ANNEX II: ANALYSIS OF BARRIERS FOR THE DEVELOPMENT OF RURAL ENERGY

1 BARRIER 1: ABSENCE OF FUNDING

Several respondents answered that a main barrier to electrification was the absence of funding. While this may have been true in previous years it is not anymore. Indeed, when analyzing the ODA grants allocated to each the Sustainable Development Goal (SDG) we can see that there was a lack of allocation to the energy sector until fairly late, as Liberia only started to allocate ODA to this sector in 2006. Nevertheless, in recent years (2012 and 2013) "Clean and Affordable Energy" was the SDG in which Liberia allocated most ODA grants, as can be seen in **Figure 1.1**.

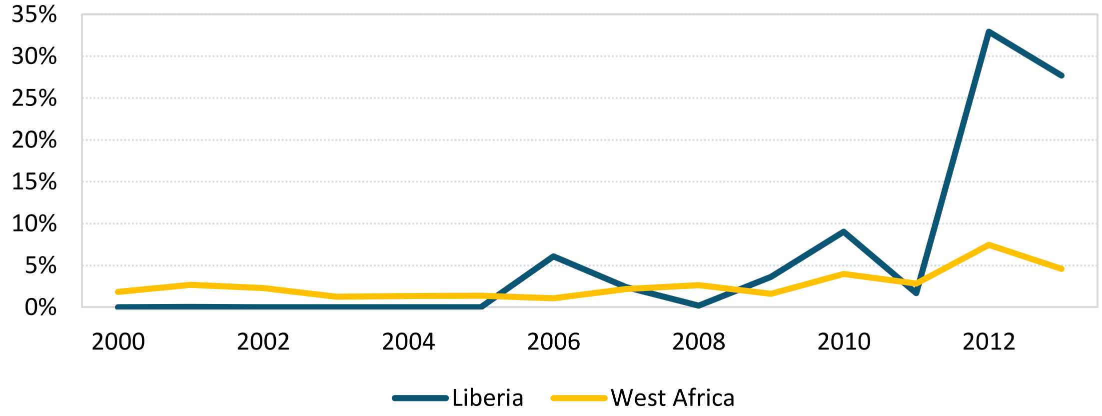

Figure 1.1 – Percentage of ODA grants allocated to the clean and affordable energy versus the other SDG[1].

This is further evidenced by the data presented by the OECD, as presented in **Figure 1.2**. The difference between the graph above and the one below, other than having different sources, is that the latter one presents the total Bilateral ODA commitments to the energy sector, thus being more broad regarding the total amount of funding allocated to this sector than just ODA grants. Moreover, there is a sharp decline in the allocation of ODA to the energy sector in 2014. This was due to the Ebola Virus disease which greatly affected Liberia and hence the donors and government priorities shifted their priorities to solve that crisis, demonstrated by the allocation of 59% of the ODA commitments in 2014 to humanitarian aid, up from 6% the previous year. Thus, not taking into consideration 2014, we have that the total ODA commitments to the energy sector from 2007 to 2013 was on total USD 335.23M, which is on average USD 47.89M per year

[1] Aid Data, [Online]. Availabe: http://aiddata.org/.

or 10% of the total ODA commitments. However, much of this allocation (62%) took place in 2012 and 2013 where a total amount of USD 207.45M were allocated to the Liberian energy sector.

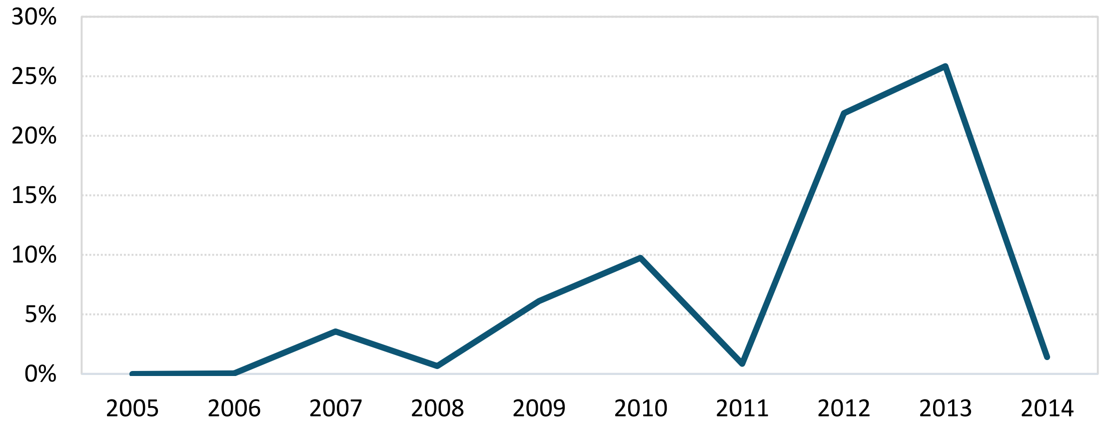

Figure 1.2 – Bilateral ODA commitments to the energy sector in Liberia[2].

Moreover, when comparing the amount of funding Liberia has been allocating to the energy sector with Sierra Leone, Liberia's neighboring country which also has a low electrification rate, Liberia allocated more than three times ODA to the energy sector. Indeed, on the period of 2007-2013 Sierra Leone only allocated USD 97.06M to the energy sector, accounting for 6% of the total bilateral commitments.

Nevertheless, in the intermediate grant allocation scenario to the electricity sector, it was estimated that Liberia would allocate on average USD 75.1M of grants to this sector, which is way above Liberia's average in the period of 2007-2013, but less than what was allocated in both 2012 and 2013.

On the other hand, we are measuring the amount of funding by bilateral ODA donors to the overall energy sector, hence not making a distinction between rural and urban electrification. Indeed, the electricity sector in Monrovia is much more developed than the one in rural areas. Thus, although the amount of funding to the energy sector has been increasing and high in the last years, it may have been only directed to urban electrification instead of rural.

2 BARRIER 2: LACK OF POLITICAL SUPPORT

Above we discussed the amount of ODA commitments allocated to the energy sector, which are in part allocated by the government. As it was concluded, in recent years the energy sector has been a clear priority. On the other hand, there are two way to allocate ODA funding, it may be the government's

[2] OECD.stat, [Online]. Available: http://stats.oecd.org/.

responsibility to allocate of the donor's preferences for a certain sector. Hence, the high amount of bilateral ODA committed to the energy sector show the high political support towards this sector.

On the other hand, when evaluating the Liberian Government National Budget of previous years, GoL's budget allocation has been rather low, at 3% in 2011/12, 2012/13, 2013/14, and 2014/15, and the projected budget allocation for FY 2015/16 and 2016/17 still remains at 3%.

Nevertheless, the Public Sector Investment Plan (PSIP) FY 2012/13 – FY 2014/15, which presents details of the medium term investment plans for Liberia that will be delivered through a portfolio of projects, states that Ports, Energy, Transport, Technology, and Decentralization are the priority number one. Indeed, the Energy and Environment sector is the second sector with highest amount of the donor budget allocation, only behind Infrastructure and Basic Services. The percentage of the donor's budget allocated to the Energy and Environment sector was 18% in FY 2012/13, 22% in FY 2013/14, and 19% in FY 2014/15, and 25% in FY 2015/16 according to the same source. Hence, there is also a clear political support to the energy sector, which is backed by the high allocation of donor funds to the sector.

However, we have again the problem of distinguishing the political support to urban electrification to rural electrification. Nevertheless, in 2010 Liberia's Rural and Renewable Energy Agency was established accompanied by REFUND, aiming to "bring modern energy services to Liberia's rural areas". This further demonstrated the political support to rural electrification in recent years.

3 BARRIER 3: LACK OF TRANSPARENCY AND ACCOUNTABILITY

The lack of transparency and accountability is a problem that affects several developing countries, mainly in Africa. The lack of transparency and accountability can have strong impacts in a country and it has been an issue for Liberia. Indeed, Liberia's score in the Corruption Perception Index has increased since 2007, as seen in **Figure 3.1**, hence the country is perceived as cleaner since then. On the other hand, in recent years it decreased from 41 in 2012 to 37 in 2015, being that the country's score indicates the perceived level of public sector corruption on a scale of 0 (highly corrupt) to 100 (very clean). Nevertheless, this score ranks the country 83 out of 168 countries with comparable data, and it is better ranked than the West Africa as a region, with a score of 33. Liberia is also better ranked than its immediate neighbors Guinea (139/168), Sierra Leone (119/168) and Côte d'Ivoire (107/168).

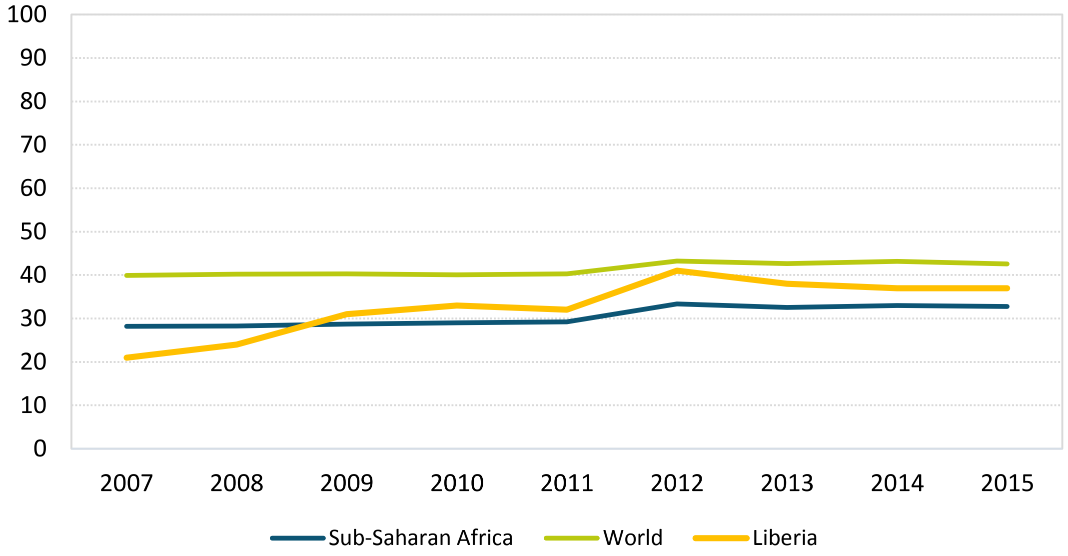

Figure 3.1 – Corruption Perceptions Index[3] (Source: Transparency International).

Another indicators worth mentioning are the Worldwide Governance Indicators (WGI) developed by the World Bank. The WGI project reports aggregate and individual governance indicators for six dimensions of governance: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption. Each dimension is given a score -2.5 to 2.5, where higher values correspond to better governance outcomes. Liberia scores in each dimension has higly impoved since 2003 and voice and accontability is the dimension where Liberia scores higher. This is displayed in **Figure 3.2**. On the other hand, when comparing Liberia's scores with the West African countries as a region, Liberia scores bellow in every dimension with the expection of voice and accountability and political satbility.

[3] Transparency International, [Online]. Available: http://www.transparency.org/.

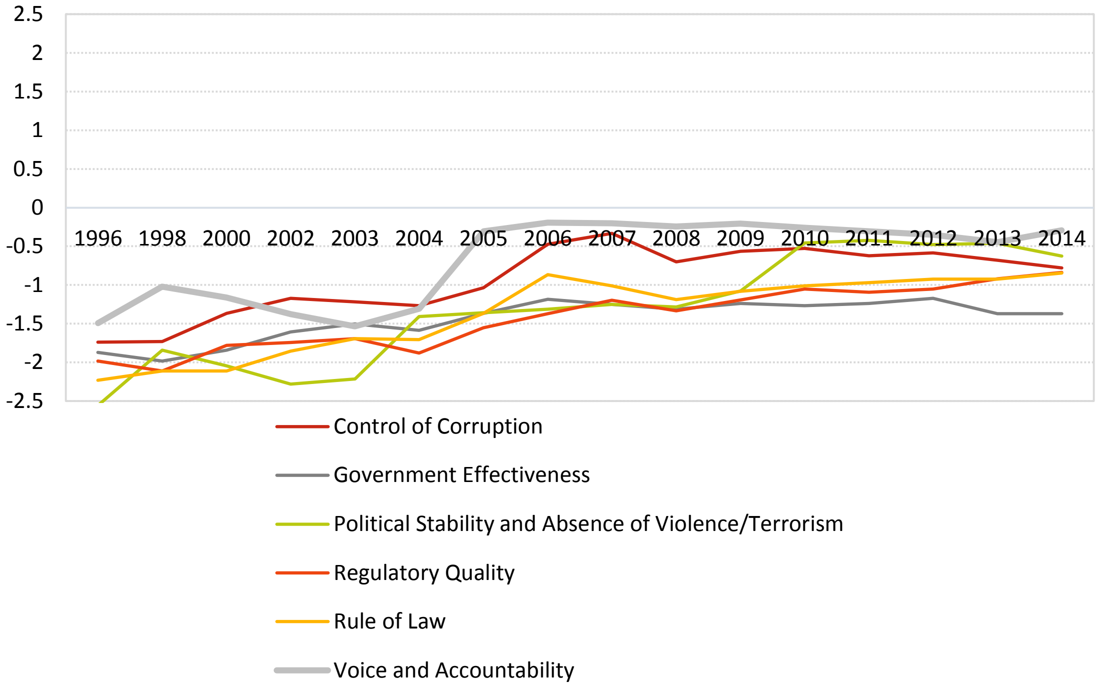

Figure 3.2 – Liberia's Scores in the Worldwide Governance Indicators[4].

It is evident that accountability and transparency is an issue affecting Liberia, but more importantly is that the Government of Liberia is aware of that and is taking strong measures in order to mitigate this issue. Indeed, the Government of Liberia has prioritized promoting transparent and accountable governance in its national development strategy, the Agenda for Transformation as a key principle for enhancing good governance. Moreover, Liberia is perceived as having progressed in the fight against corruption over the last few years since the 2003 Accra Comprehensive Peace Accord. In particular, President Sirleaf has demonstrated a strong leadership on anti-corruption issues which has translated into ensuring the independence of the General Auditing Commission, supporting the establishment of the Liberia Anti-Corruption Commission, promoting transparent financial management, public procurement and budget processes and assuring Liberia's compliance with the Extractive Industries Transparency Initiative (EITI) through the Liberian EITI law. These combined efforts have contributed to achieve remarkable progress in terms of control of corruption. Indeed, as demonstrated above, Liberia's Corruption Perception Index score reflect positive governance trends since President Johnson Sirleaf took office in 2006.

[4] Worldwide Governance Indicators, [Online]. Available: http://info.worldbank.org/governance/wgi/index.aspx#home.

4 BARRIER 4: LACK OF HUMAN CAPITAL AND TECHNICAL CAPACITY

In order to enhance human capital and technical capacity, a program in the Rural Energy Master Plan is devoted just to Building Capacity.

5 BARRIER 5: LIMITED PRIVATE SECTOR INVESTMENT

In the funding strategy there is a part devoted to private sector. Moreover, in order to increase private sector investments there should fiscal benefits for investment.

6 BARRIER 6: NEED TO RAISE AWARENESS AND PROVIDE AFFORDABLE OPTIONS FOR ELECTRIFICATION THUS GRANTING THE ADOPTION OF THE POPULATION

In order to ensure that the population adopts the new energy options, several actions were developed in the Rural Energy Master Plan. The tariff the customers will pay and the monthly electricity bill proposed structure were designed in order to best fit consumer's willingness to pay as well as their needs. Moreover, efficient cook stoves will also be promoted to ensure that customers can adapt their habits while using less resources and being more efficient.

7 BARRIER 7: ELECTRICITY THEFT WHICH UNDERMINES THE POWER SECTOR'S SUSTAINABILITY

On way to mitigate the electricity theft is through the installation of pre-paid meters. Indeed, with these consumers can control easily their spending in electricity as consumer only consume what they are capable and willing to pay. Moreover, as with this method of payment clients must pay in advance and only use the electricity afterward, they will never have outstanding debts to the electricity company and hence it promoted the power sector sustainability.