



POLICY BRIEFS IN SUPPORT OF THE  
HIGH-LEVEL POLITICAL FORUM 2020

## Advancing SDG 7 in Least Developed Countries



# POLICY BRIEF

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## ADVANCING SDG 7 IN LEAST DEVELOPED COUNTRIES

### **Contributing organisations:**

UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (UN-OHRLLS), the International Renewable Energy Agency (IRENA), UN Industrial Development Organisation (UNIDO) and the Rocky Mountain Institute

## KEY MESSAGES

*Without urgent and enhanced action, the 47 least developed countries (LDCs) will not be able to reach the SDG 7 targets by 2030. Despite the extraordinary growth potential for the energy sector in LDCs, these countries rarely benefit from larger financing schemes to the same extent as other, more prosperous, developing countries. Sustainable energy should therefore be one of the central thematic topics of the new 10-year programme of action for the LDCs to be adopted at the Fifth UN Conference on the LDCs in 2021.*

*Ending energy poverty in LDCs will require a radical change of pace and massive investment in the next few years. In addition, creating an enabling environment for investment and promoting attractive project pipelines will require well-functioning institutions, as well as public policy and regulatory reforms to help build credibility with investors and effectively scale up private investment.*

### **Access to electricity**

Only 52% of the overall LDC population had access to electricity in 2018. There are also significant disparities between countries, and between rural and urban areas. In some LDCs, rural access rates are well below 10%. Improving transformational energy access that goes beyond meeting basic household needs but includes electricity for productive uses that can transform the economies of LDCs through renewable energy mini-grids and off-grids is essential. In addition, it is important to address inefficiencies in power utilities in order to improve generation capacity, transmission and distribution, and to developing regional integrated markets that follow joint standards and a common framework. Such markets are a prerequisite for the reduction of investment risks and the uptake of trade with sustainable energy products and services.

### **Renewables**

With non-renewable energy capacity growing faster than renewables, it is clear that many LDCs have not been able to benefit significantly from recent trends in technology development and falling costs of renewables. Expanding solar, wind and geothermal can now be done rapidly and relatively cheaply, and LDCs could seize the opportunity to leapfrog straight to renewable technologies.

### **Access to clean cooking**

In 2018, only 16% of the people in LDCs had access to clean fuels and technologies for cooking. In 22 LDCs, mostly in Africa, it was less than 5%. Despite substantial benefits for health, gender inequality and environmental degradation, the clean cooking sector has not been able to attract much-needed financing. Thus, LDCs and their development partners need to make clean cooking a political priority, through specific policies, cross-sectoral plans and public investments supported by multi-stakeholder partnerships.

### **Energy efficiency**

Improving energy efficiency is also a priority for LDCs and plays a significant role in accelerating the energy transition. A positive trend concerning the average energy intensity of LDCs can be observed over the past decades with a rate of 7.97 MJ/US\$ in the year 2000, followed by a rate of 5.77 MJ/US\$ in 2010 and 5.34 MJ/US\$ in 2017 (IEA; UNSD 2019). Improvement of transmission and distribution systems is essential for increasing energy efficiency in LDCs.

### **Impacts of COVID-19**

The current COVID-19 crisis has brought the importance of investments in reliable energy access to the fore, especially in terms of health services and the use of ICT. Promoting decentralised renewable energy solutions can help LDCs in responding to the immediate health crisis by providing cost-effective electricity to rural health centres. In the post-pandemic recovery, such solutions can further provide job opportunities and boost economic activity, thus supporting social and economic recovery.

### **Urgent need for increased support**

Funding allocated to sustainable energy in LDCs should be increased. Support should also be given to entrepreneurship in scaling-up decentralised energy solutions through innovative business models, training and education, and enhanced opportunities for women entrepreneurs. Innovative multi-stakeholder partnerships should be launched and supported by the international community to assist LDCs in their energy transition and tapping into their renewable energy sources.

## LEAST DEVELOPED COUNTRIES MOVING TOWARDS THE FIFTH UN CONFERENCE ON LDCs

The least developed countries (LDCs) are a group of 47 countries, characterised by their low socio-economic development and vulnerability to external shocks. These countries are largely agrarian economies, suffering from low investment levels and low productivity. There are 33 LDCs in Africa, 13 in Asia and the Pacific, and 1 in Latin America. The LDC population is expected to increase from 1 billion in 2018 to 1.3 billion in 2030. Lack of access to sustainable energy remains a major bottleneck for LDCs' growth, with only 52% of the LDC population having access to electricity in 2018 (World Bank, 2020a; 2020b).

The structural impediments faced by the LDCs severely constrain their ability to increase productivity, foster economic growth and compete in global markets. The share of LDCs in world merchandise exports is still below one percent. Although several LDCs have achieved economic and social progress during the past decade, critical challenges remain.

The Fifth UN Conference on LDCs, to be held in Doha, Qatar, in 2021, will undertake a comprehensive appraisal of the implementation of the Istanbul Programme of Action by the LDCs and their development partners. Participants will share best practices and lessons learned, and identify obstacles and constraints encountered, as well as actions and initiatives needed to overcome them. The Conference will result in a new 10-year-programme of action for the LDCs, which will coincide with the final decade of the implementation of the 2030 Agenda.

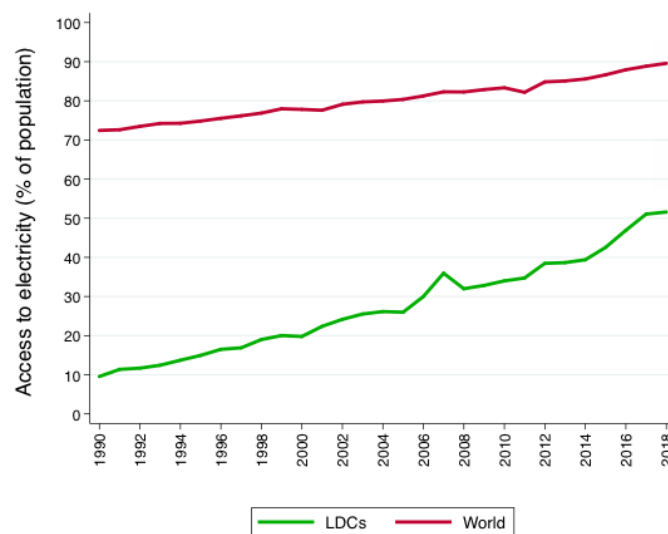
This policy brief will discuss the progress the least developed countries are making towards achieving SDG 7 and what is needed to accelerate their energy transition.

### *LDCs' progress towards reaching universal electricity access*

Reaching universal access to modern energy in LDCs by 2030 offers an opportunity for transformative change that will end energy poverty and accelerate progress towards almost all Sustainable Development Goals (SDGs) in LDCs.

LDCs have made considerable progress in increasing access to electricity. Looking at the decade of the Istanbul Programme of Action (IPoA), access to electricity measured as a percentage of population grew from 35% in 2011 to 52% in 2018 for the group of LDCs, while the average global electrification rate reached 90% in 2018 (World Bank 2020a; 2020b). This shows that LDCs continue to follow the positive growth trend of the previous decade in which access to electricity grew by 52 per cent. However, more than half of the 789 million people in the world without electricity live in LDCs, while the average global electrification rate reached 90 per cent in 2018 (Figure 1).

Figure 1. Access to Electricity LDCs vs. World

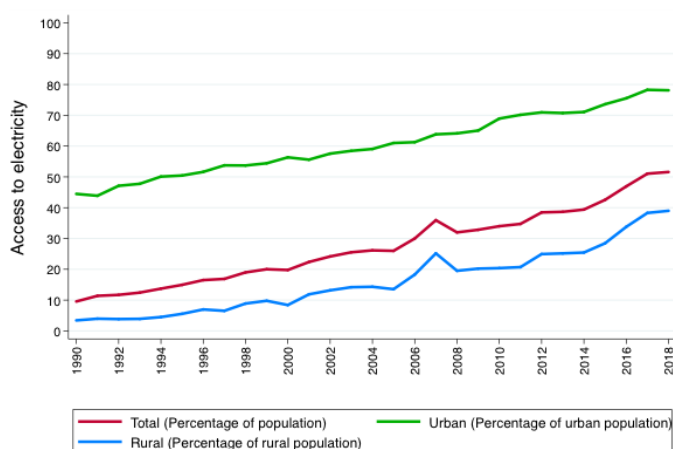


Source: World Bank, 2020a; 2020b.

The LDC electricity access data hides disparities between countries and regions, as well as urban and rural areas. In 2018, on average, 78% of the urban population in LDCs had electricity access, compared with only 39% of rural populations. (Figure 2).

The 13 Asia-Pacific LDCs<sup>1</sup> reached an average electrification rate of 83%, while the rate in the 33 African LDCs and Haiti was much lower, at 36%. Interestingly, while growth was mainly driven by Asia-Pacific LDCs in the decade 2001-2010, African LDCs were the main contributors to the growth results in the IPoA decade, with a growth rate of 66%. It is alarming, however, that 6 African LDCs still have electrification rates lower than 20% (an improvement from 15 in 2011).

Figure 2. Rural vs. Urban Access to Electricity in LDCs



Source: World Bank, 2020a; 2020b.

Assuming that in the following years the annual growth rate from 2017 to 2018 prevails, at least 19 African LDCs will most likely not achieve SDG 7, whereas the majority of Asia-Pacific LDCs will reach universal access. Bhutan, Kiribati and Tuvalu were the first three LDCs to achieve universal access in 2018. In Africa, Liberia, Rwanda, South Sudan and Uganda have demonstrated strong growth rates during the last decade (World Bank, 2020a; 2020b). See Annex I for access rates for all LDCs.

However, when discussing electricity access, SDG 7 goes beyond providing “only” an electricity connection, as there are high disparities between simply having access and having the optimum Tier Five access, as defined by the multi-tier framework for measuring energy access (Bhatia and Angelou, 2015).<sup>2</sup> Climbing the “energy ladder” is a gradual process, from basic lighting systems up to full Tier Five access,

<sup>1</sup> Throughout this report, where regional comparisons are made, Yemen is grouped with the Asia-Pacific LDCs and Haiti with African LDCs.

<sup>2</sup> The multi-tier framework for measuring energy access outlined by the Energy Sector Management Assistance Program (ESMAP): <https://www.esmap.org/node/55526>

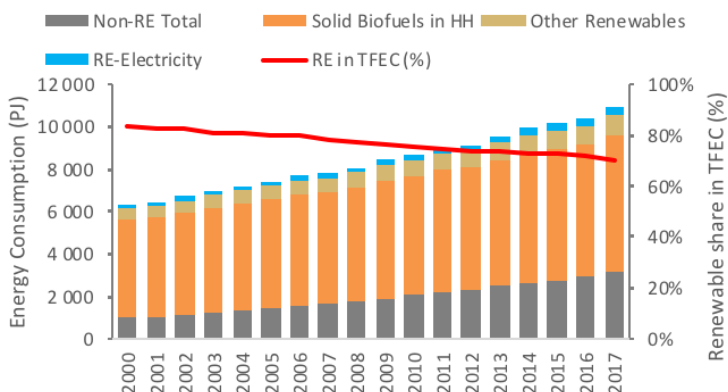
and the socioeconomic benefits increase gradually when moving to higher tier levels for electricity access. Similarly, reliable electricity access is critical for boosting uptake and enhancing economic impact. When households and firms endure several hours a day without access to power, this limits end users’ potential utilisation of electricity and reduces productivity (Blimpo and Cosgrove-Davies, 2019).

Furthermore, ensuring access to electricity must extend beyond households. Energy poverty in health-care centres, schools and community facilities severely impacts the quality of service delivery. The COVID-19 pandemic has drawn renewed attention to the need for more concerted efforts on strengthening universal electrification of health facilities in LDCs.

### Renewable energy in LDCs

While promising developments in renewable energy deployment have been witnessed on a global level during the last decade, LDCs as a group are falling behind and need to attract considerable support to scale up renewables. Across LDCs, the average share of renewable energy in total final energy consumption (TFEC) reached 70.8% in 2017, a decrease from 75.6% in 2010 (IEA; UNSD, 2019) (Figure 3). This overall share of renewables is high compared to the global average because a large percentage of the population relies on traditional uses of biomass – wood fuel, and crop and animal residues – for cooking and heating. Excluding traditional uses of biomass, the share of renewables in total final energy consumption reached 11.4% in 2017, up only marginally from 11.1% in 2010 (IEA; UNSD, 2019).

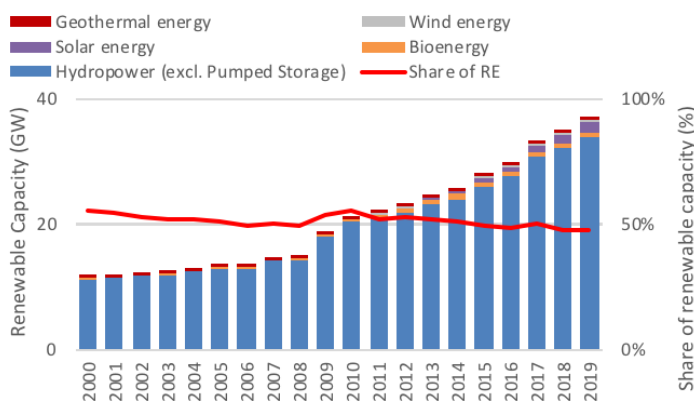
Figure 3. Total Final Energy Consumption and Share of Renewables by Technology Type in LDCs



Source: IEA; UNSD 2019.

In the electricity sector, renewable capacity reached 48% in 2019, down from 55% in 2010 and 56% in 2000. Of the 36.8 gigawatts (GW) of installed renewable capacity in 2019, hydropower dominated at 33.8 GW, followed by 1.6 GW of solar energy, 1 GW of bioenergy, and 0.4 GW of wind (Figure 4).

Figure 4. Renewable Electricity Capacity by Technology Type in LDCs

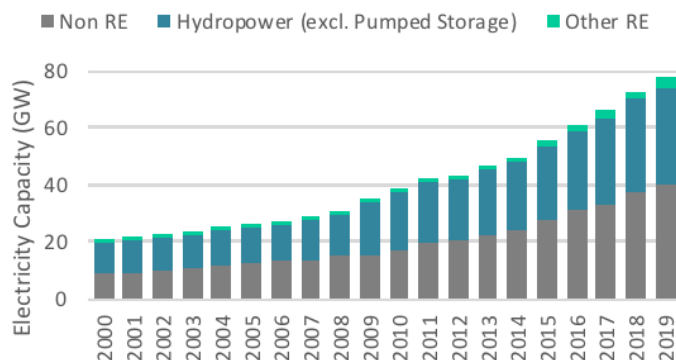


Source: IRENA, 2020.

Despite a more than three-fold absolute increase in installed renewable generation capacity since 2000, the overall share of renewables declined. This was due to a faster expansion of non-renewable generation capacity, which reached 40.6 GW in 2019, increasing more than four-fold since 2000 (IRENA, 2020) (Figure 5).

Variations exist between LDCs, as Cambodia, Liberia, Kiribati, Nepal among others have seen positive developments in the share of renewable generation capacity since 2010. However, some LDCs have substantially decreased their share of renewable capacity.

Figure 5. Electricity Capacity by technology type in LDCs

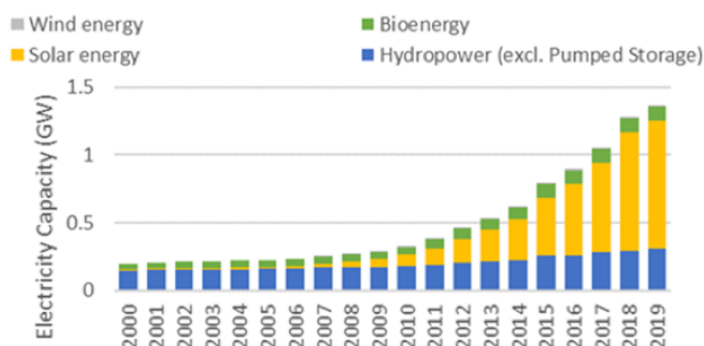


Source: IRENA, 2020.

LDCs are witnessing a more positive development in off-grid solutions, where renewables, including solar home systems and mini-grids, have seen a faster expansion than non-renewables since 2009. With a particularly strong uptake in Africa, many of the LDCs are looking to off-grid renewables as a cost-competitive option to provide energy access. In 2019, off-grid solutions in LDCs reached a total installed capacity of 1.4 GW, up from just over 0.3 GW in 2010. Almost half of this capacity (0.65 GW) was installed in African LDCs (IRENA, 2020) (Figure 6).

This increase in off-grid renewable energy solutions capacity served a total population of almost 47 million in 2018, up from 6 million people in 2010. This includes about 28 million using solar lights (<11 watts), 14 million using solar home systems (>11 watts), 3 million using hydro, and about 1 million connected to a mini-grid. While solar lights have been effective in providing the very initial level access on the energy ladder (Tier 0-1), high-capacity solar home systems and mini-grids based on solar, hydropower and bio-mass have the potential to provide a fuller range of energy services (Tier 1 and higher) and should therefore be a priority moving forward (IRENA, 2019a). See the example from Nepal in the Best Practices section.

Figure 6: Off-grid Renewable Electricity Capacity by Technology Type LDCs



Source: IRENA, 2020

Key challenges faced in LDCs include a lack of inclusive policy frameworks for renewable energy as well as inadequate funding for new projects (including on-grid, off-grid and mini-grid projects). While the bulk of investment in the energy transition will need to come from private sources, public finance will play a significant enabling role to spur investment. IRENA and OECD's tracking of SDG 7.a.1 on international



public financial flows to developing countries in support of clean and renewable energy, shows that these flows reached a total of US\$ 21.4 billion in 2017, however only 12% (US\$ 2.7 billion) of this funding was directed towards LDCs. Between 2000 and 2017, LDCs have received an accumulated US\$ 28 billion (2017 PPP) in support of renewables with US\$ 20 billion of this funding going to hydropower projects. As the cost of renewables continues to decline, in particular for solar and wind, significant potential exists to accelerate achievement towards SDG 7, while at the same time advancing other SDGs. Increased efforts are needed to create enabling frameworks for renewables and make sure financial flows reach those most in need and support a just transition.

### **Energy efficiency**

Improving energy efficiency is also a priority for LDCs and plays a significant role in accelerating the energy transition. A positive trend concerning the average energy intensity of LDCs can be observed over the past decades with a rate of 7.97 MJ/US\$ in the year 2000, followed by a rate of 5.77 MJ/US\$ in 2010 and 5.34 MJ/US\$ in 2017 (IEA; UNSD 2019). The same trend can be observed on a global scale, with a falling average energy intensity rate.<sup>3</sup>

The improvement of transmission and distribution systems plays an important role in increasing energy efficiency in LDCs. Additional funding and technological innovation are needed for driving such improvements. In addition, vulnerable countries face serious operational and financial inefficiencies in their power utilities, and these need to be addressed as they impact significantly on the financial viability of the utilities. These inefficiencies reduce expected cash flows and result in regressive subsidies.

Also, LDCs have a tremendous potential to leapfrog to efficient energy systems that can directly harness energy where people and local industries are located, and ensure that maximum services are rendered from these locally controlled energy sources. Experience has shown that improving energy efficiency and implementing demand-side management programmes can be a cheaper alternative to building new supply.

<sup>3</sup> The energy efficiency is expressed in terms of the energy used to produce one unit of economic output and can also be defined as the energy intensity, measured in MJ/USD (2011 purchasing power parity). Weighted averages were calculated using the indicator GDP, PPP (constant 2011 international \$), retrieved from World Development Indicators (World Bank 2020c).

<sup>4</sup> Weighted averages were calculated using the indicator "Population, total", retrieved from World Development Indicators (World Bank 2020b).

### **Clean cooking**

Universal access to clean and modern cooking fuels and technology is an integral element of ensuring that the broader aims of SDG 7 are realised. However, LDCs have largely been left behind in this area. In 2018, only 16% of the population in LDCs had access to clean fuels and technologies for cooking.<sup>4</sup> 22 LDCs, mostly in Africa, had less than 5% access, severely impacting people's health and the environment (WHO, 2020).

The harmful consequences of inefficient, traditional cooking methods contribute to poor health, gender inequality, environmental degradation, deforestation and air pollution. The lack of clean cooking solutions disproportionately affects the most vulnerable, especially women and children. The World Health Organization (WHO) estimates that household air pollution produced by rudimentary cookstoves is so toxic that it leads to around four million deaths every year (WHO, 2018). That figure exceeds the death toll attributed to malaria, tuberculosis and HIV/AIDS combined.

Despite the gains to be made, the clean cooking sector has not been able to attract much-needed financing. The total amount of finance for residential clean cooking dropped to US\$ 32 million in 2017. The 2015-2016 estimated annual average was US\$ 117 million, compared to the US\$ 4.4 billion annual investment estimated to be needed to achieve universal access to clean cooking by 2030 (SEforAll, 2019).

Thus, LDCs and their development partners need to make clean cooking a political priority, and to design and implement specific policies, cross-sectoral plans and public investments supported by multi-stakeholder partnerships. Support for innovation and investment in R&D throughout the cooking value chain – technologies, policy, finance, regulation, awareness and behaviour – needs to be increased radically. In the long term, policies for clean cooking must become more ambitious, moving away from biomass and imported fossil fuels. Greater convergence between SDG 7 electrification and clean cooking goals can be fostered by planning and enhancing the adop-



tion of modern electrical cooking appliances within electrification schemes on and off the grid.

## BEST PRACTICES ON ACCELERATING ENERGY TRANSITION IN LEAST DEVELOPED COUNTRIES

The previous sections have demonstrated clearly that despite the progress achieved, a large majority of LDCs are not on track to achieving SDG 7 by 2030. The primary challenge for LDCs is to rapidly step up a sustainable energy transition so that considerable progress can be made towards achieving the national targets and international goals, such as those in the IPoA, the 2030 Agenda and the Paris Agreement, to which LDCs have committed themselves.

However, the energy sector in LDCs presents an extraordinary growth potential. Many LDCs have been able to tap into this growth potential and several success stories have already emerged. This section highlights some of these best practices, ranging from national level planning to support for local innovation.

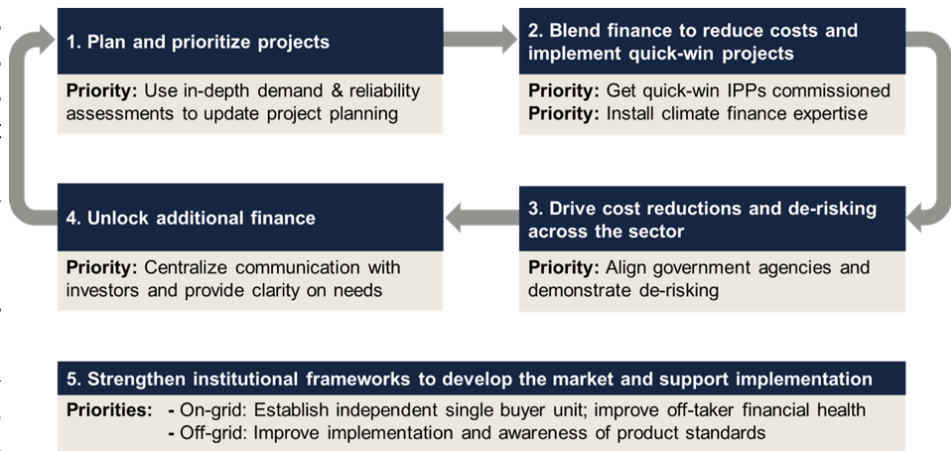
### Enabling frameworks for energy access and achieving SDG 7 in Malawi.

A recent study by Malawi’s Department of Energy Affairs, UN-OHRLLS and Rocky Mountain Institute demonstrated how whole-system energy investment planning can support countries with low access rates, like Malawi, in reaching SDG 7 at a lower cost, using abundant renewable resources. According to the investment study prepared, Malawi has an

opportunity to achieve 100% access to electricity by 2030, starting from a current rate below 20%. The study estimates that Malawi will need to mobilise US\$ 3 billion by 2030 to close gaps and reach its full energy potential, presenting an opportunity to save US\$ 500 million by 2030, compared to previous plans. This investment, which will need to come from a combination of different sources, represents a tripling of generation capacity to 1200 megawatts while adding 1.2 million new grid connections.

The least-cost pathway identified in the study shows that by taking advantage of rapidly reducing costs of renewables and storage, Malawi can build modular, flexible energy infrastructure that closely tracks demand while providing reliable power and resilience to climate change. Demand-side management can save energy at a lower cost than new generation. At the same time, this pathway would avoid nearly 20MT of CO2 emissions by 2030 (OHRLLS et al., 2019). The study guides the Malawian Government, development partners, investors and the private sector to converge on a shared agenda to unlock investment in the energy sector. The study presents a set of simple actions that can unlock and scale up the funding Malawi needs, in a positive feedback loop that can help the energy sector to develop rapidly, sustainably and at the lowest cost.

Figure. 7 Five action areas for scaling up sustainable energy investment  
Source: OHRLLS et al., 2019



**Micro-hydropower development in Nepal.** Besides providing energy for lighting and cooking, off-grid solutions are being increasingly deployed to support the development of livelihoods by powering

productive end-uses such as agriculture. Nepal has a long-standing history of harnessing hydropower for agro-processing and the provision of electricity. The installed capacity of micro-hydro installations (up to 100 kW) has risen from an estimated 37 MW in 2011 (AEPC, 2011) to around 50 MW in 2018 (IRENA, 2020).

The majority of these micro-hydro installations are developed under a public-private partnership model where the community plays an active role in the implementation of the project to allow for a maximisation of socioeconomic benefits. To support the micro-hydro sector, the government introduced a Subsidy for Renewable Energy policy in 2000, with revisions in 2006, 2009, 2013 and 2016. To apply for a subsidy, communities need to register a users' group, a cooperative or a private company. Typically, the community mobilises half of the total project cost, with the balance provided as a subsidy by the Alternative Energy Promotion Centre (AEPC) (IRENA, 2018; World Bank, 2015). In addition to the subsidy, the government introduced in 2014 an interconnection mechanism that allows micro-hydro projects to connect to the main grid (should it arrive) under a power purchase agreement. Unexpected arrival of the main-grid is otherwise a major risk factor for mini-grid operations that could be faced with a decreasing number of customers and stranded investments.

With more than 2500 micro-hydro installations, Nepal demonstrates the possibilities offered by off-grid renewable energy. Challenges remain in reaching the full potential of the sector but many of these can be addressed through continued dialogue between community stakeholders and policy makers (IRENA, 2018).

**Promoting renewable energy investments in Guinea Bissau.** Over the past five years, UNIDO has supported the Government of Guinea Bissau in its efforts to implement power sector reform, which includes a shift from fossil fuels to renewable energy. However, apart from some solar home systems, the country initially had no real practical experience with renewable energy technologies, policies and legislation.

To kick-start the transition, UNIDO assisted the Ministry of Energy and Industry in the development of national action plans on renewable energy, energy

efficiency and energy access. The plans include 2030 targets and concrete actions to achieve them. These plans aim at 50% renewable energy penetration in the national electricity grid. Around 9% of the population would be served by renewable energy powered mini-grids and stand-alone systems.

Support from UNIDO also included the design of a national sustainable energy investment plan amounting to US\$ 680 million. Targeted investment facilitation mobilised around US\$ 50 million from development banks, donors and the private sector for the implementation of priority projects such as utility-scale solar PV, hybrid mini-grids, and small hydropower.<sup>5</sup>

**Supporting innovative partnerships and local innovation.** The private sector (including SMEs, entrepreneurs and start-ups) has a central role in delivering local technology innovation to address the energy, environmental and economic challenges of today. However, SMEs and start-ups with clean technological and business model innovations often struggle with lack of support and weak innovation ecosystems in LDCs.

IRENA has been actively supporting renewable energy entrepreneurship in Africa through dedicated facilities. In partnership with the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), IRENA established the ECOWAS Renewable Energy Entrepreneurship Support Facility in 2015. The facility aims to enhance and strengthen the capacity of small to medium-sized entrepreneurs in the renewables sector (particularly solar PV) on technical issues (such as system sizing, installation guidelines, etc.), business management and operations. Through capacity building, technical advisory and mentorship support, over 80 enterprises from all 15 ECOWAS member countries have so far been assisted over three annual cohorts. Approximately US\$ 1 million in debt financing was accessed through the project proposals submitted to local funding institutions. Following the successful implementation of the Facility in the ECOWAS region, IRENA joined together with the SADC Centre for Renewable Energy and Energy Efficiency to launch the SADC Renewable Energy Entrepreneurship Support Facility in April 2017 (IRENA, 2019b: p.14).

Similarly, UNIDO has provided support to entrepreneurs developing climate and clean energy projects

<sup>5</sup> <http://www.ecreee.org/news/unido-and-ecreee-support-guinea-bissau-making-sdg-7-reality-2030>

through its Private Financing Advisory Network. In Cambodia, ATEC Biodigesters International<sup>6</sup>, a social enterprise, mobilised US\$ 700,000 in equity after refining its business plan, financial projections and its investment pitch with the support provided. The enterprise created biodigesters with small farmers in mind to collect, treat and convert farm waste into gas used for cooking and organic fertiliser. The biodigesters come together with a modern cookstove and biogas rice cooker and as a result this innovative solution provides rural households with financial savings, home-made fertiliser for their farm and the comfort of a modern cookstove.

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## DECADE OF ACTION / POLICY RECOMMENDATIONS FOR FAST-TRACKING PROGRESS

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While LDCs are making significant efforts to achieve SDG 7, they cannot do this alone, they will need strong support from all their partners, to scale up and speed up.

With the right policies and finance, LDCs can move rapidly towards a future of clean, affordable electricity for all. Distributed energy and mini-grids can be deployed quickly, providing resilient power supply in the face of crises such as climate change and the global pandemic. Low-cost, renewable generation makes it possible to power agricultural activities with electricity, reducing drudgery and saving money on diesel. At a later stage, affordable electrification needs to extend to cooking and transport, easing ecological pressure and reducing dependence on imports. Urban and rural development will accelerate with the availability of reliable power for services and enterprises, providing a foundation for sustainable

development and national growth.

To realise the radical change needed, there is a need to create and implement action-oriented, inclusive policies that can fast-track progress in LDCs considerably over the next 10 years.

The “**leave no one behind**” principle involves considering the energy demand profiles of the poorest people and ensuring their access to affordable energy within national energy policies that are integrated into wider development strategies. The focus should be not only on promoting minimum access to households, but also on people’s energy needs, seamless transmission, access for productive uses and social services, and economic development, with a gradual shift towards self-sustaining systems promoting economic development that is transformative and inclusive.

National sustainable energy policies should also make **clean cooking** a priority, followed by implementation of specific policies, cross-sectoral plans and public investments supported by multi-stakeholder partnerships. Holistic national programmes on the introduction of clean cooking fuels and technologies would include measures to build the capacity of local populations, especially women, to design, produce, install and maintain clean cooking equipment; create microfinance schemes for entrepreneurs and start-ups; and develop local value chains. As sustainable development co-benefits, such programmes would contribute to improving in-house air quality and reducing the risk of respiratory diseases in women and small children.

As the cost of **renewables** continues to decline, in particular for solar and wind, significant potential exists to accelerate achievement towards SDG 7, while at the same time advancing other SDGs. Off-grid and decentralised systems are being increasingly recognised as the most cost-effective solutions for the poorest and most remote communities, providing livelihoods and income-generating opportunities to households. However, they often remain unaffordable and underfunded. More market development, concessional financing and innovative partnerships are needed to unleash the potential of decentralised systems. LDCs have a strong potential for developing energy systems utilising renewable energy sources.

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<sup>6</sup> [https://pfan.net/projects\\_and\\_stories/atec-biodigesters-international-cambodia/](https://pfan.net/projects_and_stories/atec-biodigesters-international-cambodia/)

Despite the current oil price fluctuation and increased market unpredictability due to **COVID-19** pandemic, renewables should remain at the centre of LDCs' energy transition. Following existing long-term plans and commitments will be important for post-pandemic recovery, along with new goals to drive economic recovery supported by stimulus and recovery packages. A transition to renewable energy will help LDCs in building a more resilient, climate friendly energy future faster. Decentralised systems help to create new job opportunities and offer income-enhancing opportunities, thus supporting economic recovery. Also, a combined action from health and energy sectors to overcome institutional barriers as well as policy and financial gaps which hamper the widespread deployment of decentralised renewable energy solutions rural health centres. In 2018, IRENA convened a dedicated conference on this topic which identified several best practices that could help guide efforts by countries in this area.<sup>7</sup>

Focusing on national energy supply and productive uses can be a powerful tool for rebuilding economies based on agriculture and local supply and increasing LDCs' resilience to future shocks. For some LDCs, the recent drop in oil prices can also provide a good opportunity to lower or remove subsidies for fossil fuel consumption, as many subsidies are inefficiently targeted, disproportionately benefiting wealthier segments of the population that use much more of the subsidised fuel and leading to wasteful consumption.<sup>8</sup>

As the gap in **finance** needed to provide energy in LDCs is vast, development partners, IFIs and the private sector should increase funding allocated to sustainable energy in LDCs. This will have an impact across different sectors and accelerate poverty eradication and structural transformation. There is a need for financial and technical cooperation, and assistance from development partners, for energy generation, distribution and energy efficiency. Funding should also be directed to project preparation and capacity building for project development. Lack of maturity in energy access markets and underdeveloped financial markets in LDCs mean that DFIs will have to play a **larger role in catalysing energy access investment**.

<sup>7</sup> IRENA, Conference on Renewable Energy Solutions for Healthcare Facilities, Singapore, 2nd November 2018. Further information at: <https://iorec.irena.org/Home/Healthcare>

<sup>8</sup> <https://www.iea.org/commentaries/put-clean-energy-at-the-heart-of-stimulus-plans-to-counter-the-coronavirus-crisis>

<sup>9</sup> <https://www.irena.org/irenaforcip>

In this regard, the Climate Investment Platform (CIP), launched by UNDP, IRENA and SEforALL, in coordination with the GCF, at the 2019 Climate Action Summit, could be useful in meeting the needs of LDCs. In preparing for the CIP, IRENA is organising investment forums in 14 sub-regional clusters.<sup>9</sup> These Investment Forums will strengthen the ability of decision-makers to produce a strong enabling environment for renewable energy investments and help the developers to prepare bankable projects and access finance.

LDCs with large energy **access gaps** are recommended to create a positive feedback loop that can help the energy sector develop rapidly, sustainably and at the lowest cost. Implementing "quick-win" generation projects is vital for unlocking further commercial finance. The feedback loop will vary depending on the unique mix of resources, opportunities and challenges of each LDC, but by implementing successfully new projects, LDCs can provide a track record, build internal capacity and help unlock further commercial financing.

It is also critical to act quickly to create **enabling environments** for both public and private sector investment and to promote nationally and locally appropriate and determined project pipelines in LDCs for consideration by both domestic and international actors. This will require well-functioning institutions, supportive public finance instruments and policy, and regulatory reforms to help build credibility with investors and effectively scale up appropriate private investment, leveraging public resources for country-level implementation.

Strengthening **regional cooperation** will be critical for fast-tracking progress, as it will ensure economies of scale, leverage the endowment of abundant natural resources, promote innovation, facilitate financing, support regional energy infrastructure to enhance energy security and advance economic integration. There is considerable scope for expanding regional power pools, which can significantly lower the overall investment costs to achieve SDG 7 in LDCs.

Going forward, new and existing innovative **multi-stakeholder partnerships** to support LDCs in

their energy transition will pave the way for achieving SDG 7. One such initiative is the Coalition for Sustainable Energy Access, which was launched at the Secretary-General's Climate Action Summit, in September 2019. The Coalition is spearheaded by Ethiopia and Morocco, and calls for bringing forward the countries that are furthest behind and accelerating the sustainable energy transition in LDCs.

The upcoming Fifth UN Conference on the LDCs should have a focus on sustainable energy as ensuring that everyone has access to affordable, reliable, and modern energy services by the year 2030 will provide opportunities for transformative changes that contribute to the achievement of a number of other SDGs in LDCs, including SDG 13 on taking urgent action to combat climate change and its impacts.



# Annex I

Source: World Bank, 2020a; World Bank, 2020b; WHO, 2020  
Weights for averages: Total population, Urban population and Rural population

|                              | Access to Electricity (% of Population) |             |             |             | Urban Access to Electricity (% of Urban Population) |             |             |             | Rural Access to Electricity (% of Rural Population) |             |             |             | Access to Clean Fuels and Technology (% of Population) |             |             |             |
|------------------------------|---|-------------|-------------|-------------|---|-------------|-------------|-------------|---|-------------|-------------|-------------|--|-------------|-------------|-------------|
|                              | 2001                                    | 2011        | 2017        | 2018        | 2001  | 2011        | 2017        | 2018        | 2001  | 2011        | 2017        | 2018        | 2001   | 2011        | 2017        | 2018        |
| <b>All LDCs</b>              | <b>22,4</b>                             | <b>34,7</b> | <b>51,0</b> | <b>51,6</b> | <b>55,6</b>   | <b>70,1</b> | <b>78,3</b> | <b>78,1</b> | <b>11,9</b>   | <b>20,7</b> | <b>38,3</b> | <b>39,0</b> | <b>7,8</b>   | <b>11,3</b> | <b>15,0</b> | <b>15,8</b> |
| <b>Africa (incl. Haiti)</b>  | <b>15,5</b>                             | <b>21,6</b> | <b>33,4</b> | <b>35,9</b> | <b>42,2</b>   | <b>59,6</b> | <b>68,8</b> | <b>69,9</b> | <b>6,2</b>  | <b>6,5</b>  | <b>16,4</b> | <b>19,5</b> | <b>5,8</b>   | <b>7,6</b>  | <b>9,0</b>  | <b>9,2</b>  |
| Angola                       | 20,0                                    | 34,6        | 42,0        | 43,3        | 30,0  | 82,5        | 71,9        | 73,7        | 9,5   | 0,0         | 0,0         | 0,0         | 44,0   | 47,0        | 48,0        | 48,0        |
| Benin                        | 21,9                                    | 36,9        | 34,5        | 41,5        | 49,6  | 67,0        | 54,2        | 67,4        | 4,4   | 13,6        | 17,2        | 18,3        | 1,0  | 5,0         | 5,0         | 5,0         |
| Burkina Faso                 | 9,6                                     | 15,0        | 17,5        | 14,4        | 42,3  | 54,2        | 61,8        | 62,3        | 2,2   | 1,9         | 0,0         | 0,0         | 3,0  | 6,0         | 9,0         | 10,0        |
| Burundi                      | 3,3                                     | 6,2         | 9,3         | 11,0        | 50,6  | 52,8        | 61,8        | 61,7        | 0,0   | 0,5         | 1,7         | 3,4         | 0,0  | 0,0         | 0,0         | 0,0         |
| Central African Republic     | 6,1                                     | 13,2        | 29,8        | 32,4        | 15,5  | 29,4        | 51,7        | 55,2        | 0,4   | 2,7         | 14,7        | 16,3        | 1,0  | 0,0         | 0,0         | 0,0         |
| Chad                         | 3,2                                     | 7,0         | 10,9        | 11,8        | 12,7  | 25,5        | 39,1        | 41,8        | 0,5   | 1,8         | 2,5         | 2,7         | 3,0  | 3,0         | 3,0         | 3,0         |
| Comoros                      | 42,1                                    | 69,6        | 79,4        | 81,9        | 66,1  | 85,4        | 92,4        | 94,0        | 32,8  | 63,4        | 74,2        | 77,0        | 0,0  | 4,0         | 7,0         | 8,0         |
| Congo, Dem. Rep.             | 7,3                                     | 13,3        | 18,2        | 19,0        | 23,9  | 39,5        | 49,1        | 50,7        | 0,0   | 0,0         | 0,0         | 0,0         | 5,0  | 4,0         | 3,0         | 3,0         |
| Djibouti                     | 56,4                                    | 56,0        | 60,2        | 60,4        | 57,3  | 64,7        | 70,0        | 70,8        | 53,6  | 26,5        | 26,3        | 23,8        | 5,0  | 6,0         | 6,0         | 6,0         |
| Eritrea                      | 30,3                                    | 40,9        | 48,3        | 49,6        | 79,0  | 77,7        | 77,2        | 77,1        | 11,9  | 20,3        | 32,5        | 34,6        | 4,0  | 8,0         | 9,0         | 9,0         |
| Ethiopia                     | 25,6                                    | 23,0        | 44,3        | 45,0        | 79,5  | 85,2        | 96,6        | 92,0        | 16,1  | 9,6         | 31,0        | 32,7        | 1,0  | 2,0         | 5,0         | 5,0         |
| Gambia, The                  | 29,9                                    | 48,9        | 56,2        | 60,3        | 51,3  | 66,0        | 79,4        | 76,0        | 9,5   | 26,8        | 20,5        | 35,5        | 4,0  | 3,0         | 2,0         | 2,0         |
| Guinea                       | 16,8                                    | 28,6        | 35,4        | 44,0        | 57,7  | 73,5        | 84,4        | 87,0        | 0,0   | 5,4         | 8,1         | 19,7        | 1,0  | 1,0         | 1,0         | 1,0         |
| Guinea-Bissau                | 0,2                                     | 13,3        | 26,0        | 28,7        | 22,0  | 28,1        | 48,2        | 53,1        | 0,0   | 3,2         | 9,3         | 10,0        | 2,0  | 1,0         | 1,0         | 1,0         |
| Haiti                        | 31,5                                    | 38,0        | 43,8        | 45,3        | 62,5  | 71,3        | 78,1        | 79,0        | 13,2  | 6,7         | 3,0         | 3,5         | 2,0  | 4,0         | 4,0         | 4,0         |
| Lesotho                      | 1,4                                     | 22,2        | 33,7        | 47,0        | 18,6  | 55,9        | 68,4        | 70,7        | 0,0   | 10,8        | 20,4        | 37,7        | 18,0   | 33,0        | 38,0        | 39,0        |
| Liberia                      | 0,0                                     | 4,1         | 24,2        | 25,9        | 0,0   | 7,2         | 40,5        | 43,6        | 0,0   | 1,2         | 7,4         | 7,4         | 0,0  | 0,0         | 0,0         | 0,0         |
| Madagascar                   | 14,8                                    | 14,3        | 24,1        | 25,9        | 42,1  | 61,5        | 68,4        | 69,6        | 4,5   | 0,0         | 0,0         | 0,0         | 2,0  | 1,0         | 1,0         | 1,0         |
| Malawi                       | 5,1                                     | 7,6         | 12,7        | 18,0        | 27,7  | 32,6        | 57,5        | 55,2        | 1,2   | 3,0         | 3,7         | 10,4        | 2,0  | 2,0         | 2,0         | 2,0         |
| Mali                         | 10,8                                    | 29,7        | 43,1        | 50,9        | 37,0  | 75,4        | 84,6        | 85,6        | 0,1   | 3,1         | 13,6        | 25,4        | 1,0  | 1,0         | 1,0         | 1,0         |
| Mauritania                   | 22,2                                    | 35,1        | 42,9        | 44,5        | 49,7  | 76,8        | 80,4        | 82,4        | 4,9   | 0,0         | 0,9         | 0,6         | 31,0   | 42,0        | 44,0        | 43,0        |
| Mozambique                   | 5,7                                     | 20,2        | 29,3        | 31,1        | 20,1  | 54,5        | 71,8        | 72,2        | 0,0   | 3,8         | 5,9         | 8,0         | 3,0  | 3,0         | 4,0         | 4,0         |
| Niger                        | 8,4                                     | 14,3        | 18,2        | 17,6        | 41,1  | 59,9        | 60,1        | 47,6        | 2,1   | 5,5         | 10,0        | 11,7        | 1,0  | 1,0         | 2,0         | 3,0         |
| Rwanda                       | 5,6                                     | 10,8        | 34,1        | 34,7        | 36,4  | 58,2        | 84,8        | 89,1        | 0,0   | 1,1         | 23,6        | 23,4        | 0,0  | 0,0         | 1,0         | 1,0         |
| Sao Tome and Principe        | 52,2                                    | 61,3        | 69,7        | 71,0        | 64,4  | 69,9        | 76,4        | 76,7        | 37,7  | 44,6        | 52,7        | 55,7        | 0,0  | 1,0         | 2,0         | 3,0         |
| Senegal                      | 38,9                                    | 56,5        | 61,7        | 67,0        | 73,6  | 87,8        | 91,7        | 92,4        | 15,3  | 31,7        | 35,4        | 44,2        | 36,0   | 33,0        | 24,0        | 23,0        |
| Sierra Leone                 | 8,6                                     | 14,2        | 23,4        | 26,1        | 25,1  | 35,8        | 48,7        | 53,2        | 0,0   | 0,3         | 5,4         | 6,4         | 0,0  | 0,0         | 0,0         | 0,0         |
| Somalia                      | 6,6                                     | 22,7        | 33,4        | 35,3        | 24,3  | 45,5        | 58,3        | 60,5        | 0,0   | 6,8         | 13,5        | 14,6        | 0,0  | 1,0         | 2,0         | 3,0         |
| South Sudan                  | 0,0                                     | 5,4         | 25,1        | 28,2        | 0,0   | 14,8        | 41,7        | 46,8        | 0,0   | 3,4         | 21,1        | 23,7        | 1,0  | 0,0         | 0,0         | 0,0         |
| Sudan                        | 33,3                                    | 41,4        | 56,5        | 59,8        | 66,5  | 71,6        | 82,2        | 83,8        | 17,3  | 26,4        | 43,0        | 47,1        | 14,0   | 34,0        | 48,0        | 50,0        |
| Tanzania, United Republic of | 10,4                                    | 14,2        | 32,7        | 35,6        | 34,8  | 42,9        | 65,2        | 68,3        | 3,2   | 2,6         | 16,7        | 18,8        | 1,0  | 1,0         | 3,0         | 3,0         |
| Togo                         | 19,7                                    | 39,7        | 48,0        | 51,3        | 47,7  | 77,9        | 88,8        | 91,9        | 5,7   | 16,3        | 19,5        | 22,4        | 0,0  | 4,0         | 8,0         | 9,0         |
| Uganda                       | 8,6                                     | 14,6        | 31,8        | 42,7        | 43,9  | 55,4        | 56,4        | 57,5        | 2,3   | 4,5         | 24,4        | 38,0        | 1,0  | 1,0         | 0,0         | 0,0         |
| Zambia                       | 20,0                                    | 26,4        | 40,3        | 39,8        | 47,1  | 59,2        | 75,2        | 77,2        | 5,4   | 4,8         | 14,0        | 11,0        | 14,0   | 16,0        | 14,0        | 13,0        |
| <b>Asia and the Pacific</b>  | <b>33,2</b>                             | <b>58,4</b> | <b>85,9</b> | <b>83,0</b> | <b>79,7</b>   | <b>90,9</b> | <b>98,1</b> | <b>95,5</b> | <b>20,4</b>   | <b>45,5</b> | <b>80,2</b> | <b>77,0</b> | <b>10,9</b>  | <b>17,9</b> | <b>26,8</b> | <b>29,1</b> |
| Afghanistan                  | 2,1                                     | 43,2        | 97,7        | 98,7        | 71,9  | 86,6        | 99,5        | 100,0       | 0,0   | 29,6        | 97,1        | 98,3        | 11,0   | 22,0        | 34,0        | 37,0        |
| Bangladesh                   | 35,2                                    | 59,6        | 88,0        | 85,2        | 77,6  | 90,2        | 99,5        | 97,1        | 21,7  | 45,7        | 81,6        | 78,3        | 9,0  | 13,0        | 21,0        | 24,0        |
| Bhutan                       | 40,2                                    | 81,8        | 97,7        | 100,0       | 97,1  | 99,5        | 99,1        | 100,0       | 19,7  | 72,0        | 96,8        | 100,0       | 32,0   | 67,0        | 77,0        | 77,0        |
| Cambodia                     | 15,5                                    | 48,0        | 89,1        | 91,6        | 64,3  | 93,1        | 99,1        | 100,0       | 4,3   | 36,3        | 86,1        | 89,0        | 4,0  | 13,0        | 20,0        | 22,0        |
| Kiribati                     | 53,1                                    | 77,1        | 98,6        | 100,0       | 89,7  | 91,9        | 93,4        | 93,7        | 24,8  | 63,3        | 100,0       | 100,0       | 3,0  | 3,0         | 4,0         | 4,0         |
| Lao People's Dem. Rep.       | 45,9                                    | 70,0        | 93,6        | 97,9        | 96,0  | 97,3        | 99,5        | 99,5        | 31,0  | 58,0        | 90,5        | 97,1        | 2,0  | 4,0         | 7,0         | 7,0         |
| Myanmar                      | 43,0                                    | 53,8        | 69,8        | 66,3        | 82,6  | 88,3        | 92,6        | 92,2        | 28,2  | 39,7        | 59,9        | 54,8        | 3,0  | 11,0        | 25,0        | 28,0        |
| Nepal                        | 24,6                                    | 67,3        | 92,4        | 93,9        | 85,7  | 94,1        | 97,9        | 95,8        | 14,7  | 61,7        | 91,1        | 93,5        | 8,0  | 22,0        | 29,0        | 29,0        |
| Solomon Islands              | 7,7                                     | 38,1        | 62,9        | 66,7        | 59,4  | 66,3        | 73,7        | 76,7        | 0,0   | 30,8        | 59,6        | 63,5        | 9,0  | 8,0         | 9,0         | 9,0         |
| Timor-Leste                  | 25,6                                    | 52,5        | 80,0        | 85,6        | 71,7  | 87,6        | 99,2        | 100,0       | 10,6  | 38,7        | 71,7        | 79,2        | 2,0  | 5,0         | 11,0        | 12,0        |
| Tuvalu                       | 94,5                                    | 97,4        | 99,9        | 100,0       | 95,9  | 98,7        | 100,0       | 100,0       | 93,3  | 95,7        | 99,7        | 100,0       | 33,0   | 41,0        | 42,0        | 43,0        |
| Vanuatu                      | 24,1                                    | 41,8        | 62,8        | 61,9        | 78,5  | 85,6        | 92,4        | 93,7        | 8,7   | 27,5        | 52,8        | 51,1        | 17,0   | 11,0        | 8,0         | 8,0         |
| Yemen                        | 51,2                                    | 73,4        | 79,2        | 62,0        | 92,1  | 99,9        | 97,7        | 85,0        | 36,3  | 60,8        | 68,8        | 48,7        | 57,0   | 60,0        | 61,0        | 60,0        |

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