Authors Stéphane Baudé (Nomadéis),
Jérémy Gasc and Stéphanie Leyronas (AFD)

FEBRUARY
2021 | NO. 5

Renewing Energy Access Approaches

Proposals for Mobilizing Commons to Encourage and Guide Subsidiarity

Policy Paper

AFD éditions
AGENCE FRANÇAISE DE DÉVELOPPEMENT

Table of contents

Keywords: Commons, energy, decentralized systems, natural resources.

Abstract: When it comes to energy access projects (electrification and thermal energy), approaches introducing a commons perspective can be distinguished by the fact that users play an active role. This role is constructed "from the bottom," basing the legitimacy of operational rules on the proximity of social relations. These approaches may serve to address the recurring problems relating to mini-grid maintenance and to fraud and non-payment, as well as those associated with the sustainable development of natural resources. They also offer responses to specific challenges, such as long-term support for the local community, the structuring of an ad hoc governance model, and recognition by national authorities of the community capacity to organize itself. Thus considered, a commons dimension can be introduced to energy access projects or to those involving the management of vulnerable primary energy sources, such as water or biomass, in various institutional and contractual formats: rather than running counter to public action and the market, it complements them.

Research program: Governance, commons, and territories.

Acknowledgments: This document draws on contributions and exchanges with the Energy Division at the Agence française de développement (AFD) and on the working seminar of practitioners and researchers "Les apports d'une approche par les communs de l'accès à l'énergie" held on May 10, 2019 at the AFD.

Highlights

- One billion people, mainly in sub-Saharan Africa and South Asia, have no access to electricity, and 2.7 billion people use biomass in a traditional way to cook.
- Public and private actors or civil society actors devise solutions to provide access to energy (expanding networks, setting up decentralized systems, using biomass), bringing the principles of the commons into play (either intentionally or de facto) by drawing on a range of economic and institutional models.
- Adopting a commons-based approach means allowing users to exert an influence on operational choices (technical, financial, etc.) and on the governance of the systems introduced. This also provides room for maneuver to adapt to the changing needs of users and their burgeoning technical and financial competence.
- The commons-based approach provides a response to three areas in which energy access projects can encounter problems: ownership of the projects by the local community, a key success factor; proper maintenance of the facilities; and limitation of fraud and non-payment, together with conflict prevention and management.
- Local communities and users' organizations can take on a broad range of responsibilities within energy access projects: identifying sites, selecting private operators, monitoring service operation, acting as an interface between operators and users, taking up suggestions and identifying new services to be introduced, resolving conflicts, and consulting with external authorities in the event any problems arise.

- In energy access projects, a successful commons-based approach results from a winning combination of commons, public regulation, and the market sphere. There are a variety of different situations, but three main models emerge:
  - the collective management committee (users' committee) supervises a local user-manager who provides the service and maintains the facilities. Initial investment comes from external sources and a contribution from users, in cash or in kind;
  - the small local energy operator is monitored by the community. Initial investment comes from external sources and a contribution from the operator;
  - the local services company, responsible for setting up and providing the service, operates with users' involvement. Initial investment comes from the company, possibly with external subsidies.
- The biomass energy field features a large range of natural resource management initiatives that could be described as commons-based approaches. The active involvement of local communities (and not just the local government) in the governance of natural resources allows for a better appropriation of rights and obligations in relation to this governance. In this field, the implementation of commons-based approaches calls for sustainable management principles co-conceived with the users, sufficiently deterrent graduated systems of sanctions, and regulatory frameworks that make room for local adaptation.

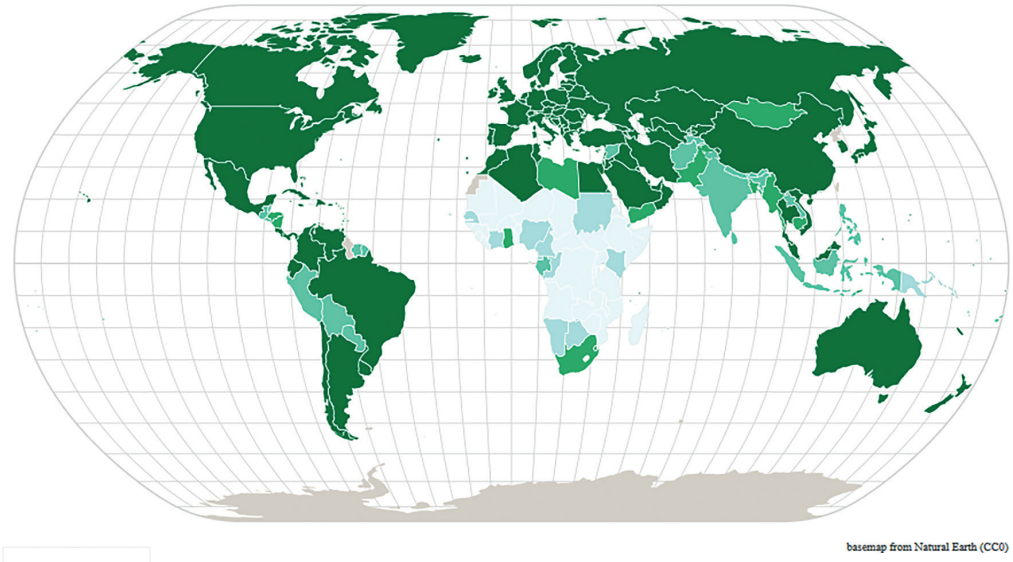
- Two families of recommendations emerge. The first targets public decision-makers, and recommends flexible legal and regulatory frameworks, contractual terms and procedures in public service delegations, and a degree of subsidiarity in regulatory frameworks. The second is aimed at actors involved in energy access programs, and recommends involving local communities, designing ad hoc organizational models, enabling ad hoc rules to be devised for the utilization, management, and governance of the local energy system by the (future) users, and maintaining technical, economic, and human support in the long run.

Introduction

Access to Energy in Developing Countries: Some Observations

Despite various prevention efforts, one billion people, mainly in sub-Saharan Africa and South Asia, still have no access to electricity, and 2.7 billion people still use biomass[1] to cook in a traditional manner. This deficiency has an effect on a wide range of development indicators, such as health, education, food security, and gender equality (Reilly, 2015). Overexploitation of natural forests to supply cities with fuel is leading to deforestation, especially in the Sahel region.

Map 1 - Access to electricity (% of population), 2017



Source: authors with data from the World Bank,[2] map created using Khartis.[3]

1 Organic matter from plants, animals, bacteria, or fungi, which can be used as a source of energy.

2 https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS

3 http://www.sciencespo.fr/cartographie/khartis

Sustainable development goal 7, which sets out to "ensure access to affordable, reliable, sustainable and modern energy for all"[4] by 2030, brings the issue of "real access" to energy to the fore in worldwide concerns: the task here is to create the conditions whereby everyone has access to energy, starting with the least protected and most vulnerable communities. To bring this about, the Agence française de développement (AFD) advocates the need to simultaneously develop both traditional grids and off-grid solutions, as well as an environment conducive to this (public policies, institutions, strategic planning, and regulation and incentives).[5]

The World Bank points out the following main obstacles to achieving this:

- in terms of extending grid-based electricity, the main problems are "lack of sufficient power generation capacity, poor transmission and distribution infrastructure, high costs of supply to remote areas, or simply a lack of affordability for electricity";
- for off-grid electrification, including mini-grids, the difficulty lies in "poor policies, inadequate regulations, lack of planning and institutional support, lack of financing for off-grid entrepreneurs, and affordability for poorer households."[6]

As highlighted by the energy riots in Chile (2019), Senegal (2011), and Pakistan (2012), access to energy is increasingly seen as a basic right. In the European Union (EU), the Social Summit that brought the Council of Europe, the European Parliament, and the European Commission together in Gothenburg on November 17, 2017 indicates the wish of Member States to put people first when it comes to social Europe, and to stop focusing solely on economic issues.

4 https://www.un.org/en/chronicle/article/goal-7-ensure-access-affordable-reliable-sustainable-and-modern-energy-all

5 https://www.afd.fr/fr/ressources/strategie-transition-energetique-2019-2022

6 https://www.worldbank.org/en/news/feature/2018/04/18/access-energy-sustainable-development-goal-7

The summit resulted in the creation of the European Pillar of Social Rights. Section 20 of Chapter III of this document establishes the right of real access to all essential services: water, sanitation, energy, transport, financial services, and digital communications.[7]

Responses Based on the Principles of Commons

In both developed and developing countries, various initiatives are emerging from public and private actors or civil society actors. These projects help provide access to energy, and their development and management bring into play (intentionally or de facto) the principles of commons in their modes of governance. These initiatives respond to the inability of states and the market to address the need for reliable energy services in certain situations.

The concept of commons is consistent with the work carried out by American political scientist Elinor Ostrom (Ostrom, 1990), who was awarded the Nobel Memorial Prize in Economic Sciences in 2009. Commons refer to governance methods established around material or immaterial shared resources (Coriat, 2015). They characterize the way in which communities of users or of interests are created to use or produce resources, and they establish rules and protocols to enable the resources to be shared, while maintaining the ecosystem of which the resources form part (Diagram 1). Although the theory of commons originally emerged from an analysis of certain modes of managing, exploiting, and conserving natural resources in a bid to preserve them, it can be applied to the management of many other resources: digital commons, knowledge commons, network infrastructure commons, etc. (Bollier and Helfrich, 2015; Cornu et al., 2017).

7 https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_en

Diagram 1 – Commons are structured around three elements

Source: Melon Rouge Agency (2019).

When it comes to energy access projects (electrification and thermal energy), approaches introducing a commons perspective can be distinguished by the fact that *users—and not just local government—play an active role, and that this role is made explicit and is structured*.

A commons-based analysis can be applied to various energy access initiatives, in both developed and developing countries (Boissier and Baudé, forthcoming). On examination, however, one rapidly comes to the conclusion that it is better to shun any romantic view of commons and the illusion that would be entailed by identifying and showcasing "pure" commons. On the contrary, it is a case of reflecting on the way in which certain commons dynamics can interact, or even hybridize, with public regulations and actions, and also with market mechanisms.

A number of approaches with commons dimensions are implemented as public service delegations (PSDs). This is in a bid for greater efficiency in supplying electricity to settlements located some distance from the main grid, or in managing environmental aspects that condition access to energy, such as ensuring that hydro resources are in good condition (Cerqueira, 2016). Approaches with commons dimensions are also implemented by companies within PSD frameworks in a bid for greater efficiency in management of the "last mile" in the electrical connection (Krithika and Palit, 2013). Finally, access to the resource is not necessarily free, and the rules of access may involve payments. The essential difference of commons-based approaches in comparison to a market-based system or a paid-for public service is the prices, which are fixed in accordance with methods decided by the user-managers themselves.

It is not, therefore, only a matter of perceiving how a commons-based approach could enrich approaches and methods in the field of energy, but also about harnessing the potential for interaction between commons, the state, and the market.

A pragmatic and incremental approach must be adopted, rather than a dogmatic position.

The Objectives of this Document

This Policy Paper summarizes the knowledge gained and lessons learned about the potential methodological contributions of commons-based approaches in energy access projects in developing countries. The analysis draws on a number of examples that we have grouped into two categories, as follows:

- examples of decentralized electrification, where the challenges of management concern service provision, on or off the grid:

MADAGASCAR Rhyviere project	MADAGASCAR Cafés Lumière project
Installed power capacity per system: 60–500 kW **Technology:** mini hydro power plants **Beneficiaries:** 12 villages (around 37,000 people) **Area:** rural and semi-urban	**Installed power capacity per system:** 10–20 kW on average **Technology:** solar **Beneficiaries:** 6 villages (around 12,000 people) **Area:** rural

MADAGASCAR Antetezambato project	LAOS Pico hydro turbine project
Installed power capacity per system: 42 kW **Technology:** micro hydro power plant **Beneficiaries:** 1 village (around 2,250 people) **Area:** rural	**Installed power capacity per system:** 1–1.5 kW **Technology:** pico hydro turbines **Beneficiaries:** 36 villages (around 8,500 people) **Area:** rural

BURKINA FASO Coopels and SINCO	BANGLADESH Rural cooperatives
Installed power capacity per system: 150 kW on average **Technology:** national grid extension, generators **Beneficiaries:** 127 settlements (around 840,000 people) **Area:** rural	**Installed power capacity per system:** 25 kW **Technology:** national grid extension, domestic solar **Beneficiaries:** 48,000 villages (around 40 million people) **Area:** rural

- examples involving the management of natural resources used to produce energy:

NIGER	MADAGASCAR	HONDURAS
Resource: fuelwood **Area:** rural	**Resource:** hydro basin **Area:** rural	**Resource:** biofuels **Area:** rural

In section 1 of this document, we examine the emergence of commons-based approaches in projects aimed at deploying decentralized collective electricity systems. A "decentralized collective electricity system" is taken to mean any autonomous system that provides access to electricity or to electricity-based services on the scale of a fairly large local community. We do not deal with individual systems here, such as solar kits, nor with schemes for connection to the national electricity grid. Section 2 then moves on to examine the issue of commons in connection with the management of natural resources (water, forests, purpose-grown biomass) used to produce thermal or electrical energy. In section 3, we conclude by presenting a number of lessons learned and offering some recommendations.

1. Commons-Based Approaches to Decentralized Electricity Access Systems

1.1 – Why is a Commons-Based Approach Relevant?

The commons-based approach applied to decentralized collective electricity access systems (from the electricity kiosk to the mini-grid) is new and still largely unstudied (fewer than 50 research papers on the subject have been listed since 2010). However, the approach that involves applying the conceptual tools of the commons to decentralized collective electricity access systems (from the electricity kiosk to the mini-grid) changes the way in which we consider these systems' methods of governance and opens up new avenues to develop them.

Berthélemy (2016) sets out the characteristics of these systems, where local communities play a key role in developing and administering access to the services. He details the way in which these approaches can prove effective in terms of reliable electricity provision, effective governance (sharing usage of electricity production and storage capacity, making choices about maintenance and extension, price-setting, etc.), as well as in terms of limiting fraud and non-payment: "[this] *proximity* [among user-managers of the common good] *enables governance conducive to allowing for the collective interest rather than a non-cooperative equilibrium in which individual interests predominate*."

Jacquemot and Reboulet (2017) and Gollwitzer and Cloke (2018) demonstrate that approaches based on the involvement of local communities are also beneficial in that they more easily combine access to renewable energies and other Sustainable Development Goals: no poverty; gender equality; reduced inequalities; and peace and justice. In fact, these approaches furnish a subtle definition of project goals with the local communities in such a way that they actually meet the needs of the communities (even in areas that are not strictly energy-related).

These authors, along with Franz et al. (2014) and Bhattacharyya (2013), point out that these approaches require local communities to receive specific assistance on the human, technical, economic, and financial fronts. They also call for particular attention to be paid to governance (definition of the roles of the community and any partners, etc.), and to the choice of sites and the beneficiary communities. The community's social capital is a key factor to success.

For all these reasons, it seems relevant to examine decentralized collective electricity access systems against the yardstick of the commons-based approach. The resource considered is then simultaneously the electricity and the system that produces it, composed of electricity production units and, in the case of micro-grids and mini-grids, of the distribution system itself. An examination of the eight design principles identified by Ostrom and her team to define commons sustainability conditions shows that it is perfectly feasible to apply them to the case of decentralized collective electricity access systems (Table 1).

Table 1 - Ostrom's eight design principles applied to decentralized electricity access systems

BASIC PRINCIPLES	DECENTRALIZED ELECTRICITY ACCESS SYSTEMS
Clearly defined boundaries for the resources and the community with access to them (the "commoners").	The resource is well defined (production unit and distribution system), as is the community with access to it. The rules for deciding to extend production and the grid may be defined (and revised).
Congruence between the rules for use of the resource and conditions in relation to local needs.	Possible if the community is involved in making upstream choices (sizing, pricing, rules) and is involved in governance.
Commoners routinely participate in defining and modifying the rules.	Possible if the regulatory framework permits this, and if users demonstrate their desire to do so.
External authorities respect the right of the commoners to draw up their own rules.	Possible if the legal and regulatory framework permits this, and if the operator and regulatory authorities are willing to facilitate the involvement of local communities, in the long term and irrespective of political mandates.
There must be a system to oversee the common resource and the individual behavior of the commoners, who are held accountable to their community.	Possible through the involvement of the local community in management and governance of the electricity access system. Accountability to the local community for governance may be laid down in the statutes of local governance bodies and in contractual arrangements between local organizations, regulatory bodies (such as rural electrification agencies), and members of the community.
Establishment of a graduated system of sanctions.	Possible if the local governance body is granted the option to define this system of graduated sanctions, ranging between a reprimand and exclusion.
Establishment of a low-cost conflict resolution system.	Possible through the involvement of the community and local institutions in governance and in the conflict resolution process.
If need be, establishment of a governance system on several levels focusing on the local communities in a subsidiarity-based logic.	Possible, for example, by the villages supplied with electricity being represented in regional or national bodies such as cooperatives.

1.2 – Advantages, Constraints, and Opportunities Arising from a Commons-Based Approach

In terms of decentralized electrification, one factor leading to success and sustainable investment is ownership by the local community (Franz et al., 2014; Bhattacharyya, 2013; Gollwitzer and Cloke, 2018), which requires the involvement of the local authorities and users (or future users). The involvement of communities in fact constitutes by itself a commons perspective, in that it introduces a measure of supervision by local communities of the way in which the electricity access system is set up, operated, and managed.

Local communities' level of involvement can vary. Introducing a commons-based approach specifically addresses two recurring problems that can be encountered with mini-grids: that of their proper maintenance, and the limiting of fraud and non-payment (Berthélemy, 2016). However, adopting this approach also entails certain specific constraints and risks pointed out in various publications (Gollwitzer and Cloke, 2018; Jacquemot and Reboulet, 2017; Bhattacharyya, 2013). Table 2 below summarizes the advantages and the main constraints and opportunities identified for the stakeholders (ministries, local authorities, funding agencies, NGOs, etc.) when a commons-based approach is adopted in the development of decentralized electricity access systems.

Table 2 - Advantages, constraints, and opportunities arising from a commons-based approach for operators involved in mini-grid development programs

ADVANTAGES	CONSTRAINTS AND OPPORTUNITIES
- Improves the design of the mini-grid and makes the technical choices more suitable for the needs expressed by public actors and local people; - Secures acceptance and appropriation by the community and local institutions; - Facilitates the involvement of women and minorities, and consideration of their expectations; - Encourages user contributions (cash or in kind); - Leads to better consideration and mobilization of local social structures to improve organizational effectiveness; - Prevents conflicts and makes them easier to resolve; - Makes collection of fees easier and reduces fraud and non-payment; - Improves transparency (especially financial transparency); - Facilitates a balance between the different types of users: reference customers, businesses, and households; - May help reduce maintenance costs through direct involvement of the community in the maintenance of production and distribution facilities; - Facilitates a balance among various goals such as ensuring economic and financial sustainability, ensuring environmental sustainability, enabling access for the poorest families, balancing electricity access among smaller and larger energy users, etc.; - Improves the skills of the local community; - Can help bolster social links within the community.	- Requires time during the upstream phase to match the local community with the design and sizing of the solutions envisaged; - Requires innovation with regard to legal aspects (collective statutes, infrastructure ownerships, contractualization) and for innovation to be secured with regard to regulations; - Requires a clear definition of the roles and responsibilities of the actors involved; - Requires willingness of the community to structure itself and become engaged; - Requires a certain amount of flexibility in the technical, institutional, and economic model adopted in order to adapt to the specific characteristics and the expectations of the local community; - Requires training and regular support for local structures on the technical, financial, and management fronts to avoid mismanagement; - Requires preventing facilities being taken over by local elites, through the establishment of rules on the composition of local governance bodies (for example, by earmarking sufficient room for women, representatives of the poorest families, minorities, etc.).

Here commons are not considered as an ideal, unique model, to be applied at any cost. The commons-based approach is more of a tool for thinking through and structuring a more established involvement of local communities in an alternative governance arrangement somewhere between a 100 percent private setup and administration by the state. This then opens up the range of possibilities of the way in which rights, obligations, responsibilities, and resources are shared out among the coalition of actors at work on a decentralized electrification project: between users (families, businesses, local institutions, and public services), other members of the community, civil or traditional local government, electricity regulators, the state, private operators, etc.

1.3 – Governance and Interaction between Commons, the Market, and Public Regulation: Different Models of Institutional Organization

The criteria for the management of decentralized electricity access systems that involve users are not disassociated from any public regulation or market dimensions. Hybridization materializes on a number of levels.

First of all, the rules of usage established by the operators of the services, be they public, private, or community-based, are subject to regulatory and legislative frameworks, and also to the technical specifications applicable to the infrastructures. Meanwhile, because electrification falls under the

provision of a public service, the rules of usage form part of the framework of PSDs to a management structure, the creation and statutes of which depend on local situations. This could be a direct emanation from users (in the case of cooperatives, for instance), be part of this community (a local business), or it could be an enterprise that is outside the community of users, but which involves them in diverse ways.

As we will see in the examples below, in practice we observe a continuum of situations depending on the degree of autonomy users have in defining the rules for using the resource and for sharing decision-making with other actors, public or private.

In their examination of the examples of decentralized electrification projects in several countries in Africa, Jacquemot and Reboulet (2017) distinguish three major organizational models with respect to the role-sharing of actors managing the infrastructures—particularly with regard to the level of user involvement—and the constraints and opportunities associated with them.

The first model is that of the collective management committee. This comes closest to the model defined by Ostrom. The electricity production and distribution system is managed directly by the users through a committee that they have appointed. A local small-scale entrepreneur is tasked with providing the service and carrying out maintenance. This person is supervised by the committee. In this case, training and support are necessary on the technical front and also on the management front. The initial investment comes from external funding (public subsidies, NGOs, etc.), which is topped up by a contribution by the community in kind and/or in cash. Jacquemot and Reboulet (2017) note that this model is particularly well suited to small units such as energy kiosks and platforms. Operating costs are borne by users at a fixed price set by the committee tasked with managing infrastructures.

LAOS

Mini electricity grids that operate using collective pico hydro turbines

At the request of the Phongsaly provincial authorities, Électriciens sans frontières (ESF) worked on a project[8] consisting of mini electricity grids based on pico hydro turbines between 2007 and 2012, and subsequently between 2014 and 2017, in partnership with the Comité de Développement Vietnam France and the Energy and Environment Partnership – EEP Mekong. In 2006, only 13 percent of households in Phongsaly province had electricity, making it the province with the lowest electrification rate in Laos (Asian Development Bank, 2009). The project installed collective pico hydro turbines in a number of rivers (the word "pico" refers to the alternator's power range) and mini electricity grids in 36 villages, and subsequently a further ten villages. In each village, the equipment (dependent on improvement of locally available materials) was installed by technicians recruited locally and trained by ESF. The sites were chosen by local government bodies, based on consultations with the villagers. Management principles (down to the fees and technicians' salaries) were discussed locally and approved by the villagers. The electricity system was deployed, maintained, and managed by a village management committee (composed of the village chief, the technicians, a village wise man, a representative of women, and a representative of young people).

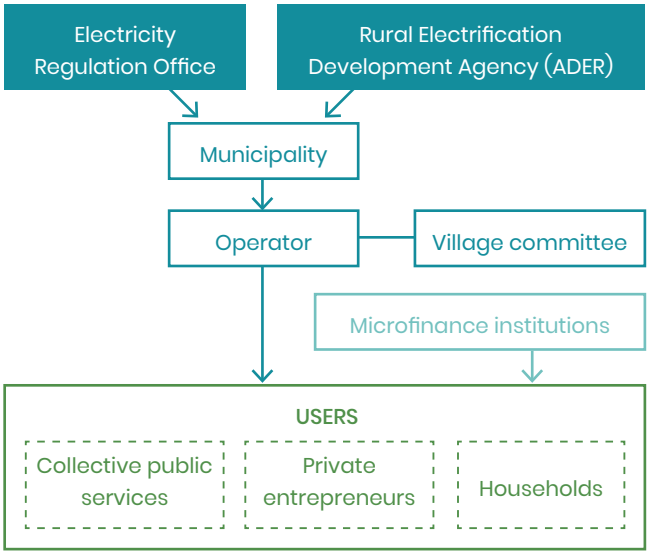
8 For a more detailed presentation and an analysis of the project, see Descotte (2016).

The second model is that of a small intermediate energy operator. It consists of small units (mini-grids or kiosks) managed by a community-selected independent local energy operator from the community or close by. The operator's responsibilities are defined by a contract, and its managerial task is controlled by the users, who can carry out their task as an association. The initial investment comes from external funding (public subsidies, NGOs, etc.), and is partially borne by the operator, who can gradually buy up the production facilities. The operator must have training in accountancy and financial management and maintenance. External technical and managerial support and good practices shared among sites make the operator a sturdier unit.

MADAGASCAR

Multiservice power platforms in an isolated rural environment

Cafés Lumière is a pilot project run by ESF, a model of multiservice decentralized power platforms (for charging phones, renting rechargeable lamps, making ice, grinding cereals, or carrying out other small-scale activities) in an isolated rural environment. It is part of a public energy policy that has been ongoing in Madagascar since 2000, based around delegating the supply of electricity to companies through public-private partnerships (PPPs). The Cafés Lumière model emerged in response to the successive failure of public electrification programs, mainly owing to the difficulties involved in ensuring long-term maintenance. The first Cafés Lumière were set up in 2016 in six rural villages in the Vakinankaratra region. They consist of photovoltaic panels to supply electricity for public infrastructures and trading outlets. A building is constructed or fitted out to receive various trading activities that require a power source.
The Cafés Lumière are implemented as part of a PSD along with specific governance by the state, local authorities, private operators, and village communities. The project's hybrid PSD/community model structure puts it somewhere between the state, the market, and commons:



Source: authors.

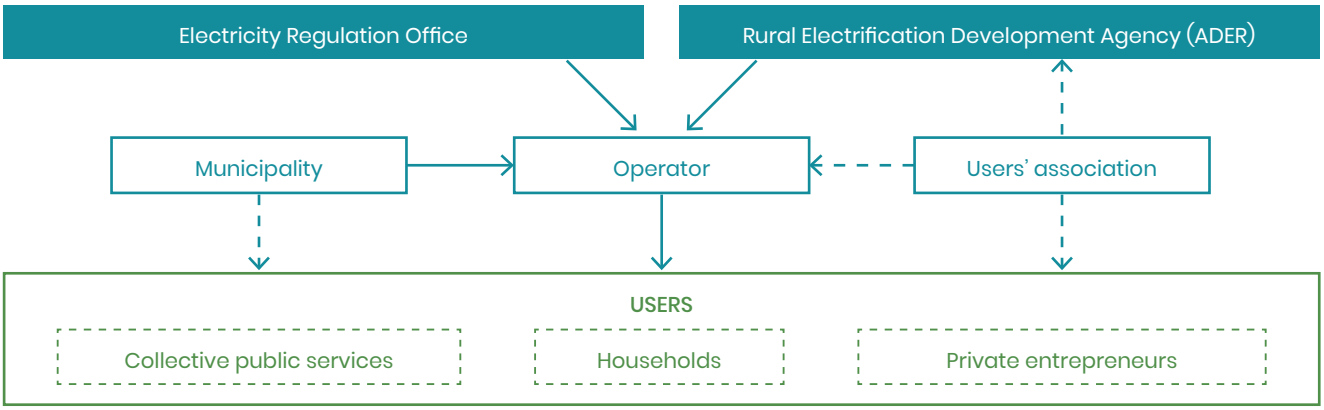
- the government, through the Electricity Regulation Office (Office de régulation de l'électricité) and the Rural Electrification Development Agency (Agence pour le développement de l'électrification rurale, ADER), defines the general regulatory framework (economic models and planning models of which the Cafés Lumière form part);
- the municipalities act as the contracting authority, monitoring the operator and helping to identify needs;
- the operator is responsible for the power supply, for management, maintenance, and the co-funding of production investment;
- the village committees are the owners of the buildings housing the electricity production facilities, and are responsible for overall cash management;
- small-scale private entrepreneurs receive assistance with structuring and funding for their businesses (microcredit from the microfinance institutions).

The third model, a classic public service delegation setup, features a delocalized services company with site management outsourced to a company responsible for installation of the electricity system and its operation. The risk is borne by this latter company, which provides all or part of the initial funding. These models can entail the participation of the municipality and/or the members of the community (for example, by means of a users' association or a local committee). Their responsibilities include identifying the sites, selecting the operators, monitoring the running of the service, acting as an interface between operators and users, taking up suggestions and identifying new services to be implemented in the territory, consulting with the authorities (a rural electrification agency, for example) in the event of any problems, and resolving conflicts directly.

MADAGASCAR

Mini hydroelectric grids

Less than 5 percent of Madagascar's rural population is connected to an electricity grid, despite accounting for 70 percent of the country's total population. Most existing grids are supplied by thermal power units, although the country has a great deal of hydro potential that remains largely untapped. The Rhyviere project ("village hydroelectric grids, energy, and respect for the environment"),[9] carried out between 2008 and 2015 by the NGO GRET, in partnership with Energy Assistance, was financed by the Rural Electrification Development Agency (Agence de développement de l'électrification rurale, ADER) and the European Union (EU) through the Energy Facility. It set out to develop mini hydroelectric grids in rural locations in Madagascar.
In this example, the electricity grids and electricity production facilities are managed through a PSD:



Source: authors, based on Cerqueira (2016).

- the government, as electricity service contracting authority, selects and supervises the operator via the ADER, validates the operator's specifications and the prices applied, and also regulates the service via the Electricity Regulation Office;
- the municipality carries out local regulation and supervises the running of the service;
- the system's governance includes a mediation role for the users' association, which provides an interface between the operator (in charge of the construction, management, and maintenance of the electricity service) and the users (households, small-scale private entrepreneurs, public services) and can consult the delegating authority.

9 For further details, see Cerqueira (2016).

1.4 – The Local Management Platform: A Tool for Ensuring the Adoption of the Commons-Based Approach

Irrespective of which of the above models is adopted, Gollwitzer and Cloke (2018) call for local management platforms to be set up. Such platforms must allow for rooting within the community, while ensuring the technical and financial sustainability of the system and a balance among the various groups of users.

In a governance system with a commons-based approach, this platform has several components, as follows:

- a specialist operator or a technical unit, working in situ with the ability to operate, maintain, repair, and upgrade infrastructures (possibly with external technical assistance for the most difficult operations), and to source the necessary spare parts and supplies. This may be a local cooperative, a small-scale private entrepreneur, a local company, or the local branch of a much larger company;
- the representatives of the authorities (deconcentrated state services, municipalities, traditional chiefs, etc.) as delegating authorities, and also in charge of providing funding for a number of public services (street lighting, for instance) or setting up adjustment schemes for the poorest families (subsidized connections, specific prices, etc.) by taxing the service;
- the representatives of the end users of the electricity, with two issues to be paid close attention: First of all, the traditionally under-represented segments, especially women, the poorest, and minority groups, must participate to prevent the resource being enclosed by local elites. Second, in the case of mini-grids, different types of users must be taken into account in order to prevent and resolve any usage conflicts among major users (cell phone antennae, hospitals or health centers, or any other customers with relatively stable large consumption throughout the 24-hour cycle), other economic actors, and households.

The platform must have fiscal resources or dedicated resources to manage collections and payments for electricity and the use of those repayments for maintenance, repair, and upgrading the infrastructures. Successful examples are those where the action taken at community level has been heavily supported by third-party actors (NGOs, private actors, public institutions), who are able to provide training, as well as monitor and support the local platforms from the point of view of technical and financial management.

The relations of the actors involved with the platforms can give rise to various forms of institutionalization, primarily based around the cooperative model.

MADAGASCAR

Micro hydro power plant managed by an operating cooperative

The Antetezambato electrification project (1999–2007) was carried out by Fondation Énergies pour le Monde and a local partner, the Mirihatra consultancy. One important component of the project was to support the municipality, the owner of the plant and the grid, in establishing an operating structure, training qualified personnel, and monitoring operations in the face of increased demand. It also set out to boost economic activities, which were essential if a sustainable electricity service was to be ensured. The grid now has 198 customers from the 500 homes in the area. In the absence of any private operator and the reluctance of the municipality to take charge of managing technical equipment, an operating cooperative called Aditsara was set up to manage the micro hydro power plant and the distribution network. In addition to the manager, who is an Antetezambato native, it has a treasurer and two locally hired technicians, who take over each other's shifts every twelve hours in order to ensure plant servicing and maintenance. The cooperative also has four grid managers who work more closely with the customers and who are tasked with providing them with information as well as monitoring invoices and collecting payments. The cooperative has an information unit for users, to help them understand the constraints of a small-scale hydro power supply.

BURKINA FASO

An approach in a rural environment mainly based on the cooperative model, albeit with an alternative deploying local actors

Burkina Faso has adopted a rural electrification approach based on a cooperative model in which electrification of an area is managed by a local electricity cooperative (Coopel), of which each local consumer is a member. Each Coopel manages the local infrastructures. It receives technical support for supervision from the Electrification Development Fund (Fonds de développement de l'électrification, FDE) and relies on specialist enterprises (the "farmers") recruited to build the facilities and operate them on behalf of the Coopel in return for remuneration. This remuneration consists of a fixed portion and a variable portion. The Coopel also engages engineering firms in an advisory role and to boost capacity in terms of managing the electricity infrastructures. Prices are regulated by the government.

This model encountered certain difficulties due to local power plays concerning the resources managed by the Coopels, the imbalance of relations between the Coopels and the farmers, a lack of training at some Coopels, or technical and financial management difficulties, leading the government to step in with subsidies. Alongside the Coopel system, Burkina Faso's regulatory system makes provision for a financial mechanism to assist with private initiatives.

As part of this mechanism, the private collective infrastructures company SINCO (Société d'infrastructures collectives) was incorporated in 2002 to implement projects not only for electricity infrastructures, but also drinking water, sanitation, and telecommunications (phones and internet). In the electricity domain, SINCO projects include extensions to the national grid, the construction of decentralized mini-grids, and projects combining connections to the national grid and the implementation of local power generation units using renewable energy.

SINCO's governance is participatory on both a local and general basis. During project development, populations and municipalities have a say in the choice of sites. During the construction phase, a formal or informal steering committee is set up to sound out the opinions of the actors involved. During the operational phase, the users and the village committees for development of electrified villages team up with SINCO and are proactive in its activities. SINCO's governance features a college of users and a college of local authorities working alongside another four colleges making up the general meeting (colleges of the founders, the corporate patronage, financiers, and service providers). This means the users and the village committees are involved in decisions that concern them directly and with the general management of the cooperative.

Contractual arrangements between the platforms and national institutions in charge of regulating the electricity service differ on a case-by-case basis. These official relations determine the degree of autonomy granted to the local governance system to enable self-organization. They also integrate the mini-grids in national planning for electrification, to prevent competition from extensions to the national grid.

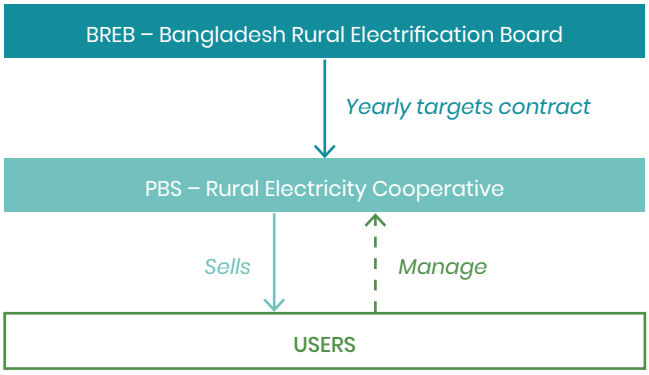
BANGLADESH

Rural electricity cooperatives

In Bangladesh, the rural electrification process has been headed up since 1976 by the Bangladesh Rural Electrification Board (BREB) with the assistance of rural electricity cooperatives called "Palli Bidyut Samities" (PBS), in a bid to encourage local participation and appropriation of the local grid by communities. Historically the region had been electrified by enlargements of the national power grid, and for some years the PBS have also been distributing domestic solar kits. In the case of electrification through enlargements of the national grid, each PBS is responsible for extending the grid to around five or six districts. More than 70 PBS are now operational, connecting more than 7.2 million households in over 48,000 villages.

The PBS are autonomous units, but they are subject to regulatory control by the BREB, which creates the PBS, provides them with the technical and financial support they require due to their autonomization, sells them electricity wholesale, and oversees their financial viability and the effectiveness of their management. Member consumers are involved in decision-making through elected representatives in the PBS steering body, which has a board of 12-15 members appointed on a yearly basis. Prices are set by each PBS, and must be approved by the BREB. Subsidies are authorized, but average prices are set in such a way as to cover the costs of operation, maintenance, depreciation, and financing. The BREB also lays down the PBS's administrative regulations, and the operational, technical, and administrative rules for rural electrification. It helps the PBS to plan and design the distribution system, to carry out the initial organizational activities relating to institutional development, to build substations and electricity lines, to train local personnel, and to supervise the system's financial and operational management. The BREB pays the PBS's executive management and can also terminate their contracts, with the approval of PBS members, if they fail to meet expectations.

A yearly targets contract is signed by each PBS and the BREB, in relation to 22 parameters including revenue, grid connections, reduction of distribution losses, service quality, etc. PBS that reach the targets set receive a profit-sharing bonus, whereas PBS that do not are liable for financial sanctions. The PBS model ran up a distribution loss rate of around 15 percent (as against a national average of 33 percent) and a fee payment rate of 97 percent.



Source: authors, based on Krithika and Palit (2013).

2.
Using Commons to Achieve Sustainable Management of Natural Resources Mobilized for Energy Access

Beyond decentralized collective electricity access systems, commons-based approaches strengthen the management of natural resources used for energy, be they for electrical power (biomass or hydro resources) or thermal power (fuelwood). The aim is to enhance the sustainable management of the resource concerned to guarantee steady availability going forward. The commons-based approach involves energy actors, and also actors from other sectors linked to the natural resource being used.

A number of quite different case scenarios were examined as part of this Policy Paper, although they are not intended to be exhaustive:

- forestry management focusing on mobilizing the local community;
- payment mechanisms for ecosystemic services seeking to coordinate upstream and downstream communities in the management of resources used for mini hydro grids;
- use of local currencies to facilitate the economic development of territories, while encouraging the mobilization of purpose-grown biomass.

HONDURAS

Joint emergence of a favorable economic ecosystem based on a local bioresource

The Gota Verde project[10] launched by the NGO STRO (Social Trade Organisation) in 2007 with the backing of the European Commission and the Honduras foundation FUNDER, sets out to create a social enterprise model based on the production of biofuels, bolstered by a local currency. It has involved developing an economic ecosystem by creating a local social solidarity company, BYSA, based on jatropha grain grown to produce biofuels. Jatropha is a local species that grows in degraded soil, and therefore does not compete with food crops. BYSA, incorporated in 2008, organizes the production chain, distribution, and consumption of the biofuels manufactured from jatropha grain and recycled vegetable oils. This creates an outlet for farmers, who grow jatropha (approximately one hundred small family plantations) to diversify their usual food production and thus bring in a regular source of income.

BYSA is owned by local producers, and its rules of governance limit the number of shares that may be held by a single party to 5 percent. It places its products (biodiesel and co-products: soap, industrial degreasing agents, and fertilizers) on local markets as a priority. A local currency known as "Peces" was created to boost local trading. This is accepted by a number of local traders (payment in Peces makes people eligible for certain benefits and reductions) and by BYSA (which also pays some of the jatropha producers in Peces). Peces are issued by BYSA. In a bid to boost confidence in this exchange system, Peces are pegged to biofuel stocks and may be converted under certain conditions to the Honduran currency. The exchange rate is fixed: 1 pez = 1 lempira (the national currency of Honduras).

The various actors therefore contribute to the creation of an economic ecosystem that supports the local population and small farmers, upgrading jatropha grain as biofuel and creating a sales outlet for agricultural land that is otherwise largely infertile. There are two tools for boosting commons here: a biofuel company co-owned and co-managed by small local farmers, and a local currency that enables economic value to circulate within the territory.

10 For further information on the Gota Verde project, see the project page on the European Commission website: https://ec.europa.eu/energy/intelligent/projects/en/projects/gota-verde

NIGER

Local structures to manage the fuelwood resource

The 1980s witnessed the failure of the centralized management of forests (Montagne et al., 2016) and the predatory practices of urban lumber companies, motivated by short-term economic interests. Subsequently, Niger adopted a new domestic energy strategy of forestry adaptation and provision of fuelwood for towns, involving the local populations around forest areas. Pursuant to this policy, rural wood markets sprang up, and village organizations tasked with managing the forests and furnishing the fuelwood to supply major urban nuclei and local management structures (*structures locales de gestion*, SLGs) were deployed. The SLGs, the members of which can only be villagers with wood-usage rights, are the only bodies authorized to exploit wood for commercial purposes in the area allocated to them. They are also tasked with supervising this area. An annual quota of exploitable wood is established for each rural market, in an area marked out on a joint basis among the adjacent villages. The members of the SLGs undertake to observe the limits, and the rules for using the wood (quotas, species, minimum diameters, and plot diameters) are established. These rules for using common resources are adapted to local needs and conditions but they are under the control of the authorities. The 2004 forestry law stipulates that forestry agents seek out and take note of any infringements.

The local communities of large extensions of forest collect a tax on fuelwood trading, which is then shared out among the local authorities, the SLGs, and the state, with the SLGs and the local authorities recouping between 50 and 90 percent of this levy. In areas not managed by SLGs, the state charges a higher rate (almost triple that imposed in areas run by the SLGs).

This represents a considerable rethink of the roles of village communities and administration of forests (Montagne et al., 2016): the government's forest representatives are no longer tasked with applying forestry policy at every location and against all parties involved. They do take action, however, at the request of rural communities to ensure that their operational monopoly in the forests is respected, should trader-transporters embark upon uncontrolled operations. This means that a bipartite system between the authorities (which issue operational permits) and the traders has been replaced by a tripartite system involving the authorities, the traders, and villagers.

This entails an extensive reconfiguration of the relations and roles of actors in the community and regional or state actors responsible for controlling the resource (in this case the forest). The role of the government or the region has changed: rather than essentially administering and policing the resource with uniform rules of management, it supports local management. For example, local management structures call on the competent authorities in the event local actors fail to observe the rules. Additionally, since primary control is exercised by local governance structures, the government or region exercises secondary control, which is easier for them given their distance from the system and location in question.

MADAGASCAR

Mini hydroelectric grids and protection of hydro resources

The Rhyviere project's Tolongoina site features a protected forest area and agricultural activity in the watershed whose impact on water resources (erosion, irregular flows) may have adverse consequences on turbines. At Tolongoina, the project entailed an ecosystem services approach, which consisted, on the one hand, of co-construction with local actors who had knowledge of hydrological services, and, on the other hand, of acknowledgment of the impact of agricultural practices on hydro resources by farmers and users of the decentralized electricity grid.
The ecosystemic service provided by farmers in upstream areas is based on a modification of their practices, avoiding plowing, growing annual crops in close proximity to water courses, and the use of fire and deforestation, and replacing these practices with intensification of perennial crops such as bananas, sugar cane, or coffee. The facility remunerating the ecosystemic services provided by farmers upstream of the hydro grids installed is formalized by means of a payment contract, and also through the creation of a committee to manage the Andasy watershed, with representatives of the municipality, the users of the electricity grid, the farmers, and other actors operating in the watershed. Remuneration is financed by a 2.5 percent levy on users' electricity consumption. The introduction of joint management of the hydro resource based on a system of payment for ecosystemic services rendered has created a community of interests between actors both upstream and downstream on the scale of a watershed, on the basis of comprehension of the interdependencies of some totally different activities. The shared objective is a hydrological service providing regular distribution of water and a low concentration of sediment by means of adaptation of the catchment basin (sustainable management of forests, agricultural practices, and anti-erosion action).

Although the cases considered are too different to enable a systematic cross-sectional analysis to be conducted and extract trends or general models to be developed, it is nevertheless possible to draw a number of conclusions.

First of all, involving local communities in the governance of natural resources makes for better appropriation of rights and the obligations concerned. This still calls for the principles of sustainable management to be co-conceived with communities of users/interests, and for the sanctioning systems established to be sufficiently deterrent. Pursuant to a logic of subsidiarity, the legal and regulatory framework must leave some margin for local adaptation of resource management procedures to give local governance structures a sufficient measure of autonomy in their choice of managerial methods, rules, and sanctions. In contexts where the competent authorities have difficulty carrying out their task, due to distances or a lack of means, the establishment of a dual-level system (community, and supervision by the authorities) may increase their effectiveness.

3. Recommendations for the Development and Management of Local Energy Systems

Whether the perspective is decentralized services or biomass energy, taking a commons-based approach to energy means adopting a specific position when it comes to the actors involved, offering secure action for the local communities and thinking through all levels of action, especially the intermediate level. Our recommendations are aimed at the following parties:

- countries' decision-makers who introduce energy access policies: the powers that be (ministries, regulators) who decide the legal and regulatory framework in the energy domain and ensure that electricity markets function properly;
- actors involved in energy access development programs: the powers that be (ministries, local authorities) who manage the distribution of electricity around the territories, and possibly also the owners of the infrastructures, funding agencies, and other parties involved in international cooperation.

3.1 – Recommendations for Public Decision-Makers

- Make the legal and regulatory framework sufficiently flexible to enable local communities to define rules of governance that are adapted to suit them. Specifically, the national framework should refrain from imposing a single governance model, and should instead table several potential options to allow local communities to choose their level of commitment in accordance with local resources and constraints. It should also leave sufficient room for maneuver to enable local governance structures to set energy prices in accordance with local needs and constraints, while guaranteeing the economic and financial sustainability of the technical system.

- In PSDs, introduce the possibility of tripartite contractual arrangement between national authorities responsible for electrification, operators, and municipalities, or even quadripartite setups, with a users' association or any other structure that would provide a role for the members of the local community. These contractualization procedures must clearly define the respective roles of parties in technical and financial management and in the governance of resources and infrastructures. The roles may evolve over time, as the technical and financial competences of local communities improve.

- Add a measure of subsidiarity to the procedures for regulating energy (electricity, biomass, etc.) in order to delegate certain responsibilities to the local structures (control and monitoring of the operators in the case of PSDs, control of forestry operations, etc.). The national authorities should then exercise secondary control (because primary control is exercised by the community), and support and strengthen the local structures, for example by taking action at the behest of the latter.

3.2 – Recommendations for Actors Involved in Energy Access Programs

- Involve local communities (local inhabitants, municipal bodies, traditional institutions) as much as possible in all phases of the projects, from the sizing phase, to feasibility surveys, and also choice of sites. This can be done by issuing calls for expressions of interest from local communities, which will identify those most likely to take an active interest in the projects. The criteria for choice of sites ought to include the capacity of the local communities to commit to managing and/or monitoring the local energy system, on the basis, for example, of pre-existing levels of trust among local actors, or the fact that these actors have run successful joint projects in the past. When plans are being devised, there must also be an assessment of which responsibilities can be effectively taken over by the local community (helping to build the infrastructures, helping with their maintenance, monitoring and controlling management, invoicing and collecting payments, resolving conflicts, etc.).

- Design organizational models that involve local communities in the management of the energy systems that have been set up. To do this, create local platforms to manage the systems, involving an operator (a cooperative, a local entrepreneur, or a local unit set up by a non-local company) and the local community (users and local institutions). The roles of the various actors should be clearly defined and stipulated in a contract. Different types of users must be involved: reference customers who have stable consumption over time (mobile phone antennae, for example), economic actors, and families. There should be a balanced representation of the different users in local governance structures. External actors involved in energy access programs must ensure that the

segments usually under-represented (women, minorities, the poor, young people) have a voice in local governance structures.

- Give the (future) users the means to draw up their own rules for the usage, management, and governance of the local energy system. External actors involved in energy access programs must ensure that the local management and governance system is accountable to the users (for example, by involving the users or a body representing them in monitoring and control). They must also provide support for communities in defining graduated sanctions for users who break the rules, and in devising simple, low-cost conflict resolution procedures that involve the local communities (users and institutions).

- Continue to provide technical, economic, and human support for local communities during the time in which the local energy system is in operation, in order to assist with their gradual increased skill level and autonomy. It is essential that actors involved in the operation and the governance of the local energy system have sufficient resources and training in technical, economic, financial, and human domains.

Conclusion

At the Sahel Alliance Energy Group's first conference, "Energy Access in the G5 Sahel Countries," held in Paris on October 9 and 10, 2019, Rémy Rioux, Chief Executive Officer of AFD; Riccardo Puliti, Global Director, Energy and Extractive Industries at the World Bank; Carla Montesi, Director of Planet and Prosperity, European Commission; and Jean-Marc Gravellini, Head of the Sahel Alliance Coordination Unit, were at pains to point out that access to electricity is an essential lever for stimulating human development in G5 Sahel countries, and consequently for improving the security situation. In this regard, the conference highlighted the need to adopt the solutions best suited to the context from a range of technical solutions (grids, mini-grids, individual systems) and management systems (public, private, PSDs). This last point is the nub of reflections on the commons-based approach, which proposes adopting an inclusive position rather than a doctrine, in due consideration of the complex nature of energy access programs. It may be summed up as continuously counting on the capacity of local communities to organize themselves.

This raises a number of queries for the actors of international cooperation: How can the proximity assistance required for these approaches be deployed and strengthened? How can a laissez-faire approach and flexibility be introduced into these programs, and to what extent and on which levels? How can the intermediate levels between users and actors/national operators be devised and structured? Which tools can be developed to turn a position into operational processes and designs? To provide the actors with specific ready answers to these questions, further work is certainly necessary.

Bibliography

ASIAN DEVELOPMENT BANK (2009), Proposed Asian Development Fund Grant - Lao People's Democratic Republic: Greater Mekong Subregion Northern Power Transmission Project. Report and Recommendation of the President to the Board of Directors.

BERTHÉLEMY J.-C. (2016), "Les mini-réseaux électriques comme exemple d'application des thèses d'Elinor Ostrom sur la gouvernance polycentrique de la tragédie des communs," *Revue d'économie du développement*, 24(3–4), pp. 85-106.

BHATTACHARYYA S. (ed.) (2013), *Rural Electrification Through Decentralised Off-Grid Systems in Developing Countries*, London: Springer- Verlag.

BOISSIER F. and S. BAUDÉ (forthcoming), "Regards croisés - À l'interface entre l'État et le Marché, des dynamiques de bien commun catalyseurs de la transition énergétique ?," in BOURSIER D., J. CHEVALLIER, G. HERIARD DUBREUIL, S. LAVELLE and E. PICAVET (eds.), *Dynamiques du Commun – État, Marché et Société*, Paris: Sorbonne Université Presse.

BOLLIER D. and S. HELFRICH (eds.) (2015), *Patterns of Commoning*, Amherst, MA: The Commons Strategy Group/Off the Common Press.

CERQUEIRA J. (2016), "What Coalitions of Stakeholders to Electrify Madagascar?", *Field Actions Science Reports*, special issue, 15, pp. 34-45, Available at: https://journals.openedition.org/factsreports/4143.

CORIAT B. (ed.) (2015), *Le retour des communs: la crise de l'idéologie propriétaire*, Paris: Les Liens qui Libèrent.

CORNU M., F. ORSI and J. ROCHFELD (eds.) (2017), *Dictionnaire des biens communs*, Paris: PUF.

DESCOTTE G. (2016), "Pico Hydro Turbines for Electricity in Rural Areas," *Field Actions Science Reports*, special issue, 15, pp. 26-33, Available at: https://journals.openedition.org/factsreports/4139.

FRANZ M., N. PETERSCHMIDT, M. ROHRER and B. KONDEV (2014), *Guide pratique de la politique des mini-réseaux. Cadres politique et économique pour le déploiement réussi de mini-réseaux*, Eschbor: Facilité de dialogue et de partenariat de l'Initiative de l'Union européenne pour l'énergie (EUEI PDF).

GOLLWITZER L. and J. CLOKE (2018), *Lessons from Collective Action for the Local Governance of Mini-Grids for Pro-Poor Electricity Access*, Briefing Paper no. 1, Low Carbon Energy for Development Network.

JACQUEMOT P. and M.-N. REBOULET (2017), "Options technologiques et modèles d'organisation de l'électrification rurale en Afrique. Retours d'expériences," *Afrique contemporaine*, 261-262, pp. 155-184.

KRITHIKA P. R. and D. PALIT (2013), "Participatory Business Models for Off-Grid Electrification," in BHATTACHARYYA, S. (ed.), *Rural Electrification Through Decentralised Off-Grid Systems in Developing Countries*, London: Springer-Verlag.

MONTAGNE P., O. IDRISSA, A. BERTRAND, F. RIVES, A. ICHAOU and R. PELTIER (2016), "Bois-énergie domestique, démographie et urbanisation: situation après vingt-cinq années de gestion forestière des néo-communs au Sud-Niger," Proceedings of the 12th AFD International Conference on Development.

OSTROM E. (1990), *Governing the Commons* – The Evolution of Institutions for Collective Action, Cambridge University Press, New York.

REILLY J. (2015), "Énergie et développement dans les pays émergents," *Revue d'économie du développement*, 23(3) p. 19-41, https://www.cairn.info/revue-d-economie-du-developpement-2015-3-page-19.htm.

List of Acronyms and Abbreviations

ADER	Agence pour le développement de l'électrification rurale (Rural Electrification Development Agency; Madagascar)
AFD	Agence française de développement (French Development Agency)
BREB	Bangladesh Rural Electrification Board
COOPEL	Electricity cooperative (Burkina Faso)
ESF	Électriciens sans frontières (French international NGO, fighting against inequalities of access to electricity and water)
EU	European Union
FDE	Fonds de développement de l'électrification (Electrification Development Fund; Burkina Faso)
GRET	Development professionals (French international NGO, formerly Groupe de recherche et d'échanges technologiques)
NGO	Non-governmental organization
PBS	*Palli Bidyut Samities* (rural electricity cooperatives in Bangladesh)
PPP	Public–private partnership
PSD	Public service delegation
SINCO	Société d'infrastructures collectives (Collective infrastructures company; Burkina Faso
SLG	Structures locales de gestion (local management structures; Niger)
STRO	Social Trade Organisation (Dutch NGO)

Agence française
de développement
5, rue Roland Barthes
75012 Paris I France
www.afd.fr

About AFD

Agence Française de Développement (AFD) Group implements France's policy on development and international solidarity.
Comprised of AFD, which finances the public sector and NGOs; Proparco, which finances the private sector; and soon, Expertise France for technical cooperation, the Group finances, supports and accelerates transitions towards a more resilient and sustainable world.

We are building – with our partners – shared solutions, with and for the people of the Global South. Our teams are active in more than 4,000 projects in the field, in the French overseas departments and some 115 countries, including areas in crisis. We strive to protect the common good – promoting peace, biodiversity and a stable climate, as well as gender equality, health and education. It's our way of contributing to the commitment that France and the French people have made to fulfill the Sustainable Development Goals. Towards a world in common.

Disclaimer
The analyses and conclusions of this document are entirely those of their authors. They do not necessarily reflect the official views of the Agence française de développement or its partner institutions.

Publication Director Rémy Rioux
Editor-in-Chief Thomas Mélonio
Graphic design MeMo, Juliegilles, D. Cazeils
Design and production Luciole

Legal deposit 1st quarter 2021
ISSN 2680-7476
Printed by the AFD reprography service

To browse our publications:
https://www.afd.fr/en/ressources