

Rural Electrification in Togo: An Institutional Analysis

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Abstract

Rural electrification is today an important element of countries economic development around the world. Access to electricity is believed to alleviate poverty, and therefore is emphasized in the United Nations' strategies to achieve the Millennium Development Goals (MDGs). In this spirit, Togo started in 2012 a new rural electrification program that, after its second phase, will have brought electricity to more than a hundred villages. It is too soon to evaluate the outcomes of the program, but it is still enough time to assess the design of the program as well as its implementation in order to identify areas of improvement. This work takes the approach of a comparative study. First it reviews the body of research on the issue of rural electrification and three successful historical cases from Ireland, the United States, and Tunisia. This step helped in identifying a baseline of minimum conditions required for the success of a rural electrification program. The second step analyzes the rural electrification process in Togo using the IAD framework and referring to the baseline to assess the adequacy of the ongoing Togolese program. The analysis found out that though the new program may be an improvement compared to the past, it still has several areas of improvements, starting with its objectives, which do not really capture the gist of rural electrification.

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1 Introduction

Rural electrification is an important element of economic development in countries around the world. Its importance is reflected through the United Nations' Millennium Development Goals (MDGs), which not only eventually identified the strategic importance of rural electrification in economic development and poverty alleviation, but also prompted a renewed push in countries with low levels of access to electricity in rural areas. The MDGs adopted by the international community in September 2000 include eight targets aimed at the reduction of poverty, with an emphasis on the promotion of primary education, maternal health, gender equality environmental sustainability, reduction of hunger, diseases (HIV and malaria) and child mortality. Though originally absent from the eight targets, access to energy has subsequently proved to be important to the achievement of these goals (Modi, McDade, Lallement, & Saghir, 2005), which led an increased number of countries such as Togo to undertake rural electrification programs as part of their economic development strategies. The Togolese rural electrification program started formally in 2012. Its second phase, currently underway, claims a budget of \$29 million for the electrification of 71 rural localities. It might be too soon, two years after the beginning of the program, to evaluate its outcomes on populations. However, it is still enough time to question the adequacy of the institutional organization around the program, and improve it if needed. This study raises two questions: 1) are the objectives of the Togolese program consistent with the research on rural electrification? 2) Is the institutional organization around the program likely to achieve these targets in the Togolese context?

Togo is a West African country of 56,600 km² (21,853 sq. mi – slightly smaller than West Virginia) with 6.2 million inhabitants, of which around 62% live in rural areas (RGPH, 2010). The country is classified by the World Bank in the group of Low Income countries (World Bank, 2014). The main activity in these areas is agriculture which, according to the CIA World Factbook, remains one of the major driving sectors of the economy (27.6% of the GDP), namely because of the number

of people involved in the activity. However, the financial impact of agriculture on farmers' life is still marginal because of the low level of machinery use and technology penetration in of the field. The World Bank estimated in 2008 that only 129 agricultural machines, including tractors, were used in the whole country. The poverty headcount ratio at national poverty line¹ was estimated in 2011 by the World Bank at 58.7% of the population, while it was 73.4% at the rural poverty line.

Rural electrification is an important challenge for countries like Togo because of the surprising number of people there who still lack access to electricity. Unlike developed countries where every bit of the territory is traversed by the grid, developing countries claim today 1.3 billion people (17% of the world population) who have no access to electricity. Of this number, 84% live in rural areas and more than 95% live in Sub-Saharan Africa and South Asia combined (International Energy Agency (IEA), 2011). As a matter of fact many experts and institutions through their research and experience believe today that lack of access to modern energy services impedes the socio-economic development of the poor (Modi et al., 2005). Electric lighting in a house allows children to allocate longer hours to their studies; availability of electricity in health centers ensures better care for the population by allowing availability and better conservation of medicines locally; availability of modern cooking services prevents women from respiratory diseases caused otherwise by the use of wood (biomass) for cooking, and frees them from the burden of fetching wood (Modi et al., 2005). Because access to modern energy services may alleviate poverty, and the majority of people without access to those services live in rural areas (areas considered as the less privileged), it makes some sense to undertake actions that increase rural populations' access to electricity.

The problem however is that only few of the actions taken in this context have been successful in developing countries. Most recent successes seem to have happened in economically thriving countries, namely the BRICS (Brazil, India, China and South Africa) (Niez, 2010). North

¹ The national poverty rate is the percentage of the population living below the national poverty line. National estimates are based on population-weighted subgroup estimates from household surveys (*The World Bank, 2014*).

African countries have also been successful, reaching levels of rural electrification between 97% and 99% (International Energy Agency (IEA), 2014). But in Sub Saharan Africa electrification rates remain very low; the region is basically the least performing in the world with an average electrification level of 55% in cities and 18% in rural areas (International Energy Agency (IEA), 2014). Togo, in West Africa, fares even worse, with 50% of households in cities connected to the grid and only 3% of in rural areas electrified (Ministere des mines et de l'energie du Togo, 2010b). These statistics could be even worse if they encompassed the actual number of households that use electricity in the electrified localities. There is usually confusion between mere grid extension and actual rural electrification that ensures that households use electricity; this confusion hides the fact that few households actually connect to the grid even after the distributions lines have been installed in their locality or neighborhood.

The poor performance of countries like Togo may be explained by a multitude of factors, one of which is the set of institutions involved in the process of rural electrification. This study analyzes the Togolese rural electrification with regard to its objectives, and the way the participants in the process interact to achieve the targets. The study relies on the Institutional Analysis and Development (IAD) framework to answer these two questions. This framework allows the researcher to analyze the issue from the perspective of the context, the action situation, the patterns of interaction, and the outcomes. Since the Togolese program is still in its beginnings, there will be little emphasis on its outcomes. The next section offers a background for rural electrification, through a review of previous research and successful country experiences. The third section introduces the analytical framework of the study, followed by its application to the Togolese case in the fourth section. The last section sums up and compares the findings from sections two and four; it highlights the areas of improvement of the Togolese case with regard to the experience of other countries and suggests some policy recommendations.

2 Literature Review

Rural electrification is more and more part of the development debate, especially since the establishment of the millennium development goals (MDGs) in 2000. Energy access, though not mentioned originally in the millennium development goals, is seen now as a component almost indispensable for the achievement of the eight targets (Modi et al., 2005). This section presents the benefits expected from rural electrification, the challenges faced by countries, and how these challenges have been addressed across the globe. Another subject present in the literature is the technological options available for rural electrification. However, because the primary interest of this work is the institutional organization around the process, little attention will be given to the technology aspect.

2.1 Benefits of rural electrification

Rural electrification benefits both households and communities at the economic and social levels (cf. table 1). Impacts for households are said direct because they result from the household's own investment. On the other hand some members of the community can benefit indirectly of outcomes for which they haven't invested.

Table 1: Benefits of rural electrification

	Social	Economic
Household (Direct)	urban-level comfort and convenience	Income generation (savings on lighting, longer business hours, increased productivity, etc.)
Community (Indirect)	Gender equality, Education, health, security	New Industries and businesses, Job creation

From an economic standpoint, electrification is expected to generate an additional income for poor households (Barnes, 2007, p. 5; Fluitman, 1983, p. 21; Independent Evaluation Group (IEG), 2008; Niez, 2010, p. 13). Experience showed that the most common use of electricity in rural households is lighting, which according to the World Bank Independent Evaluation Group (IEG) (2008, p.39) is cheaper than other means such as kerosene; the money saved can be perceived as an additional income for the household. For households owning businesses, lighting helps in prolonging business hours, therefore increasing income. Agriculture, the predominant activity in rural areas, can also directly benefit from electrification through better irrigation from electric pumps, leading to increased crop yields. At the community level, electricity can favor the creation of new income generating activities and jobs, such as local manufacturing or repair of machinery (namely for agriculture), the processing and conservation of agriculture products and food including crops, milk, meat, etc. (Fluitman, 1983). Fluitman (1983) also notes that some policies have in mind to attract existing industries to these areas, closer to the raw material needed for production, leading to job creation and more profit for the industries.

From a social perspective, the ultimate objective of rural electrification is to make life in rural areas as convenient as in cities. These benefits most concern women and children. The literature is unanimous on the positive impact lighting has on the study hours and academic results of children (Independent Evaluation Group (IEG), 2008, p. 46; Niez, 2010, p. 13), which is a long term guarantee of socio-economic improvement for the local communities. With regard to women, (Niez, 2010) argues that electric lighting allows women to manage more efficiently the time and energy they put in their household chores. She is backed up on this point by Cecelski and the Asia Alternative Energy Unit (2000) who note that “rural energy poverty has a gender bias” because women pay the highest price for energy-related activities in the household, either in terms of energy spent working or exposure to health threatening air conditions. Rural electrification therefore has a potential improve gender equality. In addition, the time saved on household chores can be used on

other income generating activities outside of the house (Independent Evaluation Group (IEG), 2008). This observation is supported by Dinkelman (2011) and Grogan & Sadanand (2013) who found statistical evidence of the positive effect of rural electrification on female employment outside the house. Finally, electrification has been found to reduce fertility rates (Grogan, Louise & Asha Sadanand, 2009; Herrin, 1979; Independent Evaluation Group (IEG), 2008; Peters & Vance, 2010) in rural areas, probably thanks to the availability of television and radio sets that contribute to the education of rural population on health and social related issues.

Social benefits at the community level include mainly health, information, and security. The electrification of health centers for example allows for on-site conservation of medicine thanks to refrigeration. The use of electricity can improve indoor air quality, due to a lesser use of kerosene, and therefore reduce the rate of respiratory diseases in the population; electricity also brings in the locality a feeling of improved security because streets are relatively more lighted (Independent Evaluation Group (IEG), 2008; Modi et al., 2005).

However all these benefits come with several caveats, which is probably the reason why not all rural electrification endeavors are successful with regard to their socio-economic effects on the rural poor. Barnes (2007, p. 7) for instance argues that rural electrification is unlikely to improve poor households' socio-economic conditions if it is not coordinated with other development programs. Some accompanying conditions are access to credit or the existence of a fair market for farmers to sell their products (Niez, 2010, p. 13). For Foley (1992), rural electrification can be beneficial only after a threshold of poverty has been overcome. Moreover, Barnes (2007, p.8) warns rural electrification may actually increase inequalities within a community if not well designed and implemented; electrification at first only favors the non-poor households which can afford to subscribe to the service. This last observation suggests that there may be a reverse causality or an endogeneity issue related to the relationship between rural electrification and socio-economic welfare (Peters, 2009); in other words, electrification may not actually improve people's living conditions,

because instead households already better-off are the one using the service. For Fluitman (1983, p. 43), the reported benefits of rural electrification may be overstated because of the lack of methodological rigor in the evaluation of the programs.

A last counter argument against rural electrification is the value of its benefits compared to the cost related to the initiative. Because they are abstract, the social outcomes of rural electrification are hard to quantify or to assign a money value; they are therefore usually excluded from cost benefit analyses, which makes the enterprise look at first non-profitable. But as the next section shows, there are more objective issues that make rural electrification less attractive, and these reasons are related to the characteristics of rural areas.

2.2 The challenges of rural electrification

Rural electrification is considered an expensive undertaking, especially from the perspective of electricity companies, because of the characteristics of rural areas. Rural areas are poor economically, not densely populated, far from the grid, and their households sometimes are built far from one another (Barnes, 2007, p. 9; Niez, 2010, p. 12). Some localities can be not only remote but also difficult to access because of their relief, geography (rivers, forests), or harsh climatic conditions. In these situations the initiative can be either perilous or too expensive to carry out (Niez, 2010, p. 12) and, later, to operate and maintain (Barnes, 2007, p. 9). The utility company therefore has sometimes to depart from its traditional standards, and come up with new designs that fit the local conditions in order to lower the costs of the connections. The other challenge for the utility company is that even after overcoming all these obstacles, because of the low levels of income in these areas, only few rural households actually connect to the grid, and those which connect have very low electricity consumption.

On the other hand, the investments required for rural electrification are extensive. Even when assumed that the country already has in place enough power infrastructures to meet the additional demand that the new rural localities will constitute, the company still has to increase its investment in the fuel necessary to generate electricity. This requirement can be relaxed only in presence of renewable energy generation plants (such as solar, wind or biomass plants), which is seldom the case in developing countries including Togo. All these considerations put together are equivalent for utility companies to low demands and low returns on investment (if not losses), which rationally do not justify any investment. This situation makes cities, where the population is denser and wealthier, more attractive for electrification investments at the expense of rural areas.

Another challenge that is often overlooked is the motivation of the local populations to invest in the service, which is a prerequisite to the creation of a market for the service. Electricity is often introduced to populations as a mean to improve their immediate living and economic conditions, so populations seldom oppose such projects today. But having them spontaneously reorganize their budget in order to devote a share of their income to the new service is another question. Therefore, even if electricity is at first welcomed with enthusiasm in rural areas, the utility company or the government often have to put in place additional programs intended to lower the access costs related to the service, and motivate households to invest in the service. Such programs often come as information campaign and subsidies, which call for additional investments from the government.

However, Barnes (2007) observed that politicians can have a perverse effect on the process. Because the programs are government-funded, politicians happen to meddle in the decision process of the utility company regarding for example the localities to connect to the grid, or the connections to maintain despite their non-payment of bills. Finally he argues that a challenge at the design level will also be for the policy maker to decide whether to focus on the productive use of electricity or on the use of the service in households. All these challenges are somehow similar across countries, but

addressed differently. The next section shows how some countries have successfully addressed these challenges.

2.3 Historical cases of rural electrification

2.3.1 Ireland

The situation in Ireland when the country started its rural electrification policy is, to some extent, very similar to that of most developing countries today (Shiel, 2007). At the time (1946), Ireland was a young nation, but already faced the hardships of a World War, and the economic depression of the 1930s. But thirty years after the beginning of the scheme, 98% of rural areas were connected to the grid. The electrification policy of Ireland started in 1925 (four years after the independence) with the enactment of the Shannon Electricity Act, and the establishment of the electricity supply board (ESB) in 1927. But it was not until November 1944 that a formal rural electrification scheme – with the specific objective to connect rural households to the grid – was launched (Shiel, 1984).

Having acknowledged the importance of agriculture production for the country, the government asked the state owned utility company (ESB) in 1939 to elaborate a rural electrification plan including the financing options to consider (Shiel, 1984, 2007). The ESB's proposal, submitted in 1943 had been unanimously approved by the political body of the country, aware already at the time of the potential benefits of electricity in rural areas, especially for women in their household and farm works. The financing of the program was a major concern, based on the technical reasons mentioned in the previous section: low density of population and low loads. But more surprisingly, the government had also to deal with the reticence and skepticism of rural populations (especially the farming community) towards electricity, a new technology back then. There was obviously the high cost required for the initial connection, but households were also concerned with their security (fear

of electrocution), and discomfort (lighting reveals hidden and poorly maintained parts of the house) (Shiel, 2007).

The government envisaged cross-subsidy as a solution for the financing concerns, but the 240,000 urban households were not enough to pay for the connection fees of the estimated 280,000 future rural households. Another solution was to reduce the capital costs of the program by adopting a single phase distribution in rural areas, instead of the tri-phase used in cities where loads are more important. In the end the state decided to bear 50% of the cost of the program (Shiel, 1984, 2007; Watson, 2013). But the key to the success of the program remained greatly dependent on the local populations believing in the program. For this, a special unit of the ESB – the rural electrification office (REO) – had been created with the mission of rallying the population to the cause.

Despite being part of the ESB, the REO was given great latitude, which according to Shiel (2007) influenced the success of the program. The REO established local representations led by “area organizers” who went home by home and farm by farm to market households to invest in electricity. Demonstrations sessions were also held with the help of parishes to show the safeness of electricity. To further spread its electricity gospel, the scheme also relied on school teachers, government officials, pensioners, businesses, etc. who were more receptive to electricity because of the immediate advantage it provided them. This group of people often militated in grassroots organizations such as Muinntir na Tire, the Irish Countrywomen's Association, or Macra na Tuaithe which greatly helped in connecting with the population. The main message was that electricity had the potential to make farmers’ work more efficient and less time consuming, leaving them with more free time to spend on leisure or other productive activities. For Shiel (2007), the major impact of this decentralized approach of the REO was that it gave a human face to the administration running the program.

The rural electrification scheme also benefitted from complementary rural development programs implemented by the government such as the promotion of water supply (Shiel, 1984,

2007). This innovation, supported by grants from the ministry of agriculture and promoted by Irish Countrywomen's Association, gave a relative boost to the program. Having running water on tap seduced many households and communities, especially when group water schemes were introduced in 1957 to make the infrastructures more affordable. From a macroeconomic perspective, Shiel argues also that the adhesion of the country in the European Economic Community in 1973 helped as well; it opened new markets oversea for farmers, which helped increase their production and therefore their income and electric consumption.

2.3.2 United States

In the 1930 44% of the US population still lived in rural areas (U.S. Census Bureau 1934) and less than 13% of them had electricity in 1935 (U.S. Census Bureau 1935), while in the same period nearly 90% of rural areas were electrified in France and Germany (Davis, 1986). The conditions of farmers were worsened by the 1930s economic depression and the poor climate conditions of the time. The government tackled the issue by creating two agencies specifically dedicated to the betterment of rural areas: the Rural Electrification Administration (REA) in 1935 and the Tennessee Valley Authority (TVA) in 1933 (Brown, 1980; Wolman, 2007). The combined actions of the REA and the TVA helped increase the rural electrification level from 13% in 1930 to 94% in 1950, but their success probably owes a lot to the “New Deal” – the broader policy intended for the economic recovery of the whole country.

The REA was created by executive order in 1935, as part of the President Roosevelt’s New Deal package, with the primary goal of providing farms with inexpensive electric power and improve living conditions in rural areas. The TVA on the other hand was created with a more diverse objective and a more limited scope. Its mandate at its creation in 1933 by a congressional charter was to redress the economy of the depleted Tennessee Valley (made of parts of Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia) by providing the region with electric power and

fertilizer for farming (David Ekbladh, 2002; Wolman, 2007). The major issue faced by the program came from the private electricity companies of the country which strongly opposed the REA and the TVA's involvement in the sector. Despite their lack of interest in investing in rural areas (because of the venture being unprofitable) the US private electricity companies argued that the government's involvement in power production and distribution was unfair. They were also supported by a part of the political class, especially at the Congress, who thought that initiatives such as the TVA were socialistic. Sometimes, the companies went as far as to subvert the local cooperatives that were involved with the REA (Brown, 1980, pp. 71–72; Muller, 1944, pp. 37–38; Wolman, 2007). But these protests had little effect on the process; the majority of the political class and the population bought into the process in order to catch up with other developed countries such as Canada and Sweden which based their rural electrification on a similar scheme (Brown, 1980, p. 17).

The main strategy of the REA was to provide financing through self-liquidating or low interest loans to farmer cooperatives, non-profit organizations, or local / state governments, in order for them to invest in power plants, as well as transmission and distribution lines, all independent and locally owned. The agency also provided counseling to these local utilities, and undertook an information campaign, namely through its "electric circus", to educate farmers on the advantages of electricity (Campbell & Karg, 2000). The TVA on the other hand helped in supplying cheap electricity to the utilities where possible (Wolman, 2007). But this success is not to the sole credit of the REA; farmer organizations such as the Committee on the Relation of Electricity to Agriculture (CREA) also played an important role in the process. The CREA funded several experimental projects in Alabama and Minnesota to assess the impacts of electricity on agriculture. For Brown (1980), these experiments had been decisive in the rural electrification process as they gave insights on the sectors of farming where electricity could be the most useful. Farmer cooperatives were mainly non-profit, and in order to serve all levels of income allowed poorer farmers to work during the construction phase of projects to pay for their share of fees (Brown, 1980, p. 70).

In order to address the issue of the low rate of return due to the low levels of electricity consumption, the government facilitated farmers' access to appliances such as refrigerators and water heaters. One such initiative came from the TVA's Electric Home and Farm Authority (EHFA) which offered loans to farmers and negotiated with manufacturers to make appliances available in rural areas, namely at power companies (Brown, 1980, pp. 38–39). The EHFA also offered farmers to get together and own communal larger appliances when they were too poor to afford one individually (Wolman, 2007). This scheme helped local businesses flourish and increase farmers' electric consumption to the levels of cities, leading to the reduction of the costs related to grid extension (Wolman, 2007).

2.3.3 Tunisia

In a review of the current rural electrification policies in developing countries, Barnes (2007) identified three types of approach. The first type of policy follows the US approach, and focuses on cooperatives to carry out rural electrification. The second approach— the most commonly adopted — follows the Irish example based on a state-owned utility company. This preference is independent of the level of economic development, as Niez (2010) showed that even emerging countries favor this approach. Finally, some countries — though very few — entrust the process to private decentralized electricity companies. This section presents the case of Tunisia, one of the most successful countries in Africa in terms of rural electrification.

Tunisia has today a rural electrification level of 99%, comparable to its neighboring countries of the Maghreb which all have levels between 98% and 99%. For (Cecelski, Dunkerley, Ounalli, & Aissa, 2007), the Tunisian success is mainly due to the fact that rural electrification was not an isolated program by itself, but part of a bigger rural development policy aimed at improving social equity and gender equity. The rural development policy started in 1972 and is on-going, which suggests a consistent support from the government to the program over the years. The rural

development policy is implemented based on a five-year plan that sets the objectives to achieve with regard to three main sectors: education (with an emphasis on girls), health (especially of women), and rural electrification. Rural electrification, as part of the rural development plan, was funded through the Regional Development Program (Programme régional de développement – PRD). In 1984, the state founded the Integrated Rural Development Program (Programme de développement rural intégré –PDRI) which had been added to the scheme, with the objective to offer assistance in more specific areas including vegetable production, irrigation and electrification (Cecelski et al., 2007). Two additional programs were created, at the initiative of the then President Ben Ali, to support projects that didn't meet the strict criteria of the PRD and the PDRI. Another similar action was the development of a photovoltaic program for the remotest areas.

The PRD was inclusive in the sense that the allocation of investment by sectors and localities was decided (consistently with the five-year development plan) between the Ministry of Economic Development (Minister du Développement Economique – MDE) and the regional governments of the country (Cecelski et al., 2007). The MDE was assisted in the task by the ministry in charge of the energy sector, whose role was to supervise the implementing agencies through the National Rural Electrification Commission (Commission Nationale d'Electrification Rurale – CNER). The implementing agencies were STEG (the national electric utility) and ANER (the national agency for renewable energies, overseen by the ministry in charge of the environment). They were in charge of the technical aspects of the rural electrification. STEG was responsible for grid extension, while ANER took on the electrification via solar panels. The CNER (National Rural Electrification Commission) officially coordinated the actors involved. In practice there were both horizontal and vertical interactions among the actors from the rural areas to the ministries through the implementing agencies (Cecelski et al., 2007). The regional governments represent the ministry of interior locally. They were responsible, at the local level, for the selection of the beneficiary localities and the oversight of the timely completion of the work by the implementing agencies.

Here also the program had to be subsidized in order to allow rural populations, who generally have low incomes, to subscribe to the electric service. For the 1997-2001 five-year plan, the government bore approximately 82% of the cost of connection of selected communities and households, and the remaining of the cost shared equally between STEG (the national electric utility) and the beneficiaries. Adapting the North American single phase system helped reduced the cost by an estimated 18 to 24%, but the bill for the Tunisian government since 1977 still topped 200 million TD just in terms of external debt (Cecelski et al., 2007).

These three historical cases reveal three important things about rural electrification. First, it is a long term process that requires a consistent and constant government involvement and support, regardless of the strategy adopted. The process took more than 30 years in Ireland, more than 20 years in the US, and almost 40 years in Tunisia. Second, for a rural electrification program to be successful, it has to be part of a bigger development scheme. In Ireland, rural electrification was part of a bigger intention to increase the participation of rural areas in the economy; in the US, the REA and the TVA were part of President Roosevelt's New Deal; in Tunisia, rural electrification was one of the three pillars of the rural development policy aimed at improving social equity and gender equity. This second point is consistent with the part of the literature that warn that rural electrification can improve living conditions only in the presence of a minimal set of local conditions such as the existence of a fair market for local populations to sell their products . Last, local populations' involvement in the process is crucial for the success for a rural electrification policy. The report on the Irish case insists on the efforts of the utility company to engage local populations; the US experience also highlights how important it is to have local population involved in the process, but more, it emphasizes how local population can take charge of their fate and organize their own electricity business. The Togolese case will be discussed with regard to these three aspects.

3 Analytical framework

This work looks at rural electrification in Togo through the lens of the IAD framework. This section introduces the framework and its components.

3.1 Overview of the IAD Framework

Institutional Analysis and Development (IAD) can be used either as a research method or a tool for policy analysis (Polski & Ostrom, 1999, p. 2), which is the way it is used here. It is a framework, more than a theory or a model, and most work on the subject start with this distinction. A framework is, according to (Ostrom, 2011), the first step in a theoretical analysis; it helps the researcher identify, categorize, and organize the factors that characterize better an issue (McGinnis, 2011, p. 4; Ostrom, 2011, p. 8). Elements identified by frameworks are likely to be necessary for all the theories related to an issue, and a framework can be compatible with several theories (Ostrom, 2011). A theory goes one step further than the framework by making assumptions on the direction and the magnitude of the relationships among the different factors identified by the framework. Finally, models only slightly differ from theories in that they help make more specific assumptions and predictions based on the relationships posited by theories (McGinnis, 2011, p. 4; Ostrom, 2011, p. 8). The IAD framework will therefore help identify concepts that are deemed important in the issue at hand, but the researcher will have to rely on theories from many different disciplines (sociology, economics, etc.) to show how these elements influence each other.

What are institutions, and why do they matter in policy analysis? The term “institution” is commonly associated with organizations, but the term actually refers to the rules and principles that these organizations work to defend or promote. Polski & Ostrom (1999) define an institution as “a widely understood rule, norm, or strategy that creates incentives for behavior in repetitive situations”. For McGinnis (2011), they are human constructed – either formally as laws, policies or procedures or informally as norms, practices or habits; they constrain the choices people make, and they define the

outcomes of their choices. For these authors, institutions are therefore a good way to know how and why people do what they do, which is one of the objectives of a policy analysis. Their study is even more necessary because institutions are most of the time abstract and only implicitly accepted among the actors of a policy situation (Polski & Ostrom, 1999, p. 3). For Polski and Ostrom (1999), an institutional analysis of a policy prevents policy makers from falling in the “blue print approach” trap, where a successful policy is wrongly replicated broadly without any consideration to the fit between the initial context and the current one (Polski & Ostrom, 1999, p. 4). Last, the IAD accounts for the complexity inherent to real life policy issues faced by policy makers (Gibson, Anderson, Ostrom, & Shivakumar, 2005, p. 24); the framework provides according to Polski and Ostrom (1999, p. 4) a basis to integrate inputs from the different perspectives and disciplines necessary to discuss today’s issues. An issue such as energy today can no more be discussed without, at the country or global level, taking into account economy, environment, society, climate change, health, or even security.

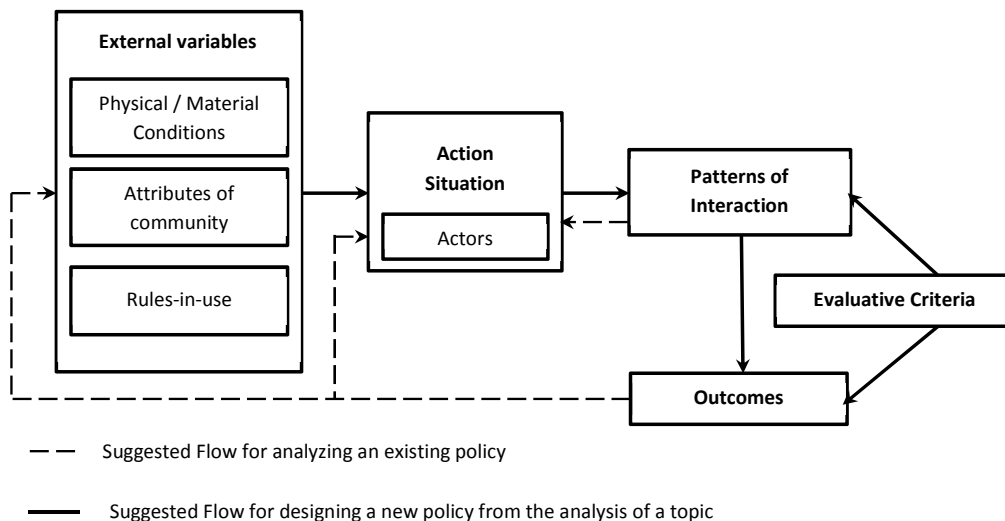
3.2 Components of the IAD framework

As a framework, the IAD makes no claim about the relative importance of the components of a policy. It merely provides the researcher with a set of categories for analyzing a policy situation. It identifies four relevant components: the context, the action situation, the patterns of interaction, and the outcomes. For Gibson et al. (2005), the IAD approaches a policy as an action situation characterized by a specific context where actors interact, driven by different incentives in the pursuit of a given outcome. The arrows in figure 1 don’t imply the order in which the framework progresses, but instead the effect of elements on one another. As such, outcomes are derived from the patterns of interaction among participants; however past outcomes can lead to changes in behavior of the

participants resulting in an alteration of the situation and the improvement of the following outcomes (Ostrom, 2011, p. 11).

The framework acknowledges the dynamicity of policy making, and the necessity of feedback in the process. Therefore the order in which the components of the framework – context, action situation, incentives and actors – are analyzed depends on the objective of the research and the type of policy under consideration. For the evaluation of an existing policy, the analyst may travel the framework backward starting with the outcomes, while it is suggested to start with the context when looking at an issue for which a new policy is being designed (Polski & Ostrom, 1999). But in general the framework is flexible, which is why Polski and Ostrom (1999, p. 9) suggest to “analyze each component in the order that makes the most sense” to the policy situation under consideration.

Figure 1: Components of the IAD framework (Adapted from E. Ostrom, 2011, p.10)



3.2.1 The External variables

The external variables in IAD are also referred to as the context (Gibson et al., 2005) or the “attributes of the world affecting action situations” (Ostrom, 2011, p. 21). The concept describes the

characteristics of the environment surrounding and influencing the policy situation at hand at the time of the analysis (Gibson et al., 2005). It encompasses the physical conditions of the environment, the attributes of the concerned community and the rules-in-use in the community, which deeply influence the behaviors (actions and interactions) of the participants involved in the action situation as well as the outcomes related to these behaviors.

3.2.1.1 *Physical and material conditions*

Physical or material conditions talk to the economic nature and the constraints that pertain to the production and the provision of the good (or service) related to the case under study – here rural electrification (Gibson et al., 2005, p. 34; McGinnis, 2011, p. 10; Polski & Ostrom, 1999, p. 9). The emphasis on these conditions, according to Polski and Ostrom (1999) and Gibson et. al (2005), is expected to give the analyst an insight on the fit between the nature of the good (private or public) and the institutional structure used by the policy to provide it. The analysis can also consider process (such as technology) and the resources (financial, human, infrastructure) required for the production and provision of the good.

In economics, the nature of a good or service is determined according to the levels of subtractability (or rivalry) and excludability pertaining to it. Subtractability relates to what extent the consumption of the good by a certain member of the community reduces the benefit of the other or subsequent members; it therefore talks to the number of participants allowed to the consumption of the good at a time. A low level of subtractability implies the possibility for multiple people to enjoy the good at a time, while conversely, high subtractability encourages individual consumption. Excludability tells whether some members can be denied the access to the good, and to another extent the cost involved in denying access. So a low level of excludability implies a high cost to exclude, and inversely. A high excludability can therefore requires a certain form of contribution prior to accessing the good, while a low excludability can encourage free-riding (Gibson et al., 2005; McGinnis, 2011; Polski & Ostrom, 1999).

Table 2: Economic goods classification

		Excludability	
		Low	High
Subtractability	Low	Public	Club / Toll
	High	Common pool	Private

Table 2 shows that a good or service, by its nature, can therefore fall within four possible categories based on its levels (low or high) of subtractability and excludability, which will determine the strategy adopted by the policy maker to provide this good. Gibson et al. (2005) suggest that a market based approach is more likely adapted to private goods, while public goods require rules that guarantee efficient production and fair provision of the service.

3.2.1.2 *Attributes of the community*

The attributes of a community refer to the socio-cultural characteristics (population, ethnicity, history, education, etc.) of the community (McGinnis, 2005). (Polski & Ostrom, 1999) extend the definition to the homogeneity of the values, beliefs, level of information and preferences of the different participants regarding the objectives and the strategies of the policy. For Gibson et al. (2005, p.35), these characteristics can determine the “capacity of a community (compared to another) to self-organize” either to support, oppose, or sustain the actions and outcomes relating to a given policy. These considerations are therefore of great importance when trying to adapt a successful policy from a context to another.

3.2.1.3 *Rules in use*

Rules, according to Gibson et al. (2005, p.33), are “shared understandings” among the participants in a situation about what is allowed or not, and what may happen as sanction when a

non-allowed action is committed; Ostrom (2011, p.17) adds, that they “are the result of implicit or explicit efforts to achieve order and predictability among humans...” According to Polski and Ostrom (1999), “the focus of institutional analysis is on understanding the formal and informal rules that affect behavior in the action arena”. The analysis of the rules applied in an action situation will therefore be of a major interest in an institutional analysis, because they shape the actions of participants and their interactions with one another. When discussing rules in the IAD framework, the analyst looks for information about the origin of these rules, their nature, and the degree to which participants observe them or not (Polski & Ostrom, 1999, p. 15). Regarding their origin, rules can be formal (i.e. based on laws and regulations); but most rules that characterize interactions in an action situation stem from the accumulation of experience among participants who went through different situations together (Ostrom, 2011, p. 18). Regarding their nature, the framework closely relates rules to the actors: which one of them respect the rules or not and why, their position, their authority, their level of access to information, their scope of action and decision making (Ostrom, 2011; Polski & Ostrom, 1999).

3.2.2 The action situation

The action situation is usually the first element to identify when conducting an institutional analysis; it is the conceptual social space where the actors in a given process interact with each other in the pursuit of their goals. The concept, according to Gibson et al. (2005) and Polski and Ostrom (2005), helps the analyst identify explanatory patterns in the way actors behave in a particular setting. In practice, analyzing the action situation requires the researcher to take a closer look at the actors involved in the process with regard to their level of involvement in the decision making process. This comes back to analyzing the resources – time, finance, human, etc. – each actor (individual or group) has access to, and the process by which they make decision in order to achieve their objectives.

The framework views actors as individuals or organizations in interaction or conflict who must decide how to use the limited resources they possess in order to achieve their objectives. For this, they process information based on the values and beliefs they hold, and develop strategies by choosing among different courses of action based on their ordered preferences (Polski and Ostrom 1999, Gibson et al. 2005). This picture of the actors in the IAD borrows from economic theories, namely the (bounded) rational choice theory, but theories from other disciplines can also be used to explain actors' behaviors.

3.2.3 Patterns of interaction

Patterns of interaction refer to the behavior of actors relative to one another in a specific action situation. These patterns usually flow logically from the analysis of the context and the actors in an action situation. Though inherent to the action situation, patterns of interaction are worth isolating because they allow the analyst to make inferences on the relationship between actions and outcomes. For example, a constrained policy situation, where actors only have a limited set of actions and strategies allows researchers to make stronger predictions than in settings with multitude of actors or options, and where several arenas entangle (Polski and Ostrom, 2005). Unfortunately, the latter is the most likely case an analyst will face in a real world setting, because the decision making process (and therefore the action situation) is dynamic. Not only do participants choose their course of action based on their values and beliefs, but they also base their decision on past experiences and the actions of the other participants, which altogether can alter their initial beliefs and values or the structure of their organization. In these situations, participants often have a broader range of strategies, which only allows for weak inferences. However the analysis still remains valuable for the slightest new information or insight it may reveal about the issue.

3.2.4 Outcomes

Outcomes are the results yielded by the policy. A researcher can discuss outcomes in the IAD from two perspectives. He can either try to identify the outcomes happening or having happened in the past, or predict the ones that can result from the patterns of interactions among actors in the action situation. Regarding the first approach, the analyst has to be cautious not to pick up spurious effects. According to McGinnis, (2011), outcomes are not necessarily the product of the only action situation under consideration; they are very likely to be influenced by other situations closely related to the one considered, and even by factors out of human control (McGinnis, 2011, p. 12). The second approach, according to Ostrom (2011), is dictated by the configuration of the action situation. A “constrained” situation where actors limited courses of actions and strategies allows the researcher to make stronger inferences about the outcomes, than in a situation with a greater number of actors and choice possibility (Ostrom, 2011, p. 14). Unfortunately, most real world settings come with overlapping action situations, multitudes of actors and almost infinities of choices, which makes the analysis or the prediction of outcomes challenging for the researcher. An issue such as rural electrification illustrates this complexity as it targets the improvement of the socio-economic conditions of poor populations, which depends on actions happening not only in several different sectors but also at different levels (local or national).

3.2.5 Evaluative criteria

Other than predicting or identifying outcomes, a researcher can also evaluate the outcomes expected from the objectives of the policy. An evaluation can be performed with the goal to identify 1) areas of satisfaction or improvement (McGinnis, 2011, p. 13) or 2) alternative ways to achieve the desired outcomes (Ostrom, 2011, p. 15) For McGinnis (2011) the evaluation can be both internal (by the participants themselves) or external (by a researcher for example); for Ostrom (2011), the criteria may be designed to assess both the outcomes and the process by which the outcomes are achieved. In

any case the evaluation of policy outcomes has to be based on rigorous and objective criteria. The choice of the evaluative criteria is left at the discretion of the analyst depending on the particularities of the issue at hand, but they often include efficiency in the use of the available resources; equity in the distribution of the outcomes; accountability of officials to populations; conformance to local values, legitimacy, sustainability, etc. (McGinnis, 2011; Ostrom, 2011; Polski & Ostrom, 1999).

3.3 The framework in practice

Though all the elements of the framework introduced above are all of importance, they are not all treated equally in an actual IAD study; actually they are not even always treated in the original order of the framework. For example, Ostrom (2001) starts her introduction of the framework with the action situation and the actors, and then moves on to the outcomes and their evaluation. The next element she discusses is “rules” which she treats more extensively than the other elements of the framework and separately from the other components of the context. McGinnis (2011) also starts his presentation of the framework with the action situation, but finishes with outcomes and their evaluation, while discusses in between and separately the three elements of the context. So these two authors for example give little attention to the patterns of interaction. Similarly, Gison et al. (2005) in their study of the Swedish aid programs in developing countries focus specifically on the action situation and the actors, the patterns of interaction (incentives) of the actors, and the external variables influencing these interactions.

In short the IAD framework is flexible, and its outline as presented in figure 1 is for indication purposes. Polski and Ostrom (1999) advise researchers to analyze the elements of the framework “in the order that makes the most sense” for the issue under consideration. The next section where the IAD framework is applied to the case of rural electrification in Togo progresses in the same spirit.

4 Analysis of Rural Electrification (Programs) in Togo

The analysis is qualitative, and mainly relies on secondary data and documents from the Togolese Ministry of Mines and Energy (MME). These documents consist of studies and statistics from the ministry and the utility company, as well as laws and regulations in the country. For comparison purposes the analysis will also refer to the works cited in the literature review.

After the history of rural electrification in Togo, the analysis starts with the presentation of the issue and the actors involved in the action situation and progresses by looking at the factors influencing the actions situation. These factors are both related to the actors and the environment where they interact. It has also to be mentioned that all the elements of the framework have not been discussed to the same extent; though the analysis made the effort to touch all the components of the framework not all of these elements are relevant to the Togolese case. More specifically, there is no thorough discussion of the evaluation of the outcomes of the program, because the work posits in the beginning that it is too soon to evaluate these outcomes. However each section refers to these outcomes in the way the different elements and factors discussed are likely to affect these outcomes.

4.1 History of rural electrification in Togo

The Togolese government has been undertaking rural electrification actions since at least 1992. The actions mainly consisted of grid extension to villages located near transmission lines, electrification of some villages with solar power, and feasibility studies. These electrification projects are funded both with the country's internal budget and grants / loans from from West African states institutions such as ECOWAS (Economic Community of West African States) and the UEMOA (Union Economique et Monetaire de l'Afrique de l'Ouest). The ministry of energy documents 50 villages electrified over the period between 1992 and 2011 through the channel of the "investment and equipment budget" of the country, while loans and grants allowed for the connection of 117

villages. These numbers give a total of 167 villages electrified out of the 3592 identified between 1992 and 2011, which gives an electrification rate in rural areas of 4% (Afo et al., 2013). In 1995, the government realized a pilot project of rural electrification via solar panels in two villages of the country – Atalote in the north and Gape-Kpedji in the south. Unfortunately, the experiment failed due to a lack of maintenance of the equipment, itself due to a shortage of funding from the government and the inability of local populations to take over the funding (Afo et al., 2013; Dakpui, 2009). Following the country's adhesion to the 2005 ECOWAS strategy to increase access to modern energies in rural areas in order to achieve the MDGs (ECOWAS, 2005), the government established a multi-sectorial committee – the COMET. The committee realized several studies related to rural areas and the ways in which access to electricity improves their living conditions at home and with regard to health and education (Afo et al., 2013; Dakpui, 2009). The country also invested with the assistance of the Islamic Bank of Development (IBD) \$200,000 in a rural electrification feasibility study at the country level.

Today the country is in the middle of its first formally denominated “rural electrification program”. The program which started in 2012 is a considerable improvement compared to past actions based on the pace of its actions and its budget. The first phase of the new program allowed for the electrification of approximately 40 villages. The second phase targets 71 localities for a budget of \$15 million, funded through a loan from the Exim Bank of India (“Electrification rurale,” 2013). This work analyzes the new electrification program in Togo with regard to its objectives and the way it is implemented. The new program is questioned as to whether it is likely to provide the benefits expected from a rural electrification program – improve rural populations' lives by giving them access to electricity.

4.2 The action situation: the issue and the participants

4.2.1 The issue with rural electrification in Togo

The action situation is the conceptual social space where the policy action is happening. The analysis of the action situation gives, according to Polski and Ostrom (1999), the opportunity to present the issue at hand: how and where it is happening, and the actors involved. The actors are mainly discussed with regard to access to information and decision making power in the process.

The history of the rural electrification process in Togo shows that many actions have been taken by the government in the matter. The problem however is that these actions do not seem to benefit much the populations. The ministry's latest data give the level of rural electrification at less than 5% (Ministere des mines et de l'énergie du Togo, 2010b). But this number only accounts for the number of villages that the grid passes through; it doesn't say how many people or households actually use electricity in rural areas. This distinction is important to make when one observes that rural areas which host more than 60% of the total population, account only for 6% of the electricity consumption of the country (Ministere des mines et de l'énergie du Togo, 2010b). Moreover, Afo et al. (2013) claim that for projects funded with the country's equipment budget, only an average of 7 households per village have connected to the grid; this average is probably the same for projects funded externally through loans or grants since the source of funding is not likely to have any influence on populations decision to connect to the grid.

The issue with rural electrification in Togo, as presented here, is twofold. First, the pace of electrification is low in rural areas; second, very few people or households use electricity even when the grid is present in their localities. The second aspect of the issue will be the one discussed, because it is more relevant to rural electrification which is about getting people to use electricity (which is the second aspect). The first aspect of the question talks only to grid extension. No matter how little or much grid has been constructed, if it is not used by the local populations, then the program has failed.

So one of the question the analysis will have at heart to investigate is why rural populations do not connect to the grid even when it passes near their houses?

4.2.2 The participants in the rural electrification process in Togo

Three main actors can be identified in the rural electrification process in Togo: the government, represented by the Ministry of Mines and Energy (MME), itself assisted by the regulation agency (ARSE – Autorité de Regulation du Secteur de l'Electricité); the utility company, government owned but granted an autonomous management; and the local populations who stand as the final beneficiaries of the program.

4.2.2.1 *The ministry of energy*

The ministry of energy is responsible for the organization of the electricity sector regarding the production and distribution of electricity. On the advice of the regulatory agency, it prescribes the norms and rules related to the activities of the sector such as tariffs of electricity, concession of power production, contracting etc. Rural electrification falls therefore naturally under these two organs' responsibilities (Republique Togolaise, 2000). For the current electrification program, as in the past, the ministry is the center of information and decision making. It sets the objectives and targets of the program, as well as the criteria of selection of the villages to electrify. The financial contour of the program is also set by the ministry. In addition to being the steering body of the program, the ministry of energy is also a political body that represents the government's ambitions in the energy sector. This position allows the ministry to rely on public funding for its programs.

In general, a ministerial department is an administrative entity, but a minister by himself is a political figure. So with regard to rural electrification, even if the objectives of the new program in Togo may be limited to a social dimension, the outcomes of the program can have important repercussions on the political arena. The success of the program will probably improve the ministry and therefore the government's image among the public, but a failure can be detrimental to the

minister's position in the government. Besides, the program is publicly funded with an unprecedented budget of \$15 million for its second phase, which sets high stakes for the ministry with regard to the outcomes of the programs.

During the implementation phase of the program, the ministry supervises the execution, but delegates the fieldwork (such as the installation of the distribution lines) to private enterprises selected through a competitive bidding process. However these private companies have little influence at the design level of the program; they are considered here therefore as minor actors in the process and their characteristics will not be discussed in the analysis.

4.2.2.2 *The utility company*

The utility company (CEET) has the monopoly of the distribution of electricity in the country, which makes it another major actor in the rural electrification process after the government. Despite its autonomy of management, the company is under the control of the ministry and the regulation agency (Ministere des mines et de l'energie du Togo, 2012). But in the current rural electrification process, the company is basically at the same level of involvement and information as the ministry. Rural electrification involves the construction of new distribution lines, and brings in new consumers that the company will have to manage, maintain and be responsible for. Also the grid extension aspect involved in rural electrification requires the ministry to match its plans with the company's expansion strategies. So the nature of the relationship between the utility company and the other actors is an important factor in the outcome of the program.

Having a monopolistic distribution market doesn't make the Togolese electricity sector atypical. However the production side of the business falls basically out of the authority of the company and even the ministry of energy. The production of electricity in Togo has historically been ensured by a bi-national (Togo-Benin) entity, the CEB (Electric Community of Benin). The CEB has a monopoly in both countries for electricity production and high-voltage transmission, as well as the

importation of electricity from the other countries of the sub-region (mainly Ghana and Nigeria). The CEB can be considered as a minor actor in the rural electrification debate, since the issue in the Togolese case is not a shortage of supply², but instead a limited access of rural populations to the grid. The following discussions will therefore be limited to the utility company which is in charge of the distribution.

4.2.2.3 *The rural populations*

Rural populations constitute the final major group of actors to consider in the electrification process. The basic administrative unit in a rural area is a village, headed by a chief chosen by traditional means of succession. In Togo as anywhere else in Sub-Saharan Africa, the main activity in rural areas is agriculture. But the importance of the sector is more about the number of people involved, than in the output and income it provides. The low mechanization and technology penetration of the sector makes it that agriculture is mostly practiced at the subsistence level (McArthur, 2013). Rural populations are also considered to be less educated than their urban counterparts (Zhang, 2006). However, with more than 60% of the total population of the country living there, rural areas play an important role in election turnouts, and their votes influence heavily the outcomes of elections (CENI Togo, 2014). Unfortunately, election periods are the only time where these areas receive attention from the administration and the politicians. The rest of the time rural areas are isolated from the rest of the country, especially with regard to the socio-political life of the country.

This situation predisposes the ministry of energy to a top-down approach in its rural electrification policy. A top-down policy making is characterized by an elite made of a few political,

² Following the energy crisis that West African countries went through between 2005 and 2007, Togo invested in 2010 in a new 100 MW power plant which complements the supply from the bi-national CEB to meet the country's increasing demand. Therefore at least on a medium term, supply will not be a threat or concern for rural electrification (SNC-LAVALIN, 2014; SOFRECO, 2010).

administrative or business personalities making decisions for the public (Dye, 2001). Though such an approach has its merits, such as economy of time and resources, Dye (2001) observes that it can have perverse incentives with regard to the objectives of a policy. Because the elite is the one initiating every move, the objectives and the outcomes of the policies they call for may be biased in favor of this few at the expense of the many in the population. This bias might well apply to the current rural electrification program in Togo as well.

Rural areas are not homogenous, and their populations may be affected differently by a program such as rural electrification. With regard to electricity, only the non-poor in rural areas connect at first to the grid, which may increase the inequality gap between poor and non-poor with regard to their access to public services. In addition, when it comes to the evaluation of programs such as rural electrification, it is important to make the difference between the effects on those two groups (farming and non-farming people). Failing to do so can lead to overstating (or understating) the outcomes of the program, as pointed out by Fluitman (1983) when criticizing the methods used to evaluate the benefits of rural electrification.

An argument often advanced in the ministry's working documents as a reason for the poor performance of Togo in rural electrification, is the absence of a dedicated agency to the issue (Afo et al., 2013; Dakpui, 2009; SOFRECO, 2010). But this argument can be dismissed. As a matter of fact, the review of rural electrification experiences around the world proved that the success of the process is independent of the nature and the number of institutions involved, as long as the design of the policy captures the essential elements of the local context (Barnes, 2007). Therefore, a government owned utility or a ministry can as successfully achieve high rates of electrification (case of Tunisia and Ireland) as a rural electrification agency or a rural electrification cooperative. So the current institutional organization of the Togolese energy sector doesn't necessary need a new actor to perform better. However this also means that the new program of rural electrification in Togo,

despite its budget and scope, is likely to yield the same poor results if its design doesn't fit the context of the issue.

The next section discusses how the actors identified above behave in relationship to one another in order to achieve their targets, here the electrification of rural areas.

4.3 Patterns of interaction and incentives

The interactions are not the same among the three main actors involved in the rural electrification process in Togo. There is a strong working relationship between the ministry of energy and the utility company. But rural populations are basically left out of the process; they have little interaction with the utility company, but almost none with the ministry.

4.3.1 Interactions between the ministry and the utility company

There is a strong and good relationship between the ministry of energy and the utility company in general and with regard to the rural electrification process in particular. As mentioned in the previous sections, the utility is state-owned. Even though it has management autonomy and functions as a private entity, the company remains under the oversight of the ministry and the regulation authority regarding the rates charged, or the technical management of the grid (Ministere des mines et de l'energie du Togo, 2012). Even if publicly funded, the program will eventually bring on the grid new clients that the utility has to manage. It is therefore important that the program be run without major conflict with the company's expansion previsions.

But regardless of being state-owned or not, a utility company benefits from a publicly funded rural electrification program, which is why it can be expected that in that specific context the company will be likely to cooperate with the ministry. The company gains potential new clients without investing in the main infrastructure – the grid. One of the main challenges identified in the

literature is the fact that rural electrification gives little guarantee of return on investment, which is why utility companies at the first place are wary of investing in the process. But if they were to do so, they would have to devise strategies to incentivize the local populations to more connect to the grid and consume electricity. Having the government invest in rural electrification instead, frees the company from the need to invest, the risks associated with the investment, and any effort for making sure that populations connect to the grid and use electricity.

4.3.2 Interactions between the utility company and rural populations

The relationship between the utility company and the rural populations is a business – consumer relationship. Rural populations, for the company, are simply clients just at the same title as urban dwellers. The company offers no price discrimination for rural areas which are expected to be economically worse off than cities. Regardless, a publicly funded rural electrification program can have a perverse incentive for the utility company in its relationship with rural areas.

As mentioned before, private companies are wary about investing in rural areas because they have no guarantee for having a return on investment. But when instead the government invests, the company basically has no responsibility or pressure in making the project economic viable. Especially the CEET, being state-owned has no incentive to devise any marketing strategy to motivate or facilitate the access of local populations to the grid. Such a situation once again shifts the balance in favor of mere grid extension at the expense of an all-encompassing rural electrification process that guarantees populations' access to the grid. It can be argued that such a scenario is not much likely, since the utility company will always seek to make money by having new clients even if they are rural. But it can be also argued that the company's strategies when it invests itself in the process will be more aggressive than when investment is bore by the government and the tax-payer. Anyway, it remains important to have it in mind and anticipate such possibilities ahead in the design

of the program. Further, the company can even overlook its rural clients in terms of consumer service since it has little to lose in these areas.

In the US, when the government started investing in rural electrification, the REA (Rural Electrification Administration) also allowed populations to set up local utility cooperatives. The existing monopolies perceived these new cooperatives as competitors and became more interested in rural areas (Wolman, 2007). Similarly, the utility company in Togo will not likely change its valuation of rural areas if some kind of competition is not introduced in the sector. The lowest rate in the current tariff structure of the utility company (CEET) is approximately 13 cents of USD per kilowatt-hour (fixed charges not included), and the lowest connection fee a household (rural or urban) can expect is at least \$200 (Compagnie Energie Electrique du Togo (CEET), 2014; Ministère des mines et de l'énergie du Togo, 2010a). No need to say that these fees are still too high for rural areas where 73.4% of the population is estimated to live below the rural poverty line. But since the company hasn't invested in the line infrastructures, the connection rate is not its concern; the company will keep making profit whether the rural electrification rate increases past 5% or not.

4.3.3 Interactions between the ministry and rural populations

Bluntly put, there is no working relationship between the ministry and the localities selected for rural electrification in Togo. To the defense of the ministry also, rural electrification involves works that have only light impacts on the environment with a moderate footprint; so a priori there is not much concern around the project to discuss with the local populations. The only time, in practice, when populations are approached by the MME for discussion, is when the works require an environmental impact assessment or a compensation for the lands where the electrical infrastructure will stand or pass through. But this financial compensation, benefit only few land owners and doesn't benefit the community as a whole at all.

However, the population might also be excluded because the ministry doesn't think that they can contribute much to the discussions because they have low levels of education. Most importantly, because living in precarious economic conditions, rural populations are not likely, themselves, to oppose an electrification project in their localities. They have little incentive to protest against a project claimed to improve their living conditions. Further, it can be argued that the Togolese culture and society as whole still remain deeply patriarchal. Respect to the elders and the hierarchy are seen as fundamental values not only in rural and urban families, but also at the workplace. One can argue that these values predispose the public administration, and to some extent politicians, to a "command and control" attitude whereby the hierarchy seldom reacts positively to criticisms from the subordinates or the population. The population itself, because raised in a patriarchal culture usually may not feel the need to take part in the decision making process.

This lack of interaction between the ministry and the local populations, even though not directly detrimental to the outcomes of the program, may lead to some perverse incentives for the policy makers. The section introducing rural populations as actors, noted that the latter's being excluded from the process may open the door to several opportunities to shift the benefits of the project from the population to the elite. This work argues that the current program, based on its objectives that do not mention population, favors grid extension over households' access to electricity. This situation benefits all the actors except the local population. The government can take credit for a successful social program which actually do not achieve fully the objectives; the utility company gains in having more infrastructures without having invested; and even the private companies who realize the fieldworks (considered as minor actors) have a share of the pie through the contracts they get from the ministry. Only the poorest of rural populations who are normally targeted by the program are left out.

A recent case which made the actuality in Togo, illustrates how much this lack of interaction between the ministry and the local populations can affect the process. Mome-Hagou is a locality in

the south of Togo. For the last 40 years the village hosted a power infrastructure of the CEB. The CEB, the only organ in charge of production and transmission in the country invest only in high voltage infrastructures, which don't benefit local populations. It can be said that it was probably the government's responsibility to install the transformers and low voltage lines needed to deserve households in electricity. As of 2013, when the second phase of the new rural electrification program started, the locality was still not electrified. The local populations made the news in September 2013 because of their protests that, according to the official news website of the country, disturbed the operation of a CEB power station. The minister of energy in an interview on the radio assured the local populations of their village being listed for the second phase of the rural electrification program. He said in substance: "the electrification process is on-going in several villages, and Mome-Hagou is on the list. We just finished connecting many localities to the grid, and those local populations didn't have to trouble the operation of any infrastructure for that" ("Momé-Hagou sera bien raccordé," 2013).

The case of Mome-Hagou illustrates several shortcomings in terms of local participation that the Togolese ministry of energy should look out for in the implementation of the program. First, it looks like the population of Mome-Hagou was not aware of the village being selected for the rural electrification program. One can also suspect that the actual listing of the village as part of the program happened actually after the protests of the population. But there is no proof to this assertion. Even so, a question can be raised as to why these populations who have been expecting electrification for the past 40 years were not taken into account in the first phase of the program? Were there localities with higher priorities or meeting the selection criteria better?

Second, one can notice through this example that rural electrification is a huge and delicate task that the ministry of energy cannot carry out by itself. For example, villages are currently selected from the offices of the ministry based on geographic, social and economic criteria. But these criteria obviously omit important considerations that leave out villages like Mome-Hagou. The process can

be improved by opening the discussion to rural populations. A way of doing this could be to allow villages to apply for electrification if they meet pre-determined criteria, as done in Tunisia.

Disturbing the operation of the grid is probably not the best way for populations to demand for electrification when they feel that they are unfairly ignored. But the rural electrification program can greatly benefit from an arrangement that allows populations to submit claims for their localities to be considered.

The experience of Mome-Hagou is representative of the average village in Togo. Most public programs are carried out in rural areas without any accountability to local populations. However, Mome-Hagou stands out as an exception because rural populations seldom raise their voices to claim for benefits they are entitled to. This case made the news probably thanks to the leverage the populations had on the **operation of the sector**. But not all villages host a strategic power infrastructure which they can use as leverage. It is therefore important to have in place a formal framework for local populations or civil organizations to speak to public policies in the country. Finally, there is a real chance that the locality of Mome-Hagou will be connected to the main grid; but how many of its people will have light at home given the way the new rural electrification program is designed?

4.4 Exogenous factors influencing rural electrification in Togo

The external variables in the IAD framework refer to the elements outside of the action situation and the characteristics of the actors that influence the behaviors of the participants and the outcomes (Gibson et al., 2005). These elements will be analyzed here with regard to the rules by

which the participants interact with each other, and the physical and material conditions surrounding them³.

4.4.1 Rules in use

Rural electrification is by default realized with the guidelines of the “Law 2000-012 regarding the electricity sector”, and according to the expansion plans of the utility company. There is no text in Togo guiding more specifically the process or the actors involved in it. This lack of a specific text delineating the characteristics of the program leads to many shortcomings, starting with the fact that the current program, despite its scope and budget, is run as any other routine activity of the ministry. There is no documentation at the level of the ministry describing the long term objectives of the program. There is no information on the timeline of the project, the number of phases, or even the number of villages expected to be covered at the end of the process. But the review of successful cases showed that rural electrification is long process and requires constant financial support. It took more than 30 years in Ireland, more than 20 years in the US, and almost 40 years in Tunisia. Such a shortcoming is likely to be detrimental to the process, namely because it may hinder consistency in the implementation of the program over the years.

In addition, contrary to the experiences from successful countries and the research on the subject, the Togolese rural electrification program is not integrated in a bigger social and economic development plan (Barnes, 2007; Foley, 1992). The country has a strategy for poverty reduction (DSRP-C) and another one for accelerated economic growth (SCAPE). However, these policies do not provide any formal framework of cooperation between the energy sector and the others (Republique Togolaise, 2009, 2013). The rural electrification program is therefore basically run directly and exclusively by the ministry of energy. This situation leads to a high level of

³ The framework suggests to analyze the context with regard to three elements: the physical and material conditions, the rules in use, and the attributes of the communities. The attributes of the participants has been ignored here in order to avoid redundancy with the introduction of the actors and their patterns of interaction.

centralization of the process. The presidential order 2005-093 assigns rural electrification to one of the ministry's central services, but this department's attribution seems to be only symbolic (Republique Togolaise, 2005). All publicly funded rural electrification undertakings are placed under the direct supervision of the ministry of energy. The framing of the objectives of the program could also be a concern.

The only stated objective of the project is the electrification of villages without any mention of population-related target, which strongly suggests that the program has only one focus – grid extension. The problem is that a simple construction of distribution lines in localities is not likely to change much in poor populations' lives. One reason for this is that electricity is expensive, and rural populations in their native economic conditions are not likely to be able to afford the cost of the service. Another concern is that the ministry doesn't seem to build on its previous undertakings. The country has adhered to the ECOWAS strategy of access to modern energy services for the achievement of the MDGs. However, the multi-sectorial group (the COMET) established in this respect with the objective to bridge the gap between the energy sector and the other sectors is absent from the rural electrification process. It is not sure either whether its works and studies are considered in the design of the policy⁴.

This section argues that the current rural electrification program in Togo has several lacks. There is no specific documentation on the program spelling out a long term vision; the program doesn't seem to build on the country's previous undertakings related to the issue; and it has no social component to make sure populations will really benefit from the outcomes. These observations make the coherence and consistency of the country's policies regarding rural electrification questionable. Is there among the country's policy makers a deep and shared understanding, belief and valuation of the strategies prescribed in the Togolese socio-economic development policy documents? Or were these

⁴ Even though it can be argued that the COMET should be part of the process, the section on the participants doesn't include the COMET. This is because the focus is only on the actual actors involved in or benefiting from the current program.

policies adopted just for the sake of complying with international organizations' requests in order to access funding? Regardless of the answers to these interrogations, if nothing is done to improve the design of the project, it could quickly become one of the many random undertakings of the sector, with the only difference this time that the bill will be higher for the taxpayer.

4.4.2 Physical and material conditions

The law relative to the electricity sector passed in July 2000 by the Togolese parliament declares electricity as a public service, meaning basically that it is an action to be taken by the government. The one certain thing about a public service is that it is often provided by a government, either directly or indirectly (through a private enterprise), and either free of charge or payable. The reasons guiding a government's decision to provide the service in a certain way and not the other are complex, but they ultimately relate to consumer demand and the economic nature of the good provided by the service

4.4.2.1 *Existence of a demand for electrification in rural areas*

Electricity is expensive to supply in a country like Togo which is not rich in oil or natural gas. So the real concern with a rural electrification process is whether and how to make the poor populations benefit from the services of electricity. Some questions to ask are whether there exists a demand for the electricity in rural areas in Togo where the population is poor? If so, how is this demand identified? How is the service planned to be provided (subsidized, free, marketed)? Are rural populations (despite their low incomes) willing to pay for the service? A survey conducted for the utility company in Togo regarding its future strategies of electrification revealed several interesting findings that give an insight in addressing these concerns. The survey concerned 1,027 households (mainly rural) across the five regions of the country with a response rate of 97.8% (SNC-LAVALIN, 2014).

The study found that in rural areas where the grid is present, only 3.4% of respondents were connected. In addition to these direct clients, only 10% of the sample has been identified as tenants of an electrified apartment or house that doesn't belong to them. Direct clients of the company (house owners) spend on the average the equivalent of \$14.62 per month for electricity, while tenants declare a monthly bill of \$7.4. Alongside the clients of the electricity company, 6% of the surveyed households rely on their own generation units to power their houses. Of these personal power units, solar panels are the most used (76.6%), followed by small thermal generators ran by gasoline (16.3%). This leaves approximately 80% of the households surveyed without electricity, 91% of which claim to be ready to pay for the service if it is affordable. The amounts households agree to pay vary from a minimum of \$2.86 a month to a maximum of \$5.28, which gives an average of \$3.87.

The results of this survey highlight two main facts. First, fixed charges may influence the decision of households to subscribe to electricity, as showed by households' propensity to own their own generation units (6%) instead of connecting to the grid (3.4%) even if the latter reveals to be cheaper in the long-run. According to (Barnes & Foley, 2004), these fixed charges and the initial connection costs constitute a greater limiting factor for households to use electricity than the monthly bills. Talking about monthly bills, the second point to mention is that non-electrified rural households are willing (or able) to pay approximately only half of the lowest amount paid their counterparts who already use electricity. To what extent these results (especially the last one) are characteristic of an existing demand is debatable. Starting with populations' willingness to pay, one may ask whether electricity is the next priority in the list of poor households which are said to be unable to meet their basic needs, namely because they earn less than \$2 a day. Is electricity the service that they want to spend their next dollar on? The results of the survey suggest that more than 7% (9% of 80%) of the respondents fall in the category of households who don't care yet for having electricity at home.

Even the remaining 73% which is willing to pay for the service can afford less than half of the average bill paid by existing users (SNC-LAVALIN, 2014).

Next, people don't necessarily need electricity to eat or cook their food, produce heat in order to keep warm, or make light to see at night. All these needs can be met by other means, namely by burning primary sources of energy such as biomass and kerosene. Electricity just represents a technological improvement of these means, which makes it a substitute. Electricity therefore can be useful to poor populations only if it is not more expensive than their existing means for meeting their needs. If there is no existing source of energy to replace, electricity is not likely to have a substantial impact on the living conditions of the poorest. This observation is consistent with the literature which suggests that a rural electrification program will be beneficial only when a given threshold of wealth is achieved in the community or the household (Barnes, 2007; Foley, 1992).

4.4.2.2 *Economic nature of electricity in rural areas*

This work repeatedly pointed to the current Togolese rural electrification program's lack of accompanying measures that can help populations actually connect to the grid enjoy the benefits of the use of electricity. An example of accompanying measure could be the subsidization of the connection to the grid. According to economic theory, such measures would be justified only if electricity can be perceived as a public good, that is, a service with low excludability and low subtractibility.

When electricity is produced, it is distributed only to the utility's clients. Households not connected to the grid, or disconnected because of payment delay are not served; and the cost for doing so is very low once the grid is up and running. The excludability is therefore very high in the electricity sector. This excludability is even more likely in rural areas where the population's purchasing power is low. Regarding rivalry, the utility company is required in general in the electricity business to guarantee a continuity of supply to its clients. So there is a theoretical certainty

that there will be no shortage of supply no matter the number of clients. Power outages and jettison situations are unforeseen exceptional circumstances that the utility company has to prevent in order to be in line with this requirement. So theoretically, rivalry is not an issue among the utility's clients, or even among the utility's current and potential clients.

Because electricity doesn't meet the excludability criteria, it is not often considered as a public good and is therefore most of the time provided through a market-based strategy, as is the case in Togo. However, a market-based strategy doesn't fit the issue of rural electrification because it will prevent the majority of the beneficiaries (rural populations) from ever connecting to the grid. An argument can be made for considering electricity as a public good in the specific case of rural electrification. Rural electrification puts more of an emphasis on the service delivered to households and communities, than on the availability of the grid. Especially here, electricity has to be seen as a simple mean to attain higher priorities such as security, education, health or so which stand as public goods. This is another reason why rural electrification requires the ministry of energy to plan one step further than simple grid extension. Electricity is at best a mean to achieve economic development; it has no use by itself when the preconditions for development are not met.

4.5 The outcomes of the Togolese rural electrification program

The current rural electrification program in Togo, with regard to its outcomes, can be judged following two standards. First, it can be judged based on its stated objective which is to simply electrify villages, which in this work has been associated to a mere grid extension. Based on this objective the program can be considered as successful as long as the grid goes through the number of localities expected. However, the program should then be referred to as a mere grid extension program, not a rural electrification program. If instead – second case – the program is to be judged with regard to the actual motivations driving a rural electrification program, its evaluation will be

more complex. An indicator of outcome in this case could be the number of new connections to the grid in newly electrified localities. However, an increase in the number of clients of the utility company in a newly electrified locality doesn't imply automatically that the program has been successful in improving living conditions. The increase can be the sole doing of the richest members of the local communities who have been able to connect to the grid without any assistance from the government. This would mean that not only did the poor not benefit from the program, but worse, the gap between them and the non-poor has increased, which would be a negative outcome for the program.

This work posited since the beginning that it will not judge the outcome of the program yet. But the analysis found that the current design of the program and the way it is carried out make it unable to reach the poor supposed to be the actual targets of rural electrification. However, a problem remains that is inherent to poverty alleviation oriented programs such as rural electrification. Assuming that the predictions of the analysis are contestable and the program is claimed to be successful, how does the ministry isolate the real impacts of its program? Even if living conditions happen to improve in the newly electrified rural localities, how does the ministry of energy claim with certainty that these improvements are the result of its sole electrification program? As pointed out by McGinnis (2011), outcomes relate to several actions at different levels in a policy situation. Since there is no coordination between the rural electrification program and the other socio-economic sectors it will be difficult to attribute an improvement to any single program. Not to mention that these improvements may be the results of a general trend at the country level, in which can one can argue that the improvements observed may have happened even without the rural electrification program.

The literature identifies several benefits that can be expected from rural electrification including job creation, social equality, agriculture development, etc. Unfortunately, the Togolese rural

electrification is not specific enough on the outcomes it expects. This lack though not directly detrimental to the success of the program, leaves the door open for unaccountability.

5 Discussion and Policy recommendations

5.1 Summary of findings

This work's objective has been to provide an outside perspective of the rural electrification program in Togo. But no true line of action can be suggested here. It can only be expected that the analysis provided here will give an insight to the decision makers involved in the process to improve it.

Togo's current level of electrification in rural areas is estimated at 5% (SNC-LAVALIN, 2014). In addition, rural populations who represent more than 60% of the total population of the country are responsible for only 6% of the country's electricity consumption (MME, 2010). As part of the non-rich countries which try to improve their populations' social and economic situations, the country embraces the general view of the research body that suggests that access to energy (namely electricity) can help in the achievement of the millennium development goals (ECOWAS, 2005). It is in this context that the country's ministry of energy launched a new rural electrification program. The program in its first phase connected approximately 40 villages, while its second phase underway targets 71. This work analyzed the Togolese program with regard to its objectives, and asks whether the mere extension of the grid to new rural localities as done by the ministry of energy guarantees life improvement in the local households. The analysis also refers to three successful undertakings (in Ireland, the United States, and Tunisia) to highlight possible shortcomings in the Togolese program. Finally the program has been analyzed with regard to the interactions among its participants, and the factors influencing these interactions as to whether these interactions are likely to yield sustainable outcomes.

The literature review on rural electrification identified the benefits expected from rural electrification and the challenges involved in its undertaking. The benefits can be found both at the household and the community levels. In the household, women are the main beneficiaries of rural

electrification because it makes domestic work easier (Cecelski et al., 2007; Niez, 2010). Electricity in a house has been found to reduce fertility rates (Peters & Vance, 2010) and allow women to work and earn money outside of the house (Dinkelman, 2011). Children in rural areas also benefit from electricity as it allows for longer study hours in the evening. Handworkers can expect their activities to become more efficient with the use of electricity powered equipment. Agriculture productions can be increased by the use of powered irrigation systems. At the community level, electricity can favor the creation of new income generating activities and jobs, such as local manufacturing or repair of machinery (namely for agriculture), the processing and conservation of agriculture products and food including. The availability of electricity in a locality also makes it more attractive for industries (Fluitman, 1983). Finally a whole community benefits for the electrification of local health centers because electricity allows for on-site conservation (refrigeration) of drugs and vaccines, which greatly improve the local health service.

The challenges pertaining to rural electrification can be technical, economic, political and cultural. Technically speaking the process can be complicated when the areas targeted are difficult of access. Furthermore, households are few and built far from one another in rural areas, which makes the usual technical specifications of the grid economically non-adapted. These technical challenges, in addition to the low levels of electricity consumption of rural households make rural utilities reticent to invest in rural electrification. Rural electrification programs are therefore most of the time carried out by governments who subsidize the program in different ways. But more than the necessity for subsidies, the review of the cases of the US, Ireland and Tunisia revealed three important findings. First is that the process of rural electrification takes a long time; it took more than 30 years in the US and more than 40 years in Ireland and Tunisia.

Second, the process in these three countries was part of a bigger development plan; the driving motivation in Ireland was to increase the participation of rural areas in the economy; in the US, the REA and the TVA were part of President Roosevelt's New Deal; In Tunisia, rural

electrification was one of the three pillars of the rural development policy aimed at improving social equity and gender equity. Last, rural electrification in these three countries heavily relied on local populations. In the US, the government simply assisted local populations to set up their own electric cooperative; in Ireland grassroots organizations were the key in convincing the many rural households which were reticent to subscribe to electricity; in Tunisia, the process starts at the local level with villages applying to the program when they think that they meet the selection criteria.

Though the new rural electrification program in Togo is an improvement compared to the country's previous undertakings, the study finds many shortcomings in the design and implementation of the new program compared to the literature review and the experience of the US, Ireland and Tunisia. First, regarding its objectives, the rural electrification program in Togo sets the objective of electrifying villages, without any mention of its targets in terms of number of households or people. The Irish case showed that grid extension doesn't imply households' connection to the grid. Not only are populations financially limited to pay the fees associated to the service, but they can also be reticent to accept electricity because it requires them to change some of their habits (Shiel, 1984, 2007). Unfortunately, the new program doesn't provide any accompanying measure to enable or incite poor households to access the grid.

Second, the Togolese program stands by itself as an independent program. Contrary to the three cases studied, rural electrification in Togo lacks the backbone of a larger and stronger development perspective. The country adopted national strategies for reducing poverty and accelerating its economic growth, but these strategies are not specifically tied with access to energy in their implementation (Republique Togolaise, 2009, 2013). This requirement is primordial because as Barnes (2007) and Niez, (2010) point it out, a certain threshold of development has to be attained and certain opportunities created for populations to strive in order for rural electrification to fully fulfill its promises. In addition, the program lacks a long term perspective. The three countries reviewed took on the average more than 30 years to achieve their rural electrification. But in Togo,

the objectives of the program are delineated year by year, which doesn't guarantee the continuity of the program in the long term.

On the implementation side, there is not much to blame the program for except that the ministry remains too distant from the local populations. The case of Mome-Hagou presented in the study suggests that some localities may be selected without their populations being informed at all until the beginning of the field works. However, the three case studies showed that local populations have a lot to offer a rural electrification process if they are involved in the implementation or even the design of the program. For (Gibson et al., 2005) the inclusion of local populations in local projects creates in the community a sense of ownership that guarantee the sustainability of the outcomes.

5.2 Recommendations

The new program of rural electrification in Togo seems focused only on grid extension, which is only one aspect of rural electrification. Confusion is often made between grid extension and actual rural electrification. A successful rural electrification program goes one step further than grid extension, by ensuring that electricity reaches homes after distribution lines have been constructed. In this regard, the ministry of energy has to rethink the design of the program in several ways.

First, the program needs to be declined in a more formal manner with its short, mid and long term goals and timelines. Such a step gives the ministry and a government a bigger picture of the task and the resources it requires. Knowing the long-term needs of the program is also a guarantee of sustainability for the program, as the ministry knows ahead how much financial resource to secure and when to start looking for these resources. Basically the planning of the program would get improved. This is an easy short term improvement to the program that can be done by the next phase of the program starts and adjusted as the program progresses.

Second, the program needs to incorporate a social dimension. Rural populations need a special treatment regarding their conditions of access to the grid. The study argues that electricity should not be provided as a pure private good in the specific context of rural electrification, because otherwise the local populations with their low levels of income will never be able to pay for the fees related to the services of the utility company. Furthermore, consistently with the ECOWAS strategy for increasing access to energy services in order to achieve the MDGs, the rural electrification program should be oriented toward the provision of public services and goods, not just electricity. Services such as public lighting increase security in areas and can allow small businesses to extend their working hours; the electrification of health centers and schools benefit the whole community, and not just better-off households. Rural populations could witness greater improvements in their everyday life, would the program target specific sectors of production such as irrigation which can improve their income. This tuning can also be realized in the short-term, as it doesn't require a major institutional readjustment, or a formal pairing of the program with other ministries. The immediate requirement that comes in mind is a reallocation of the resources provided for the program. More specifically, it might be needed to improve quality at the expense of quantity by reducing the number of villages connected to the main grid, while investing the difference in social and public goods that can benefit the majority of the local populations without them having necessary to pay.

The third immediate action the ministry of energy can take to improve the rural electrification process is to increase the participation of local populations. The analysis shows that every participant in the process has strong incentives and resources to see the process succeed. But, all the actors don't have the same reasons to support the process, and rural populations are the least endowed in the process in terms of resources. So increasing the participation of rural populations in the process is a way to ensure that the interests of the strongest participants in the process (the ministry and the utility company) don't shadow the interests of the real beneficiaries of the program. Local populations'

involvement in the process also allows for more check and balance which shows the willingness of the ministry and the government to increase the accountability and transparency of the program.

To help households access the grid and enjoy electricity, the program needs a subsidy mechanism that lowers the connection fees borne by rural populations. The current levels of the costs related to the services of the utility company (connection fee and per unit energy rate) are too high and unaffordable for rural families. The precise articulations of the subsidy system will probably require a more extensive study of the issue, but based on other countries' experiences a cross-subsidy mechanism (where urban dwellers are charged more and rural households undercosted) may be a good place to start. The ministry can also design a financing mechanism that allows the utility to offer households to pay their connection fees by installments over several years, as done in Tunisia; this step would reduce the charge of the upfront investment required from rural populations to connect to the grid. The analysis, besides, argued that electricity might not be the service these non-rich populations want to spend their next dollar on. So it might be necessary even after these financial incentives to carry out information campaigns specially designed to motivate rural households to subscribe for electricity. These mechanisms will likely require longer time periods to be efficiently operational, but this is the good to start thinking and working on them.

The next long term step for the program is to engrave it in a bigger national development perspective. But this task falls out of the responsibility of the sole ministry of energy. The challenge is at the government's level. The government has to show a stronger commitment to make access to energy as part of its social and economic development strategies, that is, if the government truly believes so. The motives behind the social and economic policies in Togo are not clear. Most of these policies such as the strategy for the reduction of poverty were designed as a requirement of international organizations, in order for the country to access funding. The extent to which policy makers in Togo believe in the merits of their work will likely be a key to the success of these policies. As a matter of fact a multi-sectorial committee (the COMET) exists in the country with the

specific role to bridge the gap between the energy sector and the other social sectors; but its actions remain marginal probably because of a poor coordination at the government level. Nevertheless, the program needs a bigger picture and a broader perspective than just grid extension and a first step in doing so may be to build on the experience of this multi-sectorial entity.

The government will also have an important role to play in the increased participation of local populations in policy making, because the issue is not just limited to rural electrification but also pertains to other sectors. However this improvement cannot be either realistically expected in a short term, because it requires a deep change in the beliefs and values of participants both on the government side and on the populations' side. As said in the analysis, the patriarchal nature of the Togolese society predisposes the administration to a command and control attitude, but it also makes rural populations oblivious of the accountability they entitled to from public officials.

The current rural electrification program in Togo has many shortcomings, starting with its exclusive focus on grid extension without making sure that electricity reaches households. However, the program still has some advantages. Even if the program focuses only on grid extension, it still gives the non-poor living in rural areas the opportunity to connect to the grid. It is indeed important to remember that not only farmers live in rural areas, but also public employees, businesspeople, retirees, etc. So a grid extension program is better than nothing. But, if the program limits itself to grid extension without any accompanying measure to increase access to electricity, than the ministry will be investing the taxpayer's money without giving the population anything back in return. It has been noted that such a situation will likely increase inequality among populations' access to public service; the non-poor will have increasing access to the new infrastructures while the poor may become increasingly worse off. Once again, the ministry has to realize that an electrification program in rural areas is not always beneficial in the absolute, and its perverse outcomes may well overpower the positive ones. Hopefully this work gives enough insight in how to make the process successful.

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