



Key points

The key to rural economic transformation in the least developed countries is to exploit the synergies between agricultural upgrading and diversification into non-farm activities.

A potential virtuous circle can be initiated through coordinated kick-starts on both the supply side and the demand side.

Rural electrification, supported by complementary policies, can provide a supply-side kick-start and contribute to a demand-side kick-start.

Access to non-electrical energy sources and technologies can help initiate rural transformation prior to electrification.



# ENERGIZING RURAL DEVELOPMENT

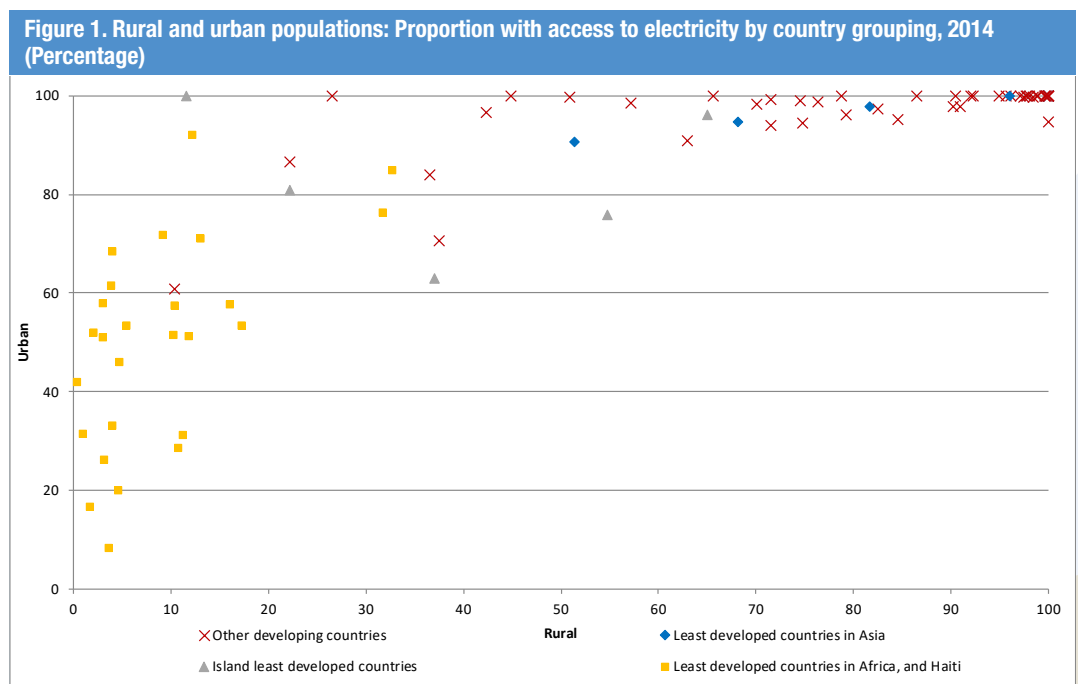
The structural transformation of rural economies is critical to sustainable development and poverty eradication in the least developed countries and, in this regard, access to energy for productive processes is key. Rural electrification can be a major driver of rural transformation and, ahead of electrification, access to non-electrical energy applications and technologies can play an important role.

## The importance of rural economic transformation and rural electrification

Two thirds of the population in the least developed countries live in rural areas, where poverty is both most widespread and most acute. Real progress towards poverty eradication therefore requires strong, inclusive and sustainable development in rural areas, in particular if unsustainably rapid urbanization is to be avoided. Ensuring that poverty reduction is sustainable means basing it on employment

that generates adequate incomes, matched by productivity. Such a structural transformation of rural economies requires the development of new higher productivity economic activities and the increase of productivity in existing activities, while maintaining overall employment levels.

Lack of access to modern energy sources, in particular electricity, is a major obstacle to rural development in most of the least developed countries. In its initial stages, electrification typically occurs mainly in urban areas, and rural areas catch up later (figure 1). This reflects what has historically

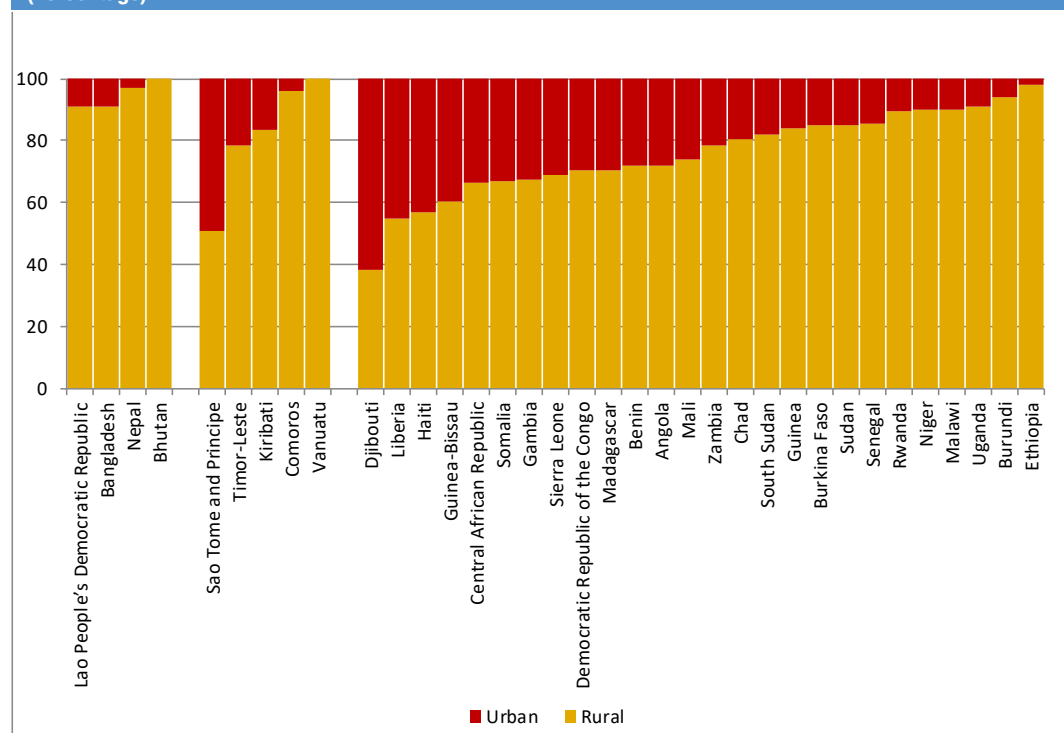


Source: UNCTAD, 2017a, *The Least Developed Countries Report 2017: Transformational Energy Access* (United Nations publication, sales No. E.17.II.D.6, New York and Geneva).

been a key obstacle to electricity access in most of the least developed countries: they have a characteristic combination of limited urbanization and sparsely populated rural areas, which makes conventional centralized generation systems economically unviable for most of the population, especially in a context of low incomes and limited resources for investment. In the average least

developed country, 40 per cent of the urban population does not have access to electricity, while the proportion is nearly 90 per cent among the rural population. Overall, 82 per cent of people without access to electricity in the least developed countries live in rural areas (figure 2). It is therefore in rural areas that movement towards universal access will have the greatest effect.

**Figure 2. Least developed country rural and urban populations: Proportion without access to electricity, 2014 (Percentage)**



Source: UNCTAD, 2017a, p. 9.

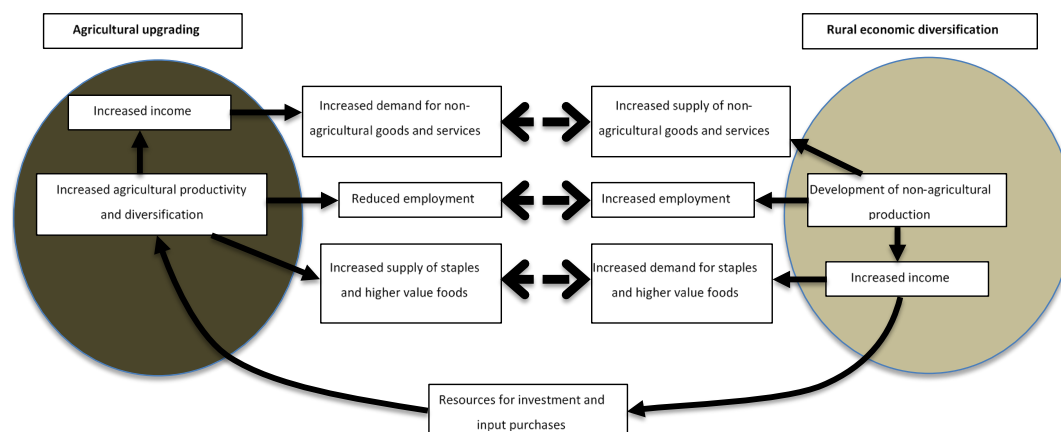
## Harnessing rural electrification for economic transformation

There are strong complementarities between agricultural and non-farm sectors in the course of rural development. Increasing incomes in each sector can generate additional demand for the products of the other, and resources for investment therein. The development of non-farm activities can absorb the labour released by increasing productivity in agriculture (figure 3). UNCTAD

has proposed an approach to the transformation of rural economies in the least developed countries founded upon harnessing the virtuous circle created by this two-way relationship, through a coordinated process of agricultural upgrading and diversification into non-farm activities.<sup>1</sup> Such a virtuous circle could be set in motion by simultaneous kick-starts on the demand side and the supply side.

<sup>1</sup> UNCTAD, 2015, *The Least Developed Countries Report 2015: Transforming Rural Economies* (United Nations publication, sales No. E.15.II.D.7, New York and Geneva).

**Figure 3. Complementarity of agricultural upgrading and rural economic diversification**



Source: UNCTAD, 2014, *The Least Developed Countries Report 2014: Growth with Structural Transformation – A Post-2015 Development Agenda* (United Nations publication, sales No. E.14.II.D.7, New York and Geneva), p. 131.

By addressing a key constraint to the development of non-farm activities, access to electricity can make a major contribution to the transformation and diversification of rural economies, as it allows for the adoption of new technologies and an increase of productivity in existing activities, such as food processing, along with making new activities and products viable. It can also contribute to agricultural development, for example by facilitating irrigation and improving food storage and processing, increasing the value added of local agricultural produce.

Decentralized generation based on scalable renewable energy technologies, such as for solar and wind power, offer unprecedented opportunities to realize this potential. While there are significant technical, economic, financial and institutional obstacles to the establishment of decentralized systems in the least developed countries, these are by no means insuperable,<sup>2</sup> and the importance of electrification to rural development and sustainable poverty eradication makes action to overcome such obstacles a significant policy priority.

The major increases in productivity and production opportunities associated with access to electricity for productive purposes can provide a supply-side kick start. However, this requires transformational energy access, as detailed in *The Least Developed Countries Report*

*2017: Transformational Energy Access*.<sup>3</sup> Such access does not merely satisfy minimal household needs for domestic purposes, but also satisfies producer needs for adequate, reliable and affordable supplies of electricity.<sup>4</sup> This alone will not bring about the increase in productive use required to transform the local economy; complementary policies are required to promote the development of enterprises and the adoption of new technologies, including access to the financing and equipment required and the necessary technical and business skills.

Electrification can also contribute to a corresponding demand-side kick-start through the use of labour-intensive methods in building electricity infrastructure, particularly for transmission and distribution. Other aspects of infrastructure development, for example in water supply and transportation, may have a greater demand-side impact, but prior electrification can strengthen the supply response to the resulting demand boost and facilitate related investments, for example by allowing for the use of electrical water pumps and electrical equipment in construction.

This makes the sequencing of infrastructure investment a key aspect of rural economic transformation, and highlights the importance of accelerating rural electrification.

<sup>2</sup> UNCTAD, 2017b, *Overcoming the obstacles to decentralized electricity generation for sustainable development in the least developed countries*, Policy Brief No. 57.

<sup>3</sup> UNCTAD, 2017a.

<sup>4</sup> UNCTAD, 2017c, *Transformational energy access*, Policy Brief No. 55.

## **Policy recommendations: Initiating rural economic transformation before electrification**

Policymakers need to take immediate action in order to foster energy access for rural producers. This requires the adoption of interim measures to satisfy producer energy needs ahead of electrification. Universal access in remote rural areas will inevitably take considerable time, even more than in urban and peri-urban areas. Awaiting the arrival of electricity before acting to promote rural transformation may stall development in such areas for many years, putting any prospect of poverty eradication by 2030 out of reach. The need for immediate interim solutions is therefore significant.

In the following stage, policymakers can favour stand-alone home systems based on solar or other renewable and hybrid technologies by means of extension services, agricultural policies and rural development programmes. These may unlock less transformative opportunities for productive energy uses, yet can provide enough power to support lighting, simple productive appliances and information and communications technologies. With regard

to other purposes – for example, motive and mechanical energy, product and space heating and product cooling – the needs of many rural producers can also be met through non-electrical energy technologies such as improved biomass and solar stoves, ovens, kilns and water heaters; solar drying tunnels; animal traction, wind-powered or hydraulic pumps; water-driven equipment for food processing; and evaporation fridges.

Sectoral and industrial policy measures can stimulate the local production of such appliances within rural communities. Given their relatively limited technological sophistication and the need for tailoring to local needs, many such products offer opportunities within rural communities, as well as for frugal innovation to better adapt the technologies to the local context. By promoting such production, rural development strategies can help prepare the ground for electrification, by establishing viable enterprises able to take full advantage of access to electrification when it is realized.

### **Contact**

Mr. Paul Akiwumi  
Director

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