De-risking renewable energy investments in fragile and conflict affected states (FCAS)

Research summary
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Introduction

Financing of renewable energy projects is an issue central to the development of the private sector in the Democratic Republic of the Congo (DRC). Only about 15% of the population of the DRC has access to electricity, and firms consider the supply of energy to be a major constraint to their growth[1]. Lack of power imposes a significant infrastructure constraint on the economy, affecting livelihoods, health, education, and business activity. In response to these issues the DRC Government set the ambitious targets of delivering 65% electrification by 2025 and universal access to electric by 2050[2].

Off-grid solar solutions are emerging as one way of meeting these targets due to falling hardware costs, improved access to communication technology, and changing business models[3]. However, the World Bank reports that the investment needs of the DRC's renewable energy sector "vastly exceed the government's fiscal capacity, and major efforts to attract private capital and operators are needed"[4]. Unfortunately, financing of renewable energy projects and products can be prohibitively expensive. The higher financing costs in developing countries reflect a number of perceived or actual informational, technical, regulatory, financial and administrative barriers and their associated investment risks. A project needs to provide the potential for high return rates to succeed in attracting private investors.

This paper looks at the work the FCDO Private Sector Development programme in the DRC has done to increase funding available for the development of the renewable energy market. It aims to describe the different ways in which the programme has de-risked investment in renewable energy, and sets out recommendations and lessons learned.

1 World Bank. 2018. *Congo, Democratic Republic of - Systematic country diagnostic (English)*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/171101529346675751/Congo-Democratic-Republic-of-Systematic-country-diagnostic

2 National Overview: Democratic Republic of the Congo, World Energy Council https://www.worldenergy.org/impact-communities/members/entry/congo-democratic-republic-of

3 UNDP & ETH Zurich. 2018. *De-risking Renewable Energy Investment: Off-Grid Electrification*. United Nations Development Programme, New York, NY and ETH Zurich, Energy Politics Group, Zurich, Switzerland.

4 World Bank. 2020. *Increasing Access to Electricity in the Democratic Republic of the Congo,* Washington D.C, World Bank Group http://documents1.worldbank.org/curated/en/743721586836810203/pdf/Increasing-Access-to-Electricity-in-the-Democratic-Republic-of-Congo-Opportunities-and-Challenges.pdf

The problem: high financing costs

Developing countries often exhibit high financing costs for renewable energy due to investment risks that can exist in early-stage markets. These risks include:

Sovereign Risks related to instability, conflict, natural disasters, governance and land tenure.

Energy Market Risks including uncertain technical requirements, cumbersome custom clearances and punitive tariffs.

End-user Credit Risks including unwillingness and inability to pay and energy theft.

Labour Risks from lack of skilled personnel causing projects to fail or to proceed too slowly.

In the DRC, as in other FCAS, these risks, particularly "sovereign risks", can be extreme. A great deal of work is required to mitigate these and attract affordable investment.

Available solutions: mitigation strategies for de-risking investment in renewable energy markets

In 2013 the United Nations Development Programme published De-risking Renewable Energy Investment (DREI)[5], which presented a framework to assist policymakers in developing countries to cost-effectively promote and scale-up private sector investment in renewable energy. The framework suggests that there are three strategies that the public sector can use – often in combination – to improve the risk-return profile of private sector investment opportunities:

1. **Reducing risk** by targeting underlying barriers that create investment risk ("policy de-risking"). These instruments include, for example, support for renewable energy policy design, institutional capacity building, resource assessments, grid connection and management, and skills development for local operations and maintenance (O&M).
2. **Transferring risk** by shifting risk from the private to public sector. This can be achieved by using instruments such as guarantees, or credit lines to commercial banks ("financial de-risking").
3. **Compensating for risk** by increasing the return of investments. These are typically targeted subsidies for renewable energy ("direct financial incentives").

The DREI subsequently published a framework for solar mini-grid projects[6], which is useful in describing the risks more generally for investors in the renewable energy sector in developing countries.

[5] UNDP. 2013. De-risking Renewable Energy Investment, United Nations Development Programme, New York, NY https://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climateresilientdevelopment/derisking-renewable-energy-investment.html

[6] UNDP & ETH Zurich. 2018. De-risking Renewable Energy Investment: Off-Grid Electrification, op cit

United Nations Development Programme's framework for reducing risks in solar mini-grid projects. From '*De-risking Renewable Energy Investment* (2018)'

TYPE OF RISK	POLICY/FINANCIAL RISK MITIGATION	DEVELOPER RISK MITIGATION STRATEGY
Energy Market Risk		
Poor political commitment	Awareness raising and training	
Tariffs	1. (No License): No tariff controls 2. (Licensed) Well-designed/ regulated tariffs	
Uncertain technical requirements	1. (No License): Voluntary compliance 2. (Licensed) Comprehensive technical standards and active enforcement	Adherence to international good practice on technical standards
Competing subsidies	Awareness campaigns	Review of site to identify competing subsidies
Social Acceptance Risk		
Local resistance	Awareness raising, piloting of community models, and employment prospects	
Hardware Risk		
Poor quality and availability of hardware	Develop certification standards for hardware	In-house testing and sourcing of hardware
	Measures to encourage a competitive market for hardware	
	Reduction of customs administrative steps	
Digital Risk		
Lack of cellular coverage and lack of mobile money	Regulation on coverage areas and competition	
Software: lack of standardisation	Government support to industry associations for standard setting and sharing of best practices	
Labour Risk		
Lack of skilled personnel	Apprenticeships, certifications and university programmes	In-house trainings

TYPE OF RISK	POLICY/FINANCIAL RISK MITIGATION	DEVELOPER RISK MITIGATION STRATEGY
Developer Risk		
Management capability of market operators	Government support for industry associations and academic studies	
Credit worthiness and cash flow strength	Public loans, credit lines, public guarantees and grant funding	Engage in robust business planning
End User Credit Risks		
End users' willingness and ability to pay	Facilitate growth of consumer credit industry	
	Provide public loans /credit lines / equity /guarantees	Smart payment and metering approaches
Financing Risk		
Capital Scarcity: undeveloped domestic financial sector	Liberalise domestic financial sector	Pursue dual international and domestic financing approaches
Currency Risks		
	Financial products to transfer some risk to public sector, public subsidised hedging funds	Private sector hedging instruments
Sovereign Risks		
Sovereign Risks related to instability, conflict, natural disasters, governance, and land tenure	Political risk insurance	Political risk insurance

What we did: FCDO DRC Private Sector Development programme

The FCDO DRC Private Sector Development Programme in the DRC is an ambitious, large-scale programme seeking to 'improve the incomes of the poor' in an extremely complex, conflict-affected environment. The programme is split into two parts: a market systems development project, **Élan**[7], targeting market failures in a range of sectors; and **Essor**, which is working with the DRC Government to improve the country's business environment.

The programme is facilitating investment to develop the DRC renewable energy market at two levels:

1. At the market-system level, through Élan, to facilitate investment that will develop the renewable energy sector with a focus on household renewable energy products.
2. At the business environment level, through the Essor project, to facilitate: (i) the creation of large-scale solar-based isolated grid projects through public-private partnerships supported by an upfront package of relevant financial instruments, and; (ii) the actual implementation of stranded on-grid renewable energy generation projects developed by Independent Power Producers (IPPs).

The political and economic environment in the DRC meant that not all of the available mitigation strategies set out in the literature were suitable. The case studies below set out the approaches that were taken. Whilst these interventions are from the same programme, they were not formally linked in terms of the way they were delivered, which means that until now the shared learning from across the two approaches has not been consolidated.

[7] www.Élanrdc.com

Case Study: supporting public-private partnerships in the renewable energy sector

The Essor 'access to electricity' (A2E) project is supporting the DRC government in two ways:

1. To deliver an international procurement and auction process for the development of three pilot solar hybrid mini-grid concessions. It has successfully attracted credible developers to the bidding process, and has worked to transfer risk by developing a bankable structure for the projects, including pre-mobilizing a portfolio of financial instruments worth up to $150m, which will be made available to the winning bidder so as to finance each project on a stand-alone project finance basis.
2. To unlock the development of stranded renewable IPPs in addressing systemic issues faced by private developers, such as agreeing with the State upon a bankable legal structure for their projects.

Regarding the first intervention, one of Essor's first steps was to appoint an external adviser, Philae Advisory[8], to develop and steer both the setup of a comprehensive technical, legal and financial package as well as the procurement process. This work has been supported by other advisors, including the international legal firm Linklaters, which has brought both its expertise on African energy Public Private Partnerships (PPPs) and a strong reputation in the market. This work was vital in reducing some of the 'developer risks' by providing the expertise needed to help the DRC government structure a bankable project structure as well as a transparent and well-prepared tender process.

At the same time the project worked to mitigate a number of other risks, which might otherwise have prevented investment:

- The project helped to mitigate the **'energy market risk'** by carefully selecting the concession sites. The three chosen sites were relatively remote, and away from hydro power, but close enough to towns with good potential for economic activity.
- The site-selection process also mitigated some of the **'sovereign risks'** of the project around land use conflict issues. Essor liaised with local authorities to secure the land and put up signs to indicate the land had been allocated for the project which helped to reduce the risk that the land 'allocated' in the documentation would be used for other purposes. The project also completed a political economy assessment which

[8] http://www.philae-advisory.com

reviewed potential issues such as conflict between local and national elites, lines of political patronage and problems around land-rights.

- The project was able to reduce the **'financing and developer risks'** by pre-packaging upfront three sites into one deal and offer to the private candidates a pipeline of bankable opportunities. The large deal size and robust project's legal and commercial structure enabled project financing, which helped quarantine risks to the project and, in turn, attracted mainstream development finance instruments available in the market.
- The availability of development finance (from the Green Climate Fund and others) and the due diligence undertaken by African Development Bank (AfDB) and other development institutions helped to encourage credible bidders who said that they were comforted by the detailed due diligence studies that had been undertaken before they had entered a bid. Besides, Essor has maintained throughout the process an on-going dialogue with both private candidates as well as with interested Development Finance Institutions (DFIs) to make sure the proposed opportunities were matching their respective expectations and eventually achieving a balanced structure.
- The upfront availability of relevant financial instruments through various development institutions such as the AfDB has reduced the **'financing risks'**.
- The lack of a regulator and an uncertain or absent regulatory environment greatly increased the **energy market and sovereign risks** of the project. Essor responded by placing an adviser within the project coordination and management unit of the Ministry of Energy and Water Resources (L'Unité de Coordination et de Management or UCM) and embedding ad-hoc regulations into the contractual terms of the Concession Agreement.

There are a number of areas where Essor has needed to adapt its approach to respond to challenges that have arisen. These are useful areas of learning for others embarking on similar projects.

1. The capacity of UCM has improved significantly over the intervention period, though continuous technical support should be expected in the future at both central and provincial levels to conduct similar tender processes, considering the underlying level of complexity. In the DRC, as in other FCAS, government capacity remains weak which creates significant risks in the implementation of the project for the investor, particularly when technical assistance provided by Essor comes to an end. It is worth mentioning other major development institutions active in the DRC, including the World Bank, are now launching their own mini-grid tendering programmes, which openly state they would piggy-back on previous Essor works and include specific assistance on the capacity building.
2. The importance of securing support from provincial governors and local leaders means that development of a local stakeholder management and engagement plan, specifically for communities affected by the project, is an important next step in addressing **'social acceptance risk'**. Part of this plan should address securing of land and agreement by the provincial authorities.
3. For the project's DFI partners, such as the AfDB and the Green Climate Fund, Gender Equality and Social Inclusion (GESI) considerations are increasingly becoming a core component of the project development, approval, and monitoring process. Essor has recently introduced training to ensure that all project stakeholders (e.g. UCM, preferred bidder, DFIs, FCDO, etc.) have the requisite skills and incentives to ensure GESI considerations are adequately treated throughout the project life cycle, and particularly in the negotiation phase following the award of the contract.

Case study: Facilitating investment to develop the market for domestic renewable energy systems

The Élan project's renewable energy sector interventions were designed to establish a functional and scalable market for household renewable energy products in the DRC. The project sought to overcome the market failure in this sector; a failure that was manifested in the fact that there were no companies with the ability to operate at anything approaching the scale needed to overcome risk perceptions on the part of international suppliers and potential investors.

One of Élan's most important partnerships in this sector has been with the solar product distributor Altech. Altech began as a small business run by its two founding partners and distributing solar lights in Goma and Bukavu, but had quickly grown to be a successful player across the east of the country. However, by 2016 the model that Altech had employed — mainly providing teachers and other salaried workers with solar products on credit — had started to reach a saturation point.

In response, Altech, in cooperation with Elan, successfully piloted the use of credit sales through the use of door-to-door sales men called 'ambassadors' to allow it to reach customers who did not have fixed salaries or credit histories. This small pilot reached 5,000 households within two months. However, to now scale-up across the country Altech needed support in the form of a digitized pay-as-you-go system to track credit and additional working capital. Banks in the DRC were not a viable option as they demand collateral upwards of 125% of the borrowed value, and interest rates are between 15 - 20%.

It was against this backdrop that Élan began working with Altech in 2017 as one of a number of partnerships that aimed to help overcome significant barriers on both the supply and demand side of the market. Élan immediately began working to resolve the issues around capital investment by:

- Reducing the 'Financing Risk' by helping secure credit for Altech through improved payment terms from international suppliers in China. These payment terms allowed Altech to place orders for large shipments of at least one container and provide payment over a period of three months; terms that were not otherwise available. Élan supported discussions with the supplier to demonstrate Altech's creditworthiness and highlight that Élan is partnering with Altech to ensure the sales of these products.

- Providing advanced financial business planning support to reduce 'Developer Risk' and optimising the company's performance ahead of an investment round. This included providing technical assistance to recruit a management team and co-finance salaries. The management team was composed of a data/IT manager, a financial controller, a logistics manager and a product and marketing manager. Élan also helped Altech with the design and operation of its 'Ambassador' selling model through a digital pay-as-you-go system. These ambassadors were responsible for promoting, selling and collecting repayments on a highly localised level.
- Élan followed this up by connecting the company to potential international investors, using the reputation of the project's consultants and its standing as a FCDO backed intervention to reassure investors of Altech's viability. The approach resulted in Altech securing $200,000 of investment to roll-out household solar powered products with integrated pay-as-you-go systems. The investor also committed to provide its expertise as an impact investor and promised to invest additional capital in the future.
- This outside investment allowed for the integration of a pay-as-you-go (PayGo) platform called Angaza with Altech's products which was important in further reducing 'end user credit risks'. The system works through an embedded metering mechanism which remotely locks and unlocks the product allowing Altech to enforce loans and have the confidence to offer credit to people with no formal credit history. It also provides much higher quality of data for Altech to manage credit across the different regions and to show investors its repayment performance.

It is hoped that the support provided to Altech will provide a catalyst for the solar product market to develop. In this respect there are three points of learning that have emerged from the Altech partnership:

1. The direct provision of support by entering into the dialogue with international suppliers has been a key mechanism supporting Altech's growth. Altech has since gained even better payment terms as its relation with this supplier has grown over the years.
2. It is important that the support provided to Altech does not distort the market and undermine the ability of other suppliers to compete. The early evidence suggests positive impact of the establishment of a credible national market will benefit the sector as a whole. In addition, the demonstration effect has enticed additional players, both domestic (in the form of the big established retailers) and international, to provide investment on competitive terms across the market.
3. Finally, it is important that the sizeable 'energy market risk' posed by the onerous 43% import tax regime and 16% VAT on renewable energy products is addressed. Solar suppliers have therefore come together, under Élan's guidance, to lobby government on behalf of the industry and the effectiveness of this association will be vital to the future of the sector.

Conclusions and recommendations

In the DRC, as in other FCAS, there are numerous barriers and associated risks which can hold back private sector investment in renewable energy. The FCDO Private Sector Development programme in the DRC has worked at both the market system and business environment levels to address these risks and attract investment into the country's nascent renewable energy market.

The programme has intervened in different ways to either **reduce risk** (for example by embedding ad-hoc regulations into concession contracts acceptable to all parties) or **transfer risk** (as Élan did by underwriting distributor payments to suppliers or as Essor has done by making £150m of financial instruments available to the preferred bidder).

The overall aim has been to achieve a risk-return profile that catalyses private sector investment and establishes a stable national renewable energy market characterized by a growing number of competing suppliers to serve a steadily growing market of consumers, many of whom are low income.

There are a number of recommendations that follow from the FCDO DRC programme's experiences in this area:

1. Use the DREI framework to understand and map the potential risks for investors and plan de-risking strategies at an early stage. Potential developers in the DRC mini-grid concessions were reassured by the due diligence work that had been done by Essor advisors at the beginning of the Essor A2E project, which gave them the confidence to enter the bidding process and invest in their own due diligence.
2. Understand that companies, particularly small ones, need a variety of support to establish themselves. For Altech this has included support in raising investment, hiring a management team, introducing new management processes and systems and supporting them to pilot new technology (i.e. pay-go systems). Making Altech sustainable in the market took multiple rounds of support to strengthen the ambassador distribution model, introduce a product that fits the DRC market (pay-go) and to manage the sales, distribution, and repayment systems around the product.
3. Realise the importance of setting realistic timelines for ensuring the project partners' buy-in. This is crucial for keeping the momentum going and sustaining interests and engagement of private sector investors in the project.
4. Addressing the 'sovereign risks' to an investment requires a detailed knowledge of the local context to identify issues as they arrive. The experience in the DRC has shown that a detailed and nuanced political, economic, and context analysis (PECA) is an essential part of the due diligence process when selecting intervention partners and locations.

5. The investors and developers that have been attracted to the DRC by the FCDO programme will continue to be involved long after the programme has finished implementation. Planning is essential to ensure that strategies to reduce risks are sustainable beyond the lifespan of a project. This has included undertaking an institutional and organisational assessment to determine the capacity needs and gaps of the government institutions that oversee the renewable energy sector in the country.