Energy demand dynamics beyond borders: An exploratory case study of Congolese (DRC) migrants in France

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1. Introduction

Current globalization context is among other societal trends characterized by massive population movements from southern countries to northern/western ones. In this paper, we claim that this phenomenon deserves more attention within energy research field as it may deeply transform energy demand dynamics both in native and hosting countries. We propose to explore and illustrate such an issue through the lens of a cross-cultural exploratory study focusing on a specific population: Congolese migrants from the city of Bukavu (South Kivu, Democratic Republic of Congo - DRC) who did choose to set up in the Greater Paris region (France). Our paper addresses more precisely two main dimensions of Congolese migrant's acculturation processes: First, experiences of people born in a given country discovering new ways of accessing to energy services in a different national/local context; second, cross influences between territories, infrastructures, cultures and energy uses' representations.

This research has been carried out within the framework of a partnership between EDF R&D Lab (France) and UBC (DRC). The French fieldwork is still in progress and consequently our collective and empirically-based work remains (as of yet) mainly exploratory, aiming at defining and opening up new research paths. In this paper, we will successively present (2) our research approach, hypothesis and methodology issues; (3) an overview of DRC general context and main specific characteristics of energy uses and access in the city of Bukavu; (4) Congolese immigrants' representations, dynamics of electricity uses and learning practices once set up in Paris area; (5) some preliminary views of some Institutional local actors interacting with migrants; finally (6), we propose some conclusive remarks in order to open up the discussion and propose some trails to pursue our work.

2. Research approach, method and field work design

Lutzenhiser (1993) somehow opened up the field of culturally influenced energy demand features through a literature and research review pointing out the influence of several variables and pledging for more culturally driven approaches of energy demand dynamics and understandings. Indeed, his work provided evidence of the centrality of different variables that do have an influence on characteristics of domestic energy use in the home (type of dwelling, occupation status, appliances, social and cultural features of the occupant). Since then, a set of energy-related research work draw either on comparative cross-cultural studies¹ or intercultural, trans/infra-national studies² explored the significant differences resulting from high socioeconomic and cultural determinants often based on local features.

On the other hand, some transnational migration literature has been developed since the 90s which showed the plurality of Sub-Saharan African migrants (see for instance Bredeloup, 2007; Kuczynski & Razy, 2009). More specifically, three Congolese diaspora in Europe have been studied (Lututala, 2006; Pambu & Garbin, 2009; Chabrol, 2011; Garbin & Godin, 2013). However at the end, if the importance of intercultural features has been demonstrated, the potential impacts of Sub-Saharan African migrations to northern/western counties and more specially Europe regarding energy demand's dynamics have not received much academic attention. We hope that the present paper will help to fill the gap.

2.1. Key research questions and related hypotheses

Conditions of access to electricity services (and more generally to energy services) in Bukavu and in Paris areas remain obviously and unsurprisingly very unequal: political contexts, socio-economic conditions, cultural traditions as well as energy systems and related infrastructures or levels and patterns of material culture *are* indeed *quite different*. In such contrasted contexts, how do people manage their daily access to electricity in order to satisfy their expressed essential needs requiring energy (Wilks, 2002)? Within the framework of our intercultural case study we hypothesize that Congolese migrants in France may 'oscillate' between two types of *social postures* or *alternative ways* of tackling energy access, uses and management.

On one side, they may (and perhaps have had) consider that they are almost *forced to get used* to their 'new hosting country' daily life and related rules and norms in order to be accepted and included into it. Such postures may lead Congolese migrants in France to become (in their own views) *acculturated*, i.e. they mould themselves in French dominant patterns of energy consumption and, as such, adopt European energy consumption and management behaviours. In such a perspective, how do they appreciate the service quality and how do they deal with energy and migration local organizations? How do they try to appropriate French so-called "modernity"?

On another side, Congolese diaspora's studies demonstrated that Congolese living in France usually seems to 'stick together' according to their own cultural *heritage* and therefore may tend to

¹ See for instance Bartiaux & Gram-Hanssem, 2005, Ger et al. 1999; Sahakian & Wilhite, 2014; Wilhite & al., 1996; Wilhite et al., 1999; Wilk, 2002; Winter & Bouly de Lesdain, 2012

² See for instance Appadurai, 1996; Bouly de Lesdain, 1999; Carmin & Ayeman, 2011; Ger et al., 1999; Graham & Connell, 2006; Hitching et al., 2015 Maller & Strenghers, 2013; Morgan, Rocha & Poynting, 2005; Wilhite, 2013.

perpetuate some kinds of practices from Congo making them *different* (Lututala, 2006). In such a perspective, they might tend to "resist" to change and try to perpetuate practices from their native country using social networks and informal access to energy. In such a case, can we observe *imported* Congolese practices in energy consumption and management? Which ones and why? For instance, do Congolese migrants in France tend to develop informal access to energy? Is there an informal organization involved in informal energy management?

2.2. Field work design

Two kinds of complementary empirical work were conducted to explore these topics and open up further research paths. We first carried out a survey draw on quantitative and qualitative data dealing with the case of energy access's conditions in Democratic Republic of Congo (DRC) and more especially in South Kivu, through which we explored energy resources, infrastructures, relationship between poverty and energy uses of the households (Kadundu & al., 2015). We then have started to carry out an exploratory case study (started early 2016 and still in progress) in Greater Paris region with two types of populations, in order to analyse Congolese migrants intercultural appropriation processes related to energy consumption dynamics in France. To that effect, we interviewed (as of yet) seven Congolese migrants' households who were born and did grow up in Bukavu and now live in Greater Paris region in order to better understand way(s) initial and current everyday life may impact the way they deal with energy issues: relationships with the supplier, energy uses in the dwelling, share practices and demand management. We finally interviewed some institutional actors in charge of immigration and integration issues in France (mediation structures and social workers). More specifically we interviewed institutional actors working in a PIMMS (*Point of Information and Mediation Multi-Services*).

3. Energy practices, uses and management in Buvaku city (DRC)

As highlighted in previous studies addressing intercultural energy or environment related dimensions, when people migrate they don't just travel *physically*, they bring with them *memories*, a cultural *heritage* carrying embedded knowledge, habits and routines (Mallers & Strengers, 2013; Morgan, G., Rocha, C., Poynting, S., 2005; Graham, S., Connell, J., 2006). In this section, we will first provide an overview of DRC political and material conditions of access to energy and then will analyse more specifically Bukavu situation.

3.1 Political and material conditions of access to energy in DRC

DRC owns a huge energetic potential (hydraulic, solar, wind, hydrocarbon, uranium, biomass, gaz...) (Beyoko, 2005) but it remains under-exploited and under-developed. Electricity access has been defined in the DRC's Constitution as a fundamental right for each Congolese citizen but this right's implementation is far from being a reality for all citizens. However and according to UNEP (United Nations Environment Program, 2011) this legal and institutional statement is inadequate to develop the sector: it lacks of a regulation authority, a clear definition of the rights and duties of the stakeholders, infrastructures which have been poorly developed since the Belgian colonization period. DRC has one of the lowest electrification rate in the world. (40% on average in urban areas and 3% in rural districts). The poor material conditions, the lack of investments and the State failure partly explain the deficiencies of electricity supply and service.

In Bukavu, the context is particularly difficult because of current ethnic conflicts and tensions at the borders with Rwanda and Burundi, the political situation and the remoteness from DRC's Capital. The town has grown very quickly since the last 20 years, shantytowns of mud houses have developed without any access to the electric grid. In the other districts, the population has grown too rapidly and the new urbanization is quite anarchic without any plan to extend the electric grid or develop new ways of producing electricity.

3.2. Evolution of energy demand in Bukavu (DRC)

The survey carried out by Congolese academics with 500 households in 3 main districts of Bukavu city demonstrated that their access to electricity depends mainly on socio-economic criteria:

- The type of district: Ibanda is the central district where administrations, authorities and high level populations are concentrated; Bagira is a residential district inherited from the Belgian period but where the infrastructures are damage and Kadutu which is a popular district.
- The type of dwelling: plank houses, plank and sand houses or bricks houses.
- The status of dwelling: owner, tenant or sheltered by family or friends.

Bukavu households are traditionally poorly served in terms of energy services: in social housing estates built by the Belgians during colonial period, electric calibration and low voltage only allowed a limited level of power providing a bad quality lighting ("not enough to read a book in the 70's") but now, new kinds of essential needs appeared (communication, ironing, cold, cooking) and the quality of the power (intensity and continuity) is not sufficient to support this evolution. Actually, there is an improvement of the standard of living and people's expectations grow. But those who have access to the grid receive very poor services and electricity is unreliable as there are a lot of power blackouts and unannounced interruptions in the distribution of electricity. Older interviewees described some important changes since their childhood. When they were students in the 70s, a lot of houses had no access to energy. Electricity was available in the council estates built up by the Belgian colonizers but only for lighting. Electric power was so weak in the houses that people who wanted to read in the evening (especially scholars) were obliged to gather outside under the street lamps.

Actually, electricity needs developed gradually essentially due to travels and contact with Kinshasa and the other African countries which were better supplied. For example, people were not used to drink fresh beer in Bukavu: climate is not as hot as in Kinshasa but above all, the poor quality and scarcity of power prevented people to develop this practice. It seems that progressively Bukavu's inhabitants began to value more and more electricity access as they discovered new uses which increased home comfort (lighting, television, and ironing, cooling...). It also has a symbolic value of a modern "lifestyle" that changes the everyday life (Featherstone, 1987).

3.3 Alternative ways of accessing to energy: infrastructures and (institutionalised) social innovations

As current conditions to energy supply are very bad, Bukavu's inhabitants have to struggle to get access. Although the Congolese Constitution (Journal officiel, 2006) declares the right to a decent dwelling, drinkable water and energy, there still remains a huge disparity between citizens.

Wealthy people manage to get permanent access to electricity by different means. Some of them pay additional charges to get a privileged supply: either by "special electric lines" dedicated to public institutions and town leaders or by several power lines if their district is well connected. It is obvious that the State's weakness and the collapse of the public services in a context of resource curse cause an important level of corruption. Wealthier households also may buy individual alternative energy

production systems: generators are quite frequent in order to get permanent access to electricity for appliances (Chinese investors have recently developed this market).

Poorer people use electric torches, petrol lamps and candles for lighting and charcoal for cooking. Some markets are well structured to afford these alternative ways of getting energy (charcoal, Chinese torch lamps). In the absence of effective policies and strategies to supply people with regular power, one observes the emergence of different social innovations in order to compensate the lack of energy supply. The so-named "Ki-groupé" is gaining ground as an alternative mode to access electricity: neighbours gather in partnership in order to buy an electric generator in common. The members get electricity in exchange of a financial contribution (1, 5 USD per day). This innovation allows the households and small traders to operate for a desirable time. Its origin comes from the video clip users and mobile telephone vendors in the kiosk, power batteries for vehicles... Gradually, this initiative reached households and inspired the owners of grain and cassava mills as well as cabarets and some peripheral schools. The initiative is interesting but it is accompanied by technical amateurism and environmental degradation.

Another important and growing way of accessing to electricity is illegal connection encouraged by associations such as ULOMARE⁴ which intends to defend the interests of the State company's customers (for water and energy consumption). This represents a recent trend that didn't exist in the eighties and has progressively developed. People may get a connection through neighbours: that practice is called "dahoulage" from Swahili language; that means "borrow embers from the neighbourhood". Another way of power theft is to get power directly from the grid if there is one not too far.

Bukavu survey shows that 64% of the interviewees have a regular access to electricity through the SNEL (national company of production, transport and distribution); 28% say that they have illegal access, 8% have no access at all. Illegal connections did not occur before the 90's where people became both to develop a high value of electricity and a need for it and to get conscious of the poor services offered by the supplier and its lack of equity.

Currently, the average energy expenses in Bukavu remains about 17% of the total income but may exceed 50% for the poorest households. Basic access to energy is considered essential for the material well-being: "Life is black without any electricity" [i.e. a black life is not a good life] as one of interviewees said. Obviously, electrical energy passes through the social representations as a key factor for socio-economic development. Thus, Bukavu people seems to be more and more interested in solar energy in order to have access to television and mobiles phones): Possession of solar panels in the cities and villages tends to make appear a new social stratification criterion.

4. Congolese immigrants in Greater Paris region: which representations, electricity uses and learning practices?

Domestic consumption is bound up with routine, the acquisition of tools, appliances and household infrastructures (Shove, 2003). Important situation changes such as a migration are able to move things on concerning perceptions and uses of electricity and the way consumers interact with their supplier (among other things).

⁴ Union des Locataires de Maisons et d'Abonnés à la Régie d'Eau et aux Sociétés d'Electricité.

³ Derived from French and literally meaning "gathered Kilowatts".

4.1. Conditions of the exploratory study in Greater Paris region

An exploratory case study has been conducted with Congolese migrants who decided to settle in the Parisian area. Carrying out such a field work would not have possible without the cooperation of UCB colleagues. There are several communities from Bukavu who decided to immigrate to Europe (Belgium, Great Britain, provincial France, Paris and suburbs...); they don't know each other and there is no specific Congolese association in Paris area. These migrants are more and more numerous ⁵(Lututala, 2006), without taking into account the illegal migrants (Legoux, 1995). Moreover, interviews were all carried out both by a French and a Congolese interviewer, a necessary condition to get a minimum trust and a precious help for cultural interpretation and understanding. One must recognize some difficulties that are inherent in this kind of investigation (Aggoun, 2009): first we lack statistics on the immigration phenomenon in France; secondly it is necessary to use a snowball sampling method which has its limitations; third, even energy-related issues may be considered as private business chose which explains the difficulty to get people talk about their own energy practices?

4.2. Population met

The people we met were men only, that is to say the person who traditionally cope with energy issues both in Bukavu and in France. We did not have the opportunity to interview women being family head (as of yet). The interviewees were all educated people who came in France to study or to get a job (engineer, physics teacher, accountant and administrator). They came in France at different migration periods. Three people were part of the first economic immigration wave – very timid – which took place during the 70-80s. At that time they were mainly students. The youngest came in France more recently (90s-2000s...) both for political and economic reasons. Some were used to migrations inside DRC (Kinshasa) and outside (neighbour country such as Rwanda or even other European countries). At their arrival in France they have been hosted either by friends or family or in student accommodation; they began to cope with energy issues when they moved to their own dwelling as tenants. They received no specific support from the supplier or immigration authorities. However, our analysis highlights three significant moments with regard to energy access and uses which are developed below.

4.3. Significant moments in the migrants' experience (dynamics of energy related acculturation?)

Interviews' analysis demonstrate three significant moments in their migrants' experience in Paris area: (1) the discovery of new conditions in accessing to energy, (2) the surprise of the energy bill when they obtain an independent housing and (3) an apprenticeship period.

The discovery of their new conditions of energy access and uses: most Bukavian people we met gradually learn other ways of consuming electricity when they stayed in the Congolese capital, in Rwanda or in Belgium. When coming to Europe, they have been mostly (but highly) surprised by the quality of electricity and its permanent access though a reliable infrastructure, the ability to operate several devices together not having to deal to related problematic situations (boiling kettle and electric shaver for example). Their expressed basic needs such as communication (television, computer, mobile loading), cooking, cooling, heating, may be satisfied in the same time. They also were astonished by the quality of security (presence of circuit breakers and earth

⁵ 6 712 in 1982, 22 740 in 1993 according to the census; 767 legal immigrants in 1995 and 2925 in 2004 (INED, 2004, Flux d'immigrants par année et par nationalité).

connectors) and the fact that there is *no risk* associated to electricity use. Although most men in Bukavu have a do-it-yourself culture (which was presenting some risks in Bukavu), in France, electric breakdowns often need a technician.

- Receiving the first bill: Most people began their European life in University accommodations or hosted by friends or parents. As such, they had this new somehow "wonderful" efficient access to electricity without having to concretely pay for this service. But when they got their own housing, all were surprised by the amount of their first bill: "in DRC the bill was really low, it had not sunk in yet". They first had to understand what a high quality energy means in terms of cost (the service has a price). Moreover we wondered if the habit of "legitimate" illegal connection in Bukavu would influence the willingness to pay in France. The interviewees say they are satisfied by the French quality service and mostly confident in the meters that measure the consumption of electricity: "no need of "dahoulage" in such a different a context". Some migrants wonder if the amount of the bill is fair: « Is it sure that I should pay that amount? ». They never wonder about the legitimacy of the bill, it appears it's considered as normal to pay to have access to such an essential service. But all of them declare that the bills are getting more and more expensive and restrain the family budget. The youngest interviewee (35 y.), used to compare commercial offers and switch to new mobile phone suppliers, claiming to be ready to change his energy supplier if one proves to be cheaper. Older consumers tend to stay with the same supplier: "it's better to stay with the devil we know than to go to a worse one". Most of them are confident in the meters and don't verify the invoice also because it is difficult for them to understand the amount of government taxes.
 - An apprenticeship period: When getting their own dwelling in France, they mainly asked their fellow countrymen and got informed on tariffs and energy savings by the supplier's documentation (flyers, internet site) or by newspapers. When they arrived in France, energy saving was not an important concern for different reasons. First, because of their initial experience of electricity in Africa: in Bukavu it is unpredictable and the pricing is arbitrary. Second, they received no specific support from the supplier or from public authorities when arriving in Paris. Third, from their point of view, Congolese don't like to be deprived of something that seems essential, in they own words this not part a "Congolese cultural feature" However, they went throughout a social learning process (Wilhite 2013, Sahakian & Wilhite, H., 2014) and so doing they indeed acquired practical knowledge and new saving practices in an informal way, i.e. exposure to friends and relatives' practices living in France for a longer time. And according to economic reality it is interesting to point out that Congolese who have been living in France for a long time notice the way new comers are wasting electricity and identify that such habit "comes from Bukavu" (for instance the fact to let all the lights on during the day with, at the same time, window curtains remaining closed). Such findings pledge in favour of the relevance of taking into account forms of embedded knowledge, what Mauss (1936) called enculturation (Mauss, cited by Wilhite, 2013) when one addresses intercultural energy practices research.

Finally, we wanted to get views of professional actors, specialized in mediation between people living in disadvantaged areas and suppliers. Their action is not specifically dedicated to the migrants' reception but they meet a lot of them coming from different communities.

5. Immigration's professional mediating players

In Paris area, PIMMS' (Point of Information and Mediation Multi-Services⁶) social mediators receive a lot of newcomer migrants but they don't specifically know their previous energy related practices and representations. They constitute for us a good source of information concerning migrants' difficulties at their first arrival in France. They organize special workshops on energy savings in order to help people to better manage and use electricity. They observe the differences in perceptions between communities. Congolese are known for the huge difficulties they had in their country because of the war. The way they consider electricity seems quite close to other sub-Saharan populations. Education and training in energy efficiency is difficult to understand for these families for cultural reasons: for example, they don't understand why it should be better to get a lower temperature in bedrooms and why people have to cover to sleep.

Most of the newcomer migrants' visit PIMMS to get support to understand administrative documents. Another part of demands concerns financial assistance to help to pay the energy bills (electricity and gas). Usually, vulnerable households give priority to the payment of the rent. PIMMS' mediators observe different behaviours: some migrants come to PIMMS as soon as they receive a bill they can't pay; others wait until they are get the disconnection notice for unpaid bills; others develop alternative practices (i.e.) after the power disconnection (especially for heating and food cooking) and come to the PIMMS when there is an accident.

3. Concluding remarks

Two main conclusions may be drawn from this exploratory survey both in Bukavu and Paris area. First, energy demand management and fuel poverty cannot be considered the same way in the migrants' home country and in the host country. In DRC, the households' energy management is influenced by/depends on the energy supply deficiency; in Europe, consumers are supposed to be self-responsible for their consumption. It is easier for educated people, in spite of their difficulties, because they have easily access to written documentation and digital services. But the process of acculturation takes time and requires a support that is rather scarce. As well, the notion of fuel poverty cannot be defined in the same way: in DRC, people solve the lack of infrastructures and services on their own and develop alternative and cooperative way to get energy; in France, electricity access is regulated and consumers protected.

Secondly, one may notice a kind of 'boomerang effect' due to the to-ing and going people between both countries. The poor energy situation of the Congolese nation becomes unacceptable for those who had the opportunity to get access to other kinds of services in Europe "it is time to develop energy for all in Congo" (Man, 60 y.). They changed their view about what is socially acceptable in daily life of Congolese. But, at the same time, the economic difficulties that these migrants have experienced or still experience make them sensitive to the price of energy. Many households struggle to pay for their comfort. Migrations but also these coming and going between continents are an illustration of

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⁶ This kind of organization has been developed in France since the 90's in underprivileged neighbourhoods and some rural areas in order to help people with administrative procedures and relationships with public services companies (such as water and energy suppliers, transport, mail...) with co-financing from public authorities and the involved companies

the complex interactions at work in the current global world and the globalization of economy and cultures. For Mc Gaffey & al. (2000) it is a way for Congolese to take advantage of an unequal situation and contribute to break the cultural and economic barriers between North and South in a pacific way.

Finally and in a more general way, our findings illustrate that questions and issues around social learning, representations of modernity, institutions, as well as infrastructures and daily habits and routines are central to better understand social norms dynamics underpinning energy demand and related practices in an intercultural context ... as more local ones.

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