



## Module 2: Set the cornerstones of the productive use programme

### In brief

Once the decision has been taken to pursue productive use promotion, a number of basic programme parameters must be defined, including concrete **objectives**, the scope of the programme, and the institutional set-up.

The **sequence of tasks** as presented below is **context-specific**, and a reasonable sequence of preparatory steps may vary from case to case (for example, it can make sense to formulate concrete objectives before, or sometimes after the geographical focus is defined).

### Practical tasks

#### Task 2.1

##### Define the objectives

Even if the principle rationale for productive use promotion may be to enhance financial sustainability of energy services in a newly electrified area, any productive use programme document should spell out economic and social development objectives that can be achieved through productive use of electricity. It is prudent to highlight the potential development outcomes of productive use that go clearly beyond what can be achieved through consumptive uses of electricity (such as provision of certain goods or

services by means of productive use that were not available in the region before, or empowerment of specific marginalised groups by creating new income opportunities).

The following set of **guiding questions** can help establish an initial basic idea of the development impacts specific to productive electricity use:

- ▶ What exactly are the intended economic impacts:
  - income growth at community or regional level?
  - employment effects? (*Note that electrification often enables streamlining of production processes and replacement of manpower by machinery*)
  - economic diversification to make the local economic system more resilient against external shocks?
  - other impacts?
- ▶ Does the programme seek to empower any specific groups like women, ethnic or religious minorities, young people, etc.? (*If so, note that these groups may need special encouragement and support for entrepreneurial activities, and that the programme must focus on productive activities that are culturally and socially appropriate for these target groups.*)
- ▶ Does the programme pursue any specific agriculture-related development objectives, such as food security, improved diets, strengthening resilience against climate risks, etc.?



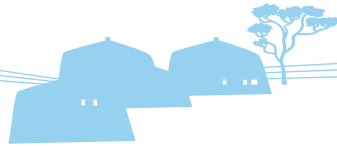
**Box 1** Some general economic considerations when reflecting on objectives

When describing potential economic benefits of productive electricity use, some points deserve special attention in order not to lose sight of the big picture:

- ▶ Technological innovations **do not necessarily translate into monetary benefits**. Electricity may enable provision of higher quality products and services, which the entrepreneur may or may not reflect in higher prices. In the latter case, the quality improvement is fully translated into a consumer surplus increase. One example is electric lighting in shops and bars while prices remain constant.
- ▶ If some enterprises in the target area take up electricity use and manage to attract new customers or increase their sales to local markets, they may take away business from competitors, resulting in a **zero-sum game at regional level**.
- ▶ Likewise, electricity use can increase the competitiveness of enterprises and enable upgrading

of value chains in a specific target area. This can result in the shift of **value addition and income from outside of the area to local producers**. It is therefore prudent when analysing economic effects of productive use to distinguish between pure re-allocation of incomes between small-scale producers from one area to another, and desirable economic effects like provision of new higher-value goods and services, poverty reduction through employment creation and empowerment of economic structures in the periphery, and more efficient processing of local raw materials, etc.

- ▶ It is important to distinguish between **medium-term objectives** like enhanced capacity of local partners at all levels (individual, institutional and structural) for improved framework conditions and **long-term objectives**, defined in terms of measurable impacts at the target population level (e.g. more resilient and diversified incomes).



### Task 2.2

#### Clarify what types of productive uses will help achieve the defined objectives

Once the objectives are defined, planners should take a step back and reflect very broadly on the question as to what kinds of productive uses are suited to reaching these objectives, and which are not. For example:

If the programme aims to create employment over the short to medium term, planners should refrain from promoting mechanisation in local MSMEs that replaces manpower with electrical machinery.

If the programme seeks to empower a special target group, planners should promote business ideas that can be taken up by these groups within the given social and cultural context.

If the programme pursues other specific development objectives, like food security, improved diets, and strengthening resilience against climate risks, the programme must obviously focus on relevant productive use options.

Consider also the distinct economic benefits that can be expected from a new electricity connection within an existing business, as opposed to the emergence of productive activities that are altogether new in the region, as illustrated in [Table 3](#).

### Task 2.3

#### Draft a results chain

Based on the outcomes of [Tasks 1](#) and [2](#), a results chain should be drafted to **link the promotion of productive uses to the defined objectives** through a series of logical steps of cause and effect. In principle, there are **two options** for this: a) Integrating productive use-specific elements into a results chain drawn up for the energy access programme; or b) formulating a separate results chain that comprises only productive use promotion activities.

### Task 2.4

#### Define the scope of interventions.

A productive use programme can comprise various horizontal and vertical scopes. The horizontal scope of the programme refers to the **number of different productive uses** (i.e. business models that need electricity input) that are promoted. The vertical scope refers to the **number of different activities** through which productive use is promoted, intervening at **various stages along the respective value chains** (see [Box 2](#)). Even though concrete activities can only be defined at a later stage, the broad scope of the programme must be determined at this point.



**Table 3** Some general economic considerations when reflecting on objectives

Type of productive activity and uptake of electricity use	Economic benefits of electricity use	Allocation of welfare gains
<b>Energy source switch</b> in existing businesses – e.g. welders working with diesel generators.	Reduced fuel costs => reduced production cost => <b>reduced consumer price and /or increased profit and/or increase of production volumes.</b>	<b>Welfare gain shared between consumer and producer (as per demand and supply curve price elasticity);</b>
<b>Introduce modern energy use</b> in existing economic activities that currently operate without energy input – e.g. rainfed agriculture, tailors.	Increase of production volumes and/or reduced production cost through reduced labour cost (note: in some cases off-set through increased capital cost – <i>electrification trap</i> );  Possibly higher-quality goods or services.	Note: in case of export products, part of the welfare gain falls to consumers outside of the target region.
Type of productive activity and uptake of electricity use	Economic benefits of electricity use	Allocation of welfare gains
<b>Local production of goods</b> that are currently imported to the area, e.g. high-quality carpentry, processed food.	<b>Shift of value added to the area</b> (but losses in other areas); in some cases <b>reduced consumer prices</b> through elimination of transport cost (if small scale local production allows for level of production costs that is competitive with imported goods).	Shift of value added is absorbed by <b>(new) producer (employment creation)</b> ; In case of consumer price reduction through transport cost elimination: net gain for consumer
<b>Introduction of new subsectors, goods and/or services for local consumption</b> ; e.g. photocopying and internet access.	Overall upgrading of economic activities and structures in the area, and positive effects on other sectors (e.g. IT access for informed decision-making in agriculture); net impact linked to purchasing power development in the area; employment creation.	Welfare gain for consumer through satisfaction of previously unmet demand; Welfare gain for producer / service provider: new business and profit opportunities.
Uptake of production of export goods; e.g. food processing, as well as tourist lodging	Increase of income to the area; employment creation.	Welfare gain fully absorbed by producers.



Regarding the *horizontal scope*, experience has shown that, as a general rule, concentrating on a relatively small number of different business models, i.e. taking a **narrow horizontal scope**, can be more effective than scattering programme resources over many different value chains.

When reflecting on the *vertical scope* of the programme, it is useful to bring productive use support into perspective with a **value chain promotion** approach (see *Box 1*). Even though the business success of productive electricity use may depend on various factors along the value chain (like sustainable supply of input material, market opportunities for the final product, etc.), productive use promotion should focus on interventions that are directly related to electricity use (as part of an energy programme). It has emerged as good practice to limit interventions to a small number (1-3) of services that directly support uptake of electricity use (e.g. financing, technical training, and providing assistance for purchasing equipment). By contrast, overstretching the productive use programme with a wide range of different activities that address various business success factors for electricity using enterprises has proven difficult.

When considering the scope of the programme, also keep in mind that interventions at various levels are possible, and that each level requires different programme resources:

- ▶ **at community level:** working with individual entrepreneurs
- ▶ **at an intermediate level:** working to improve services that are available to individual entrepreneurs; e.g. equipment providers, educational institutions, financial institutes, etc.

- ▶ **at the policy-making and administrative level:** working to improve the regulatory framework to enable uptake of electricity use by individual entrepreneurs.

#### Task 2.5

##### Prioritise the area(s) for implementation of productive use promotion activities

If budget constraints dictate that productive use promotion efforts be limited to certain selected areas, the following criteria may be applied to rank and prioritise potential areas:

- ▶ **Market access:** For productive use of electricity to bring commercial success, businesses must have opportunities to bring new products to markets; existence of physical infrastructure (e.g. transport and telecommunication systems) and vibrant market structures may provide good breeding ground for productive use.
- ▶ **Overall development status and volume of productive use opportunities:** A certain level of economic and social development, including human capital, is a precondition for productive electricity use to catch on. To kick-start or pilot productive use activities, areas where good potential for productive use activities is clearly visible – so-called *low-hanging fruit* (e.g. agricultural processing in areas with surplus production of perishable food, or lodging in areas with high tourism potential) may be prioritised.
- ▶ **Population density:** A balance may have to be struck between the objective of boosting electricity demand in sparsely populated areas through productive use of power on the one hand, and achieving maximum economic impact through promoting productive use on the other. This is because areas with low population

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## Box 2 Value chain analysis and complementary services

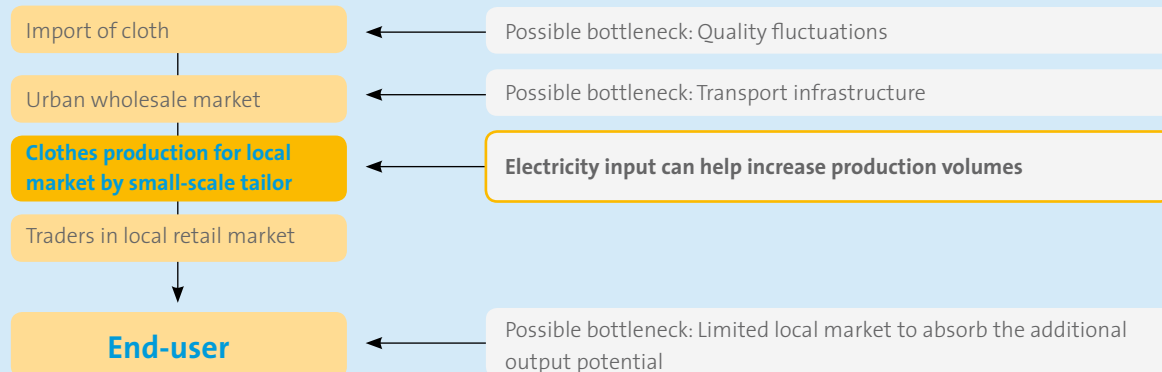
A value chain is an economic system that can be described as a *sequence of related business activities (functions)*, ranging from the provision of specific inputs for a particular product to primary production, transformation and marketing, right up to the final sale of the particular product to the consumer. Productive use can be relevant at various stages along a value chain: Electricity can transform **production processes**, both of goods for end consumers and for intermediary products; it can also facilitate the **trading and marketing** of products, and be relevant for **storage**, etc.

When exploring possible ways of promoting productive uses, considerations may start but should not end at the stage where productive electricity use directly affects a value chain. It is important to consider that various factors are pivotal to the prospering of a value

chain with productive use potential, including factors that are not directly linked to electricity use. For example, when tailors start to use electric sewing machines and thereby substantially increase their output volumes, it will depend on market potentials to absorb the increased output; what is more, the success of this technological change will depend on the availability of repair services for electric sewing machines.

In some cases effective promotion of productive use consists of supporting the provision of certain **complementary services**. Applying a value chain lens when planning a productive use promotion programme can help to ensure that major bottlenecks that could hamper the prospering of productive use-based business opportunities are addressed (see [Figure 2](#)).

Figure 2 Simplified garment value chain with productive electricity use as entry point.





densities are often characterised by weak infrastructure and poor market access, which in turn inhibit the outcomes of productive use promotion efforts.

- ▶ **Availability of business development and micro-finance services:** If business development services (BDS) and micro-finance services are already available and accessible to MSME in a particular area, it will be easier to promote new business ideas and the transformation of or investment in existing businesses.
- ▶ **Quantity of electricity supply:** In the case of energy access programmes in off-grid areas, productive use promotion should obviously prioritise zones where electricity supply currently exceeds demand for household requirements, and with sufficient distribution capacities.
- ▶ **Quality and reliability of electricity supply:** Emerging MSMEs can be adversely affected by unreliable power supply (frequent power outages or strong voltage fluctuations), which can interrupt production and service provision and ruin expensive machinery. In case of off-grid, renewable energy-based access programmes, be sure to align productive use promotion to energy supply quality, including in terms of area prioritisation.
- ▶ **Government and donor budget allocations for services relevant to productive use of electricity:** It can make sense to align productive use programmes to ongoing rural development programmes; if the government or other international donors have prioritised certain areas such as programmes for economic diversification or the development of a certain sector that provides a ready entry point for productive uses

(e.g. agricultural processing and tourism), there will be ample scope for synergies with productive use promotion.

- ▶ **Partners:** As a general rule, it is advisable to prioritise areas where local partners have indicated a **true interest in productive use promotion**, and can be expected to take full ownership of or even a leading role in the implementation of the programme. This can refer to local utilities or energy service providers, local and provincial governments and government agencies, private agencies, NGOs, training institutes and MFI, etc. In the case of energy access programmes in off-grid areas, if power generation is managed by community-based institutions (CBOs), it can make sense to select from a given pool of RE sites where CBO committees are particularly dynamic and competent.

#### Task 2.6

##### Map out stakeholders and implementing partners and their capacities specific to productive use of electricity

The **sustainability** of a productive use programme depends on the extent to which productive use promotion activities are sustainably embedded into the system, and on the depth of long-term structures created for productive use support. Supporting **capacity development** among local partners at all levels (individuals, institutions and systems) in various sectors is a vital element of any productive use programme.

Building on the stakeholder consultation that has catalysed the decision to pursue a productive use programme (*Mod. 1*), the **group of actively involved partners and stakeholders**



should be widened when actual programme planning and implementation come about: Civil society and private sector actors can play key roles in promotion efforts in addition to government actors. [Table 4](#) lists the various stakeholders

and a wide range of institutions that may have **inherent interests** in promoting productive electricity use or which could **contribute to the success** of the programme.

**Table 4** Stakeholders and their potential roles in the productive use programme

Stakeholder	Role/Responsibility
<b>Individual and institutional stakeholders in the private sector</b>	
Micro, small and medium-sized enterprise owners and/or potential commercial consumers of electricity	<ul style="list-style-type: none"> <li>▶ programme beneficiaries and principal agents who judge on the viability of business ideas and new technologies, etc.</li> <li>▶ key informants on market potentials for new products</li> </ul>
Regional or local business associations	<ul style="list-style-type: none"> <li>▶ can provide data on existing businesses and their support needs</li> <li>▶ can act as facilitators for productive use awareness raising, training programmes, and dissemination of information on electrical equipment, etc.</li> </ul>
Energy service providers	<ul style="list-style-type: none"> <li>▶ have an inherent interest in augmenting energy consumption, and are therefore potential active contributors to all elements of the productive use programme</li> <li>▶ have already established relationships with commercial customers, and are therefore key informants on productive use programme target groups</li> </ul>
Financial service providers (formal and informal)	<ul style="list-style-type: none"> <li>▶ provide loans for facilitating electricity connections and purchasing of off-grid equipment</li> <li>▶ potential informants on productive use programme target groups if relations with clients are already established</li> <li>▶ offer expertise in financial analysis of new productive use business models</li> </ul>
Vendors of electrical equipment and appliances	<ul style="list-style-type: none"> <li>▶ widespread uptake of productive electricity use helps them increase sales, presenting an inherent interest</li> <li>▶ key informants on technical solutions who can therefore help to identify new business opportunities and provide related technical assistance</li> <li>▶ have regular interaction with customers, enabling them to identify clients' support needs</li> <li>▶ are the best placed actors for training in the installation, use and maintenance of electrical equipment</li> </ul>

→ [Table continues on page 36](#)





Stakeholder	Role/Responsibility
Medium-sized and large enterprises	<ul style="list-style-type: none"> <li>▶ may have an intrinsic interest in disseminating a certain electrical appliance which facilitates the sale of their products (e.g. telecommunication service providers, distributors of food and beverages that require refrigeration, etc.)</li> <li>▶ can help design specific business models that depend on electricity input, e.g. cell phone charging centres, phone service businesses, etc.</li> <li>▶ can help finance business franchise packages</li> <li>▶ may provide maintenance services for the machinery in question</li> <li>▶ may help develop new technical solutions that support the sale of their products</li> </ul>
Medium-sized to large enterprises (that are not a productive use programme target group) that depend heavily on electricity, e.g. in the tourism sector, agricultural processing, and mining	<ul style="list-style-type: none"> <li>▶ may take a pioneering role in bringing innovative energy solutions to the area; potential <i>agents of change</i></li> <li>▶ establish intense relationships with energy service providers to help ensure the quality and reliability of energy services</li> </ul>
<b>Public institutions and civil society</b>	
Training institutions and extension agents (governmental and non-governmental)	<ul style="list-style-type: none"> <li>▶ should be given a lead role in designing and implementing technical and business management training</li> <li>▶ pools of human resources for various programme elements</li> </ul>
Universities and other institutes of tertiary education	<ul style="list-style-type: none"> <li>▶ engineering departments can help develop technical solutions</li> <li>▶ social science and economics departments can contribute to the analytical phase (research on local economic system)</li> <li>▶ social science and economics departments can play a key role in developing methods for and implementing M&amp;E</li> </ul>



Stakeholder	Role/Responsibility
Government ministries and agencies engaged in electrification and rural development programmes (e.g. rural electrification agencies, agencies for MSME promotion, agriculture departments and education agencies, etc.)	<ul style="list-style-type: none"> <li>▶ should be actively involved in productive use programme planning to ensure that all activities are aligned to ongoing programmes and potential synergies are utilised (e.g. with programmes for promotion of irrigation equipment through the country's ministry of agriculture, with economic diversification programmes through ministries of rural development, etc.</li> <li>▶ key informants on target groups and existing infrastructure</li> <li>▶ can support coordination between various relevant actors and programmes</li> </ul>
Government agencies and ministries involved in trade issues	<ul style="list-style-type: none"> <li>▶ key informants on procedural requirements, export market potentials, minimum quality standards, export barriers and pricing, etc.</li> </ul>
Community-based organisations	<ul style="list-style-type: none"> <li>▶ can facilitate outreach to potential new entrepreneurs, notably special priority target groups like women and young people</li> <li>▶ can help disseminate knowledge and skills relevant to productive electricity use</li> </ul>
<b>International institutions</b>	
International donors and international or national non-governmental organisations	<ul style="list-style-type: none"> <li>▶ programmes run by international donors or NGOs may offer synergies with productive use programmes</li> <li>▶ key informants on target groups</li> <li>▶ can bring in international expertise if needed</li> </ul>

In many countries it has been observed that there are institutions with specific competences in the energy sector, and institutions with specific skills and knowledge in a certain productive sector, but very few institutions specialised in **electricity-based production processes (competence gap, see Figure 3)**.

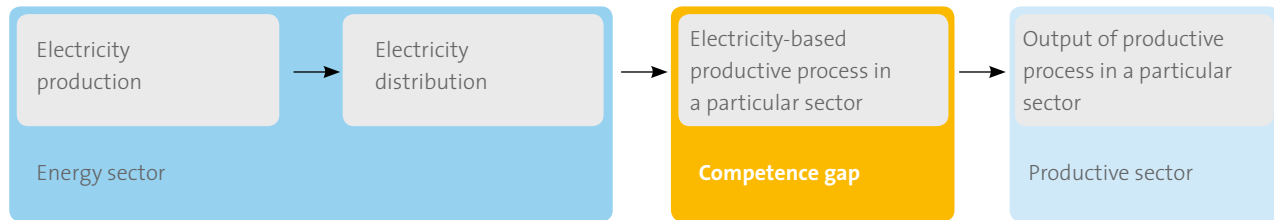
When assessing the capacities of potential partners and stakeholders in follow-up to stakeholder and partner mapping<sup>8</sup>, each institution's specific competences relevant to

productive electricity use should be analysed. If a *competence gap* emerges among these potential partners, the programme's capacity development strategy must be designed accordingly to close this gap over the medium term.

8) Obviously, as the programme planning proceeds, more institutions may be identified as potential partners (e.g. vocational training institutes in specific fields), and their capacities will then have to be assessed.



Figure 3 Competence gap between energy and productive sectors



### Task 2.7

#### Define the institutional set-up

The aforementioned capacity assessment will also provide a basis for deciding which stakeholders can **assume which responsibilities in the further planning and implementation** of the programme. It can prove prudent to set up a **multi-sectoral** steering committee or a joint implementation group for productive use promotion in order to duly account for the fact that such promotion necessarily cuts across sector lines: Not only the electrical power sector should be represented among the productive use programme planners and implementers, but also institutions representing electricity *users*, i.e. from agricultural and industrial sectors.

### Task 2.8

#### Identify synergies with other, ongoing programmes

Building on the outcomes of *Task 1.4*, potential synergies with other ongoing programmes and projects should be identified. Private sector support, local economic development and agriculture development programmes, etc., may all pursue objectives that are closely related with those of the productive use programme. They may offer ready op-

portunities for the productive use programme to hook into, for example by including productive use-specific content in business training, and integrating elements related to electricity use into the activities of agriculture extension services, etc.

#### Outcomes of Module 2:

- ▶ Defined programme objectives
- ▶ general idea of what kind of productive uses should be promoted
- ▶ results chain
- ▶ programme scope and budget
- ▶ institutional set-up
- ▶ priority areas for capacity development
- ▶ mapping of ongoing programmes and projects that offer synergies.



### Readily usable tools and instruments

*For selection of programme area (Task 2.5)*

**Integrated Southern Africa Business Advisory (INSABA) selection criteria for pilot regions;** URL: [www.insaba.org/images/stories/downloads/selectioncriteria.pdf](http://www.insaba.org/images/stories/downloads/selectioncriteria.pdf)

Under the INSABA programme ([www.insaba.org](http://www.insaba.org)), pilot regions were selected in different countries in Southern Africa for establishing SME support structures. A set of area selection criteria was developed (NB: criteria covered aspects of both energy supply from renewable sources and SME-driven energy demand), as well as templates that helped to screen regions for suitability.

*For convening stakeholders and facilitating joint decision-making*

**Local Economic Development (LED)** is a participatory development process that encourages partnership arrangements between the main private and public stakeholders of a defined territory, with the final objective of stimulating economic activity. The process enables the joint design and implementation of common strategies, by bringing local stakeholders around one table through a Local Forum helps to build trust, and encouraging the creation of social networks.

### Sources of LED tools and materials

**LED Knowledge platform:** [www.ledknowledge.org](http://www.ledknowledge.org); online platform for sharing experiences and resources of people and organizations supporting LED processes at the local level.

**World Bank (2006) The Local Economic Development (LED) Quick Reference Guide (QRG).** Provides a concise introduction to the concept and implementation of LED. Provides guidance for an analysis of the strengths and weaknesses in the local economic structures.

URL: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTLED/o,,contentMDK:20276741~isCURL:Y~menuPK:1330226~pagePK:148956~piPK:216618~theSitePK:341139,00.html>

*For capacity assessment of stakeholders and potential partners*

**GIZ (2010) Capacity Assessment Methodological Guideline. Eschborn.**

Provides orientation on how to appraise the capacities at individual, organisational and system level. Gives a general overview of the Capacity Assessment approach by contextualizing it in the Capacity Development Cycle and by describing its purpose, methodology, observation areas and fields as well as application areas.

**GIZ (2010) Capacity Assessment Toolbox. Eschborn.**

Supplements the GIZ Capacity Assessment Methodological Guideline by describing in detail the tools mentioned in this Guideline.