementation, and regulatory institutions. Addressing these challenges is beyond the reach of governments alone.

In an effort to link LLDCs to global opportunities and accelerate their economic and social development, the United Nations General Assembly adopted in 2014 the Vienna Programme of Action for the LLDCs for the Decade 2014-2024 (VPoA). The VPoA has 6 clearly defined priorities and encapsulates a unified stance by the international community on a broad array of crucial issues. This includes concrete steps toward the structural transformation of LLDCs' economies and infrastructure development to improving international trade and bolstering regional integration and cooperation.

The VPoA stresses that energy infrastructure and access to affordable, reliable and renewable energy and related technologies are critically important for modernizing information and communications technology and transit systems, reducing delays and enhancing productive capacity to achieve sustained economic growth and sustainable development.

Additionally, the 2030 Agenda for Sustainable Development acknowledges that the most vulnerable countries, including LLDCs, deserve special attention and makes specific reference to the LLDCs on SDG 7. This is important for enhanced implementation of the Paris Agreement, where nations pledged to constrain their greenhouse gas emissions, with the aim of keeping global warming well below 2°C.

To accelerate progress in this priority area, a High-Level Meeting on "Accelerating Sustainable Energy for All in LLDCs through Innovative Partnerships" was held in 2016, in Vienna, Austria. This was a joint effort by the Government of Austria, the Office of the High Representative for LDCs, LLDCs and SIDS (UN-OHRLLS), and the United Nations Industrial Development Organization (UNIDO). The event provided an opportunity to discuss in detail potential strategies and important recommendations to address existing barriers for enhancing energy access and the deployment of renewable energy and energy efficiency in LLDCs.

Further, the General Assembly of the United Nations decided, in its resolutions 72/232, and 73/243 to convene a comprehensive high-level midterm review on the implementation of the VPoA, to be held in December 2019 in New York, as a plenary meeting of the General Assembly. It will assess the progress made, identify obstacles and constraints encountered, and find ways to further accelerate implementation of the VPoA. It is in this context that this policy brief is being prepared to analyze the progress made since the adoption of the VPoA.

Achieving SDG7 in Landlocked Developing Countries and linkages with other SDGs

Access to electricity

The average proportion of population with access to electricity in LLDCs increased from 49.5 per cent in 2014 to 56.3 per cent in 2017, however the LLDCs still lag behind the world average of 88.8 per cent in 2017. Further disaggregation by region shows that the Euro-Asia region has been able to achieve greater access with an access rate of greater than 98 per cent, followed by Latin America with an access rate of 95 per cent, whilst the African LLDCs are trailing behind with an average access rate of 32 per cent.

Although the LLDCs experienced an increase in electricity in rural areas between 2014 and 2017, the rural urban gap is still significant with 87.6 per cent of the population in urban areas having access, compared to 42.7 per cent in rural areas.

Access to clean cooking solutions

Access to clean fuels and technologies for cooking has gradually improved globally to reach 60 per cent in 2017, from 49 per cent in 2000. However, in LLDCs, the share increased from 28.1 per cent in 2015 to 28.8 per cent in 2017. This reflects that a large proportion of the population in LLDCs remain unable to utilize the benefits of clean energy to improve their health and overall social and economic development.

Renewable energy

The share of renewable energy in total energy consumption increased slightly from 44.8 per cent in 2015 to 45 per cent in 2016. Large part of this is from the traditional use of solid biofuels (mainly for cooking and heating). Despite the potential that renewable energy has for LLDCs, the share of renewable energy has remained rather constant, with only 1 percentage point increase between 2010 and 2016.

Energy efficiency

Energy intensity, measured in terms of primary energy and GDP, has exhibited steady improvement over the period 2000-2016. The global level of primary energy intensity fell from 6.6 in 2000 to 5.1 in 2016 (MJ/US$ 2011 PPP). LLDCs have demonstrated a long-term steep decline in energy intensity, falling from 13.33 in 2000 to 7.5 in 2016. It is important for LLDCs to continue to improve energy intensity in order to achieve SDG target of doubling the rate of improvement in energy efficiency.

Despite growing investments over the past decade, sustainable energy markets have not reached economies of scale in LLDCs. By looking at the moderate growth rates, it becomes obvious that SDG 7 on affordable and clean energy, and SDG 13 on climate action cannot be attained by 2030 in business-as-usual scenarios. Many of the LLDCs have adopted sustainable energy targets in the context of the NDCs or other policy documents. However, the implementation of these commitments lags behind due to manifold barriers related to policy and regulation, fiscal and non-fiscal incentives, technical limitations, economics, finance, capacity, quality infrastructure, R&D and innovation frameworks, knowledge, and awareness. Granting that each country's transition to a sustainable energy sector involves a unique mix of resource opportunities and challenges there are crucial universal areas that can accelerate this transition which require the focus of LLDCs and their partners.

According to the 2018 HLPF Review of the implementation of SDG 7, emerging evidence suggests that off-grid and mini-grid renewable energy solutions are crucial in increasing access to electricity of people in rural areas in the developing world and complementing grid electrification. New business models and a growing number of best practices are accelerating the transformation of the energy systems in many countries. Tailored de-risking and financial instruments addressing sustainable energy investments in urban and rural areas are important. Improving access to technologies, knowledge, and data, as well as strengthening domestic research and development of adapted solutions is crucial. Similarly, improving capacities and qualification frameworks and improving quality standards and certification for products and

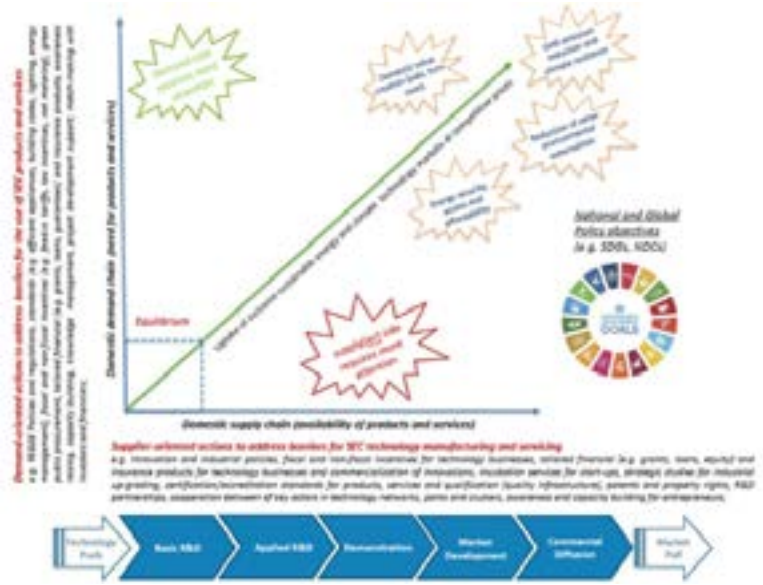
services is necessary.

SDG 7 and SDG 13 have an important SDG 9 dimension, which is critical for LLDCs. Sustainable energy is an important tool to improve the competitiveness and productivity of key industries (manufacturing, generation and distribution of power and energy services, construction, fisheries and agro-processing, tourism, transport, and waste management). The domestic manufacturing and servicing sector remains weak and the growing energy demand remains underserved by international suppliers and supply chains due to high market entry costs and risks. In contrast to fossil fuel-based solutions (e.g., diesel generators), the supply chains and logistics for sustainable energy solutions remain underdeveloped and products and services are either not available or they lack quality. Quality issues and the perception that solutions are not mature enough have been the backdrop for various renewable energy technologies in different parts of the world (e.g., solar thermal, PV). Moreover, the lack of a domestic industry has led to severe sustainability and maintenance issues of energy projects in various LLDCs (e.g., mini-grids).

Countries have introduced a number of policies and regulatory frameworks to promote sustainable energies. However, many policies and programs tend to focus on creating demand for sustainable energy products and services and tend to ignore supplier-oriented actions focused on strengthening domestic innovation systems, productive industrial capacities, and entrepreneurship. Therefore, the domestic and job creation effects along the value chain of sustainable energy investments (i.e., manufacturing and distribution, project planning and development, construction and installation, operation and maintenance, and decommissioning and recycling) often remain very limited.

Equipment and services continue to be imported, further catalyzed by export-driven donor programs and the lack of business and sustainability models. Therefore, it is important to mainstream sustainable energy sector as an important area of industrialization policies of LLDCs. Such trends raise concerns regarding the inclusiveness of technology transfer processes. This offers opportunities, but also bears the risk that the local value and job creation effects of such investments remain low and are not sustained in the long-run. The absence of domestic suppliers and service providers questions the long-term sustainability of already undertaken renewable energy investments in various LLDCs, particularly in sub-Saharan Africa. The lack of domestic R&D and entrepreneurship hinders the commercialisation of SECT solutions adapted to the realities of LLDCs

Figure 1. The uptake of inclusive sustainable Energy markets in LLDCs requires equal emphasis on demand- and supply(ier)-side actions (UNIDO)



Source: UNIDO

Sustainable energy and women's empowerment are mutually reinforcing goals. Energy poverty in LLDCs disproportionally impacts women, especially due to domestic dependence on biofuels, traditional gender roles, and the related health problems. For women to be key agents of sustainable energy, they need to be empowered and fully engaged at all levels of decision-making processes. Therefore, SDG 5 on women's empowerment and SDG 7 on sustainable energy must be tackled jointly through an integrated approach that promotes women's transformational roles in providing innovative energy solutions. Increased financing and policy action are required to accelerate gender mainstreaming of energy interventions, and women's empowerment through sustainable energy solutions. There is need for supporting women as sustainable energy entrepreneurs. Availability of gender disaggregated indicators will be important for monitoring and evaluating all sustainable energy initiatives.

Regional experiences and success stories from Landlocked Developing Countries

Markets for sustainable energy products and services in LLDCs remain often small and fragmented. There is need for economies of scale and speed. Regional partnerships, cooperation, and integration can be effective tools to address some of the existing demand and supply barriers for sustainable energy market development. Integrated markets, which follow joint standards and a common framework, are an important prerequisite for the reduction of investment risks and the uptake of trade with sustainable energy products and services.

In many LLDC regions, the institutional capacities to coordinate and promote regional sustainable energy cooperation and integration are weakly developed. The traditional regional organisations/communities (RECs) and their energy institutions (e.g., regional utility organisations and regulators) are dealing with wider energy and/or interconnection issues and focus often more on traditional energy sources (e.g., gas, coal, and large hydro).

To make regional sustainable energy and climate cooperation and integration a priority, UNIDO, in partnership with various regional organisations/communities, launched the Global Network of Regional Sustainable Energy Centres (GN-SEC) Programme. Under a common framework, UNIDO assists regional organisations in the creation and operation of sustainable energy centres. The GN-SEC is an innovative south-south and triangular multi-stakeholder SDG 7 partnership to accelerate the energy and climate transformation in developing countries. Some of the barriers for the development of SECT markets can be addressed more effectively and at lower cost at sub-regional level.

The gradually expanding partnership comprises a sub-network of centres for the African and the Arab region (in cooperation with the EAC, SADC, ECOWAS, and the Arab League). Currently, the network is expanding to Central America, Central Asia, and the Himalaya-Hindukush region. The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), the Regional Centre for Renewable Energy and Energy Efficiency for the Arab region, the Southern African Centre for Renewable Energy and Energy Efficiency (SACREEE), and the East African Centre for Renewable Energy and Energy Efficiency (EACREEE) are covering many LLDCs in Africa.

The regional sustainable energy centres aim to accelerate the energy and climate transformation by creating economies of scales, equal progress and spill-over effects between countries. In partnership with member states and other sub-regional players (e.g., power pools, utility organisations, regulatory authorities, and regional banks), the centres work towards the creation of integrated and inclusive regional markets for SECT products and services. This is being done by setting common targets, policies, standards, and incentives, as well as the de-risking of investments through the provision of reliable data, analytics, bundling of projects, and convening power.

Through cross-border approaches and methodologies, the centres complement and accelerate national

efforts in the areas of policy and regulation, capacity development, knowledge and data management, and awareness raising, as well as the promotion of investment, innovation, and entrepreneurship. The centres serve as a hub for all kind of domestic and international partnerships. They can complement regional banks when it comes to the addressing of "soft" issues hindering the de-risking and long-term sustainability of investments (e.g., policy, standards, laws, qualification, and certification). These issues have usually too high transaction costs for banks and/or lead to unfavourable financing terms (e.g., interest rates).

For example, ECREEE, with the support of UNIDO and other partners, has implemented a comprehensive regional policy process which resulted in the adoption of regional renewable energy, energy efficiency, and energy access targets by 2030. Under the coordination of ECREEE, all member states developed national action plans on renewable energy, energy efficiency, and energy access. In the partnership with DFIs and investors, sustainable energy investment prospectuses were developed. Based on the policies and rural electrification targets, the World Bank is currently developing a US$ 200 million decentralized solar market development program in partnership with ECREEE, EBID, and BOAD.

In the **Africa region**, a number of national power generation and cross border interconnector plans have been adopted, with most of the key projects adopted as part of the master plans for the Regional Economic Communities (RECs) (namely COMESA, EAC, ECCAS, ECOWAS, and SADC) as regional projects, under the auspices of PIDA, the African Development Bank, and other partners. For example, Ethiopia is currently working on a new dam. A key part of the Ethiopian project is the planned interconnector line linking the power station to the Kenyan grid.

Examples of interconnectors projects include the following: the North-South Power Transmission Project extending from Egypt and passing through Sudan, South Sudan, Ethiopia, Kenya, Malawi, Mozambique, Zambia, and Zimbabwe to South Africa, with the Ethiopia—Kenya line being the most advanced having secured funding; the West African Power Pool (WAPP), Cote d'Ivoire-Liberia-Sierra Leone-Guinea (CLSG) Interconnection Project; the Zimbabwe-Zambia-Botswana-Namibia Interconnector; and the Mozambique-South Africa Power Interconnector.

A number of generation plants have been successfully commissioned since 2014, namely: the Kaleta Dam Project (240 MW) in Guinea, the Gibe III Project in Ethiopia (1 800 MW), the Grand Ethiopian Renaissance Dam Project (6 000 MW), the Lauca Hydro-power project (670 MW) and Soyo thermal power project (750 MW) in Angola, the Morupule B thermal power project (120 MW) in Botswana, the Kusile Thermal Power Project (1200 MW) in South Africa, and the Kinyerezi gas fired power project (240 MW) in Tanzania.

The focus has been on preparation of projects to bankability as a key basis for the mobilization of resources. In order to augment power capacity in Africa, a number of renewable energy projects have also been developed in almost all states, including LLDCs. Owing to long gestation periods of power projects, the pace of completion of these projects has been frustratingly slow.

Euro-Asian LLDCs seem, overall, to have done much better than their counterparts in other regions of the world at improving access to electricity. Significant progress has been made in areas such as oil and gas line connectivity, hydro power production and connectivity, and increased public-private partnerships. However, Euro-Asian LLDCs need to increase renewable energy production and use. In 2014, access to electricity in this region reached 100 per cent in 10 of the 14 LLDCs. Exceptions were Lao PDR, a hydro-power surplus country, and Mongolia and Nepal, reflecting the difficult to reach terrain in the latter two LLDCs. Numerous encouraging examples exist across the Euro-Asian LLDCs in accelerating progress in achieving SDG 7. For example, Bhutan has a current installed capacity of 1600 MW, 70 per cent of which is exported to India. During the dry season, Bhutan becomes an energy importing country and Nepal has renewed its efforts in developing and expanding hydropower electricity.

Conclusions

There is need to accelerate the rate of access to electricity and make targeted efforts to close the rural-urban gap so as to reach universal access by 2030. Greater efforts are required to increase access particularly in the Africa region. In the Euro-Asia region, there is need to increase production of renewable energy. In Latin America, further efforts are required to achieve universal access. There is a need to fast track sustainable energy projects in all regions although it is a known fact that energy projects are investment intensive and have long gestation periods.

While great efforts are being made in developing energy infrastructure and connectivity, LLDCs continue to face several challenges in developing energy infrastructure and connectivity. Lack of long-term energy development strategy, policies and programmes have hindered the growth of energy sector. Outdated and inefficient grid and transmission systems result in transmission and distribution loss. Transmission and distribution systems are often managed and run inefficiently, leading to considerable financial losses for energy companies that are mostly state-owned in the LLDCs. Cross-border energy trade is still at its early stages of development, often with the lack of investment resources acting as a binding constraint. Revenue generated by exploitation of oil and gas resources are most often diverted to nonproductive use.

LLDCs are encouraged to create and support enabling environments that facilitate public and private sector investment in relevant and needed cleaner energy technologies. LLDCs should improve coherence between energy, industrial, human resource, research, innovation and export policies, and support instruments. Cross-sectoral approaches need to facilitate the mainstreaming of sustainable energy solutions into key industries (e.g., agro-business, tourism, fishery, construction, and transport). National policy processes should take advantage of regional processes. The experience in Europe and West Africa has demonstrated, that regional policies and implementation processes can be an important tool to accelerate the development and implementation of national policies and standards.

Regional utility organizations (e.g., power pools) in partnership with regional development banks are encouraged to scale-up investments into regional generation and transmission projects. In addition, there is strong need to strengthen technical capacities of regional organizations to support member states effectively in addressing the barriers for sustainable energy markets, industries and innovation.

To accelerate progress, a holistic approach which addresses all the key issues simultaneously, is needed. This will require multi-stakeholder partnerships of many different stakeholders with individual comparative advantages. Strategic shifts in policies are important to create and enforce predictable and coherent demand and supply and regulatory and incentive frameworks.

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HIGH-LEVEL POLITICAL FORUM
ON SUSTAINABLE DEVELOPMENT

7 AFFORDABLE AND CLEAN ENERGY