

Risk mitigation and transfer for renewable energy investments

Case studies in the Southern Africa
Development Community

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Acronyms

AfD	French Development Agency
AfDB	African Development Bank
AGF	Africa Guarantee Fund
ATI	African Trade Insurance Agency
CEC	Copperbelt Energy Corporation
DFI	Development Finance Institution
DRC	Democratic Republic of the Congo
DSRA	Debt Service Reserve Account
EAIF	Emerging Africa Infrastructure Fund
EDM	Electricidade de Moçambique
EIB	European Investment Bank
FDI	Foreign Direct Investment
FMO	Dutch Entrepreneurial Development Bank
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDC	Industrial Development Corporation of Zambia
IFC	International Finance Corporation
IPP	Independent power producer
KfW	Germany's KfW Development Bank
MCC	Millenium Challenge Corporation
MIGA	Multilateral Investment Guarantee Agency
MoU	Memorandum of understanding
Norad	Norwegian Agency for Development Cooperation
Norfund	Norwegian Investment Fund for developing countries
OECD	Organisation for Economic Co-operation and Development
OPIC	US Overseas Private Investment Corporation
PIDG	Private Infrastructure Development Group
PPA	Power Purchase Agreement
PSW	IDA Private Sector Window
PV	Solar Photovoltaic
RLSF	Regional Liquidity Support Facility
RMT	Risk Mitigation and Transfer Instruments
SAPP	Southern African Power Pool
SADC	Southern Africa Development Community
SACREEE	SADC Centre for Renewable Energy and Energy Efficiency
SMEs	Small and Medium Enterprises
SOE	State Owned Enterprise
TCX	Currency Exchange Fund
WBG	World Bank Group

1. Introduction

This report explores the role of risk mitigation and transfer (RMT) instruments for enabling renewable energy investments in Southern Africa Development Community (SADC) countries¹ by examining empirical evidence from several projects in the region. This is the first in a series of *Finance for Sustainable Development* reports that will eventually cover other sub-Saharan Africa regions, and is accompanied by a report reviewing risk mitigation and transfer for renewable energy investments in Africa and other developing countries with similar socio-economic conditions (Duma and Muñoz Cabré, 2023).

Renewable energy has been one of the most successful sectors in using limited public funds to mobilize private finance and investment (UN, 2022). This has fueled sustained double-digit renewable energy growth in recent decades. However, progress has been uneven. For example, sub-Saharan Africa accounts for fewer than 1.5% of global renewable energy investments (IEA, 2021a), with one of the main barriers to greater investments being the perception of risk (Duma and Muñoz Cabré, 2023; Muñoz Cabré *et al.*, 2020). When the probability of adverse events that damage the investment value of a prospective project is seen as high, investors either forgo the project or require higher returns, commensurate with the risk they perceive. Most countries in sub-Saharan Africa are perceived as risky investment destinations (Damodaran, 2022). This problem is amplified by the reality of many countries in the region, whereby financially weak utilities are or have been until recently, in most cases, the only allowed buyers of the energy, which exposes independent power producers (IPPs) to significant offtaker risks and requires strong risk mitigation and transfer instruments. In addition, the prevalent structure in sub-Saharan Africa is project finance which relies on non-recourse debt and thus needs to accommodate the risk concerns of lenders, most often development finance institutions (DFIs) (Eberhard *et al.*, 2017).

In a way, the negative economic outlook provides testing ground for RMT instruments and the extent to which they provided cover to investors in existing projects and are still adequate for the financial close of future projects

To tackle this problem, a variety of RMT instruments and programmes have been designed and tried by DFIs and other development partners (IRENA, 2016; RES4Africa, 2020; IRENA and AfDB, 2022). Through a combination of policy interventions that reduce uncertainty – such as revenue support, guarantees and financial instruments (e.g. derivatives) – the risk-return profile of a project is modified to provide more comfort to investors and lenders. In return, they are expected to allocate capital at a lower cost and thus move more projects into the economic viability zone (Donovan and Corbishley, 2016; Steckel and Jakob, 2018; IEA, 2021b; Duma and Muñoz Cabré, 2023).

The most desirable policy interventions in the long run are those that help create a lasting investor-friendly legislative and regulatory framework, as they reduce the probability of adverse events like long permitting delays or sudden regulatory changes affecting projects. However, such interventions tend to be challenging to implement and maintain, and require significant time and resources, neither of which are in large supply given the economic situation and the urgency of the challenge to provide clean affordable energy in the region. In contrast, financial RMT instruments can be quick to deploy. In recent years, many of these instruments have been implemented within the structures of projects in various countries in the SADC region. As these RMT instruments were designed to protect the investment value of projects from negative events, they become even more relevant during challenging economic times.

¹ SADC includes Angola, Botswana, Comoros, the Democratic Republic of the Congo (DRC), Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Tanzania, Zambia, and Zimbabwe.

Countries in the SADC region have been severely affected in recent years by the Covid-19 pandemic, the energy crisis, inflation, high public debt levels, and currency depreciation. Additional shocks such as droughts or floods, occurring with increased frequency, have had far reaching consequences, affecting hydroelectricity production and food prices. The latter have also been adversely affected by the consequences of Russia's invasion of Ukraine. This negative economic outlook provides testing grounds for RMT instruments and the extent to which they provided cover to investors in existing projects and are still adequate for the financial close of future projects.

In this context, this report presents evidence from the perspective of practitioners and project stakeholders. This report is organized in the following sections. Section two describes the research methodology. Section three describes key RMT programmes and instruments for renewable energy investments identified in the SADC case studies analyzed. Section four provides an overview of renewable energy projects in several SADC countries and includes a detailed description and brief analysis of seven utility-scale solar photovoltaic (PV) projects in Malawi, Mozambique, Namibia and Zambia. Section five consists of a Zambia deep-dive case study. This is followed by our analysis (Section 6) and final recommendations (Section 7). No exhaustive evaluation of all projects and instruments is attempted, given the limited scope of the research and the data availability.

The relevance of the findings presented in this report goes beyond the renewable energy sector. The expectations around the Finance for Development approach are high for all sectors, but project-level evidence is rarely available or sought. Understanding the barriers faced by renewable energy, arguably one of the most successful SDG-related sectors (Convergence, 2022), as well as learning from the experience of mobilizing the private sector with RMT instruments, can inform the design of similar approaches in other sectors. In addition, a practitioner-based account of RMT instruments can help uncover both RMT limits and potential for improvement.

2. Methodology

The findings presented in this report are based on the following research, conducted in 2022. From March to July we conducted a literature review, mostly presented in the accompanying review note (Duma and Muñoz Cabré, 2023), as well as desk research examining existing resources in the region, recent projects, their structure and use of RMT, and the relevant institutional and policy frameworks in SADC countries. In parallel, we consulted with major multilaterals and DFIs to identify research gaps around RMT, concluding that there is currently interest in understanding risk mitigation in practice at the project level.

Using the Platts database (Platts, 2019) and media reports, we identified 14 projects of potential interest in the region that met the following criteria: (1) utility scale; (2) use of solar or wind technology; (3) not in South Africa. For further in-depth analysis and interviews, the pool of candidates was reduced to seven projects in four countries (see Table 1).

Table 1. Projects considered

Malawi	Mozambique	Namibia	Zambia
Salima Golomoti	Mocuba Metoro	Hardap	Ngonye Bangweulu

The criteria used for selection were the following:

- A private IPP as the main developer
- A private equity contribution
- At least one financial RMT instrument applied
- Data availability and willingness of project stakeholders to engage with the research team.

To get project-level insights, we conducted 34 semi-structured interviews with developers, DFIs, local banks, consultants, regulators, governments, utilities and academia. The interviews were conducted via video conference, and in some cases in person, and took place between March and September 2022. The interviews focused on gathering project-level information from practitioners involved in various capacities, such as developers, DFIs or private lenders, and government officials. The questions focused on the role of RMT, the perspectives of the projects without RMT, the challenges faced in setting up RMT as part of the efforts to reach financial close, the performance of RMT during the operational phase, the current need for RMT for project development in the respective country, and prospects for RMT moving forward.

From 31 October to 1 November 2022, we convened a two-day technical workshop in Lusaka, co-hosted by Industrial Corporation of Zambia (IDC) and in partnership with the University of Cape Town and the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE). The workshop was attended by 27 representatives of various organizations with project-level experience in renewable energy in the region, including developers, DFIs, intergovernmental organizations, local banks, regulators, government, utilities, and academia. It consisted of moderated panels that explored the perspectives of participants related to various risks – e.g. payment and liquidity risk, political risk, currency risk – and their associated RMT strategies. The workshop was held under Chatham House rules, and its discussions informed much of this report.

3. Existing risk mitigation and transfer instruments for renewable energy investments in SADC

Most renewable energy projects in the region are using the project finance structure. Equity sponsors set up a project company and aim to finance the construction mostly through non-recourse debt (usually around 70%). The project company then enters into contracts for engineering procurement and construction, operations and maintenance and, crucially, offtake (PPA). This network of contracts is meant to allocate risks to the parties best suited to bear them, i.e. the parties that have the most control over certain possible adverse developments in the future. There are numerous contractual clauses, instruments and practices meant to generate an alignment of interests and to protect the project company. Some examples include performance or availability guarantees and various types of insurance. The actor that needs to be satisfied with the allocation of risks is the lender. As debt is non-recourse and the project company has no history, no employees and no collateral, the debt repayment relies entirely on the revenues from the sale of energy throughout the lifetime of the project. Hence, lenders perform their own due diligence and risk analysis to ensure the project company is in a good position to build the plant with no delays or cost overruns, to operate it efficiently and to receive its payments in full. All these activities also constitute RMT, but they tend to be dealt with between private parties and are less dependent on the country. The focus of this report is on the RMT instruments that deal with country-specific risks, where developing countries are at a disadvantage.

The first step in dealing with country risk is the implementation agreement² between the project company and the government through a ministry. This sets the terms, responsibilities and rules of dispute resolution between the parties. The agreement features a termination clause whereby, under certain triggering events, parties can terminate the project. By signing the agreement, the government offers a sovereign guarantee to cover the termination payment. While important, the implementation agreement has a relatively narrow focus on project termination events and will not be analyzed in detail in this report.

² In some projects the name of the agreement may be different, such as support agreement, but the functions are similar.

The focus of this report is mostly on the risks and the RMT instruments dealing with the offtakers' obligations. While other risks are relevant, much of the innovation has been in using a combination of instruments that get projects over the line to reach financial close despite the financial weakness of offtakers.

This section describes some key RMT programmes and instruments in use in the SADC region analyzed in this report (see Table 2).

Table 2. Selected RMT instruments and programmes in SADC

	Salima	Golomoti	Mocuba	Metoro	Hardap	Ngonye	Bangweulu	Other SADC
EAIF (PIDG)			A					
Green Guarantee Facility of Africa Guarantee Fund								A
GET FiT (KfW)								O
GuarantCo (PIDG)								A
InfraCo Africa (PIDG)	A	A						
MIGA (WBG)	A	A				O	O	
Norfund Guarantee			A					
Power Africa	A	A				A	A	
Proparco Guarantee				A	A			
Proler (AfD)								A
PSW (WBG)	A	A						
RLSF (ATI)	A	A						
Scaling Solar (WBG)						A	A	

A: active; O: offered

The World Bank Group (WBG) offers several RMT options in the SADC region. *Scaling Solar* is a renewable energy programme comprising a full package of services offered by the different organizations of the WBG. It includes: (1) technical assistance for the government, regulator and utility, contract templates and term sheets, and competitive procurement offered by International Finance Corporation (IFC) advisory; (2) concessional finance from the IFC; (3) IDA partial risk guarantees; and (4) credit enhancements offered by the Multilateral Investment Guarantee Agency (MIGA) and the International Development Association (IDA). The host country and the bidders can choose their preferred mix of services from the ones offered, depending on the various circumstances, timing, cost, and risk profile. The first country to successfully implement *Scaling Solar* was Zambia, with two projects operational since 2019, followed by Senegal, with two projects tendered in 2019 and operational since 2021 (IFC, 2019; *Scaling Solar*, 2021). A subsequent round in Zambia stalled due to the economic difficulties of the country, while an attempt to replicate the programme in Ethiopia was cancelled due to currency convertibility issues.

MIGA is the political risk insurance arm of the WBG, with extensive involvement in foreign direct investment (FDI) projects over the last decades. MIGA generally extends insurance policies with tenors of up to 15 years covering four types of non-commercial risks: (1) currency transfer and convertibility; (2) breach of contract; (3) expropriation; and (4) war and civil disturbance. The pricing of MIGA's insurance products tends to be more competitive than private sector alternatives, which is attributed to the "halo effect" of the WBG. As part of the WBG, MIGA benefits from what some refer to as an "umbrella of deterrence," whereby insurance policies benefit from the WBG's ability to influence host governments. This influence can help prevent

adverse events from occurring in the first place, particularly those related to publicly owned entities such as utilities. MIGA has been involved in the Salima and Golomoti projects in Malawi and was also available in the Zambia *Scaling Solar* package, although it was not used for the two successful projects.

The WBG's Private Sector Window (PSW) is a programme meant to catalyze private sector investment in IDA eligible countries³. It includes four facilities: (1) local currency investment through IFC; (2) blended finance with IFC investment in pioneering projects; (3) a risk mitigation facility to provide project-based guarantees without sovereign indemnity; and (4) MIGA Guarantee Facility. The PSW MIGA Guarantee Facility has supported the Salima project in Malawi.

GET FiT is a programme managed by Germany's Development Bank (KfW) that offers technical assistance, competitive procurement and feed-in tariffs for selected technologies. It can also be coupled with RMT instruments. The programme is meant to develop a procurement programme that can be used by the host government and does not have pre-arranged financing. In SADC, GET FiT procurement was started in Zambia in 2018 with 6 selected projects. These projects have not reached financial close at the time of writing, as is explained in section 5. GET FiT was introduced in Mozambique in 2022, but there is limited information on its current status. The GET FiT programme was considered highly successful in Uganda, with several projects already in the operational phase.

The African Trade Insurance Agency (ATI), a DFI with an African mandate backed by several other DFIs, offers political risk insurance and other products to promote FDI into Southern and Eastern Africa. In the energy sector, a key ATI product is the Regional Liquidity Support Facility (RLSF), with support from KfW and the Norwegian Agency for Development Cooperation (Norad). Through the RLSF, ATI is able to extend liquidity guarantees to cover 3 to 6 (or even 12 months) of payments by the offtaker in the form of letters of credit. Initially, letters of credit were provided through a commercial bank (the South African bank ABSA) but from 2022, ATI will directly provide the product to the IPPs, thus taking advantage of ATI's credit rating. The RLSF is backed by DFIs and multi-year memorandum of understanding (MoU) agreements with host countries. Unlike government indemnity agreements, these MoUs do not have direct implications on sovereign debt. If the utility fails to make payments in time, the project can draw on the letter of credit automatically, ensuring liquidity and providing lenders with comfort in backing the project. ATI tends to have better pricing than commercial alternatives due to the concessional nature of its funding. The Salima and Golomoti projects in Malawi benefited from the RLSF, which was also available to the projects selected under GET FiT Zambia. ATI is also developing a Transparency Tool aimed at collecting information on payment performance of utilities to IPPs in the region which would enable potential investors to better evaluate counterparty risk.

The Private Infrastructure Development Group (PIDG) is an initiative sponsored by several OECD countries that comprises different organizations covering the full scope of infrastructure investment in developing countries. It consists of InfraCo Africa, a developer of infrastructure projects; the Emerging Africa Infrastructure Fund (EAIF), a long-term hard currency lender; and GuarantCo, a provider of guarantees that enable local currency finance. InfraCo Africa has been the co-developer of the Salima and Golomoti projects in Malawi, while EAIF was one of the lenders to the Mocuba project in Mozambique.

Power Africa is a US initiative launched in 2013, supported by various governments and international organizations, that aims to increase access to electricity in sub-Saharan Africa. The work focuses mainly on barriers, including to energy access, finance, policy and regulation. Power Africa uses technical assistance, grants, loans, equity investments and guarantees to advance transmission, distribution and generation projects throughout the continent.

³ In SADC, the IDA eligible countries are Comoros, DRC, Lesotho, Madagascar, Malawi, Mozambique, Tanzania, Zambia, and Zimbabwe.

The African Development Bank (AfDB) also offers guarantee instruments for investments, including in renewable energy. It also manages the Sustainable Energy Fund for Africa, a multi-donor programme of catalytic finance for private sector investments in renewable energy.

The Africa Guarantee Fund (AGF) is an initiative of the Nordic Development Fund and the governments of Denmark, Spain and AfDB. It provides loan and equity guarantees mainly to small and medium-sized enterprises (SMEs) for adaptation and mitigation projects, including through a dedicated Green Guarantee Facility. AGF provided a guarantee to Madagascar's first utility-scale solar photovoltaic (PV) project.

The Green Climate Fund (GCF) is a multi-donor financial mechanism created by UNFCCC that provides grants, loans, equity investments, results-based payments and guarantees to low-carbon projects in developing countries. In 2018, the GCF approved the Zambia Renewable Energy Financing Framework, with loans of up to USD 50 million to support the development of 100 megawatts (MW) of renewable energy (GCF, 2018). No disbursements have been identified at the time of writing.

Proler is a programme developed by the [French Development Agency \(Afd\)](#) with support from the European Commission in Mozambique. Launched in 2020, Proler aims to set up a competitive procurement process coupled with RMT instruments for a total of 120 MW of renewable energy. The first project – Dondo (40 MW) – has already been awarded to Total Eren. SUNREF is another programme of the French Development Agency that supports the development of renewable energy projects in developing countries through financing and technical assistance for solar, wind and hydro projects.

ElectriFI is an initiative of the EU, managed by the European Investment Bank (EIB), aiming to increase access to energy in developing countries by extending finance and technical assistance. It uses grants, loans and guarantees to support the development, construction and operation of renewable energy projects. For example, it provided support to Africa GreenCo.

In addition, there are numerous other instruments offered by development agencies or financial institutions, such as Proparco, Norad, Norfund, Sida and others. For example, a guarantee was provided by Norfund for the Mocuba project, while Proparco offered a guarantee for payment security at Metoro in Mozambique and for tenor extension in local currency (LCY) to the Hardap project in Namibia. A fairly comprehensive [list of RMT instruments](#) is provided by the Renewable Energy Solutions for Africa Foundation (RES4Africa, 2019).

4. Region overview and key projects in Malawi, Mozambique, Namibia and Zambia

Most countries in the SADC region have developed at least one utility-scale project. Figure 1 below includes solar projects larger than 10 MW identified through publicly available information. Information on the financing package and RMT instruments is presented where possible.

Figure 1: Selected utility-scale solar PV projects in SADC (excluding South Africa)



Angola:

1 Solenoval
25 MW, under construction

Botswana:

2 Selebi Phikwe
50 MW, in development

DRC:

3 Kolwesi
100 MW, in development
4 Likasi
100 MW, in development

Madagascar:

5 Ambatolampy
40 MW, operational

Malawi:

6 Nkhotakota
21 MW, under construction

7 Salima
60 MW, operational

8 Golomoti
20 MW, operational

Mozambique:

9 Metoro
41 MW, under construction

10 Cuamba
15 MW, under construction

11 Mocuba
40 MW, operational

12 Dondo
40 MW, in development

Namibia:

13 Omburu
20 MW, operational

14 Khan
20 MW, under construction

15 Hardap
37 MW, operational

Tanzania:

16 Kishapu1
50 MW, in development

Zimbabwe:

17 Chidobe-Mizpah
25 MW, under construction

18 Harava
20 MW, under construction

Zambia:

19 Riverside Kitwe
33 MW, under construction

20 Ngonye
34 MW, operational

21 Bangweulu
54 MW, operational

Source: own elaboration

In Angola, [Eni](#) and Sonangol are developing the country's first utility-scale (25 MW) solar PV plant in the Namibe province with construction started in May 2022. Botswana announced the signing of a 25-year power purchase agreement (PPA) with [Scatec](#) for the country's first large-scale PV plant, a 50 MW project in the former mining town of Selebi Phikwe in the east of the country. Several projects are under construction in the DRC, including the 100 MW Likasi project and the 100 MW project in Kolwesi, the latter being developed by [Globeleq](#) with development costs funded by the [IFC-Finland Blended Finance for Climate](#) programme (IFC, 2019). Construction is expected to start in 2023. Madagascar has a 40 MW – upgraded from 20 MW – operational PV plant at [Ambatolampy](#), supported by guarantees totaling USD 10.1 million backed by the [Africa Guarantee Fund](#) and [GuarantCo](#). Madagascar is also the third country to sign up for [Scaling Solar](#), but the programme is still in the [pre-qualification](#) stage. Malawi has two operational projects, [Salima](#) and [Golomoti](#) (see below), as well as [Nkhotakota](#) (21 MW) under construction. Mozambique has one operational project – [Mocuba](#) (see below) – and two under construction – [Metoro](#) (41 MW) and [Cuamba](#) (15 MW). Mozambique is also implementing the [Proler](#) competitive procurement programme developed together with AfD and support from the European Commission under which one project ([Dondo](#), 40 MW) has been awarded to [Total Eren](#). Namibia's main projects include [Hardap](#) (37 MW, operational, see below), [Omburu](#) (20 MW, operational) and [Khan](#) (20 MW, under construction). Tanzania's main project is [Kishapu](#) (50 MW) which is still in the permitting phase but has already secured financing from [AfD](#). Zimbabwe has several smaller PV projects in the operational phase as well as larger projects under construction, such as the [Chidobe-Mizpah](#) project (25 MW) developed by [Power Ventures](#) and the [Harava](#) project (20 MW). Zambia has two operational PV projects – [Ngonye](#) (34 MW) and [Bangweulu](#) (54MW) – as well as one 33 MW project under construction in [Kitwe](#) (see the deep dive case study in section five).

4.1 Salima and Golomoti - Malawi

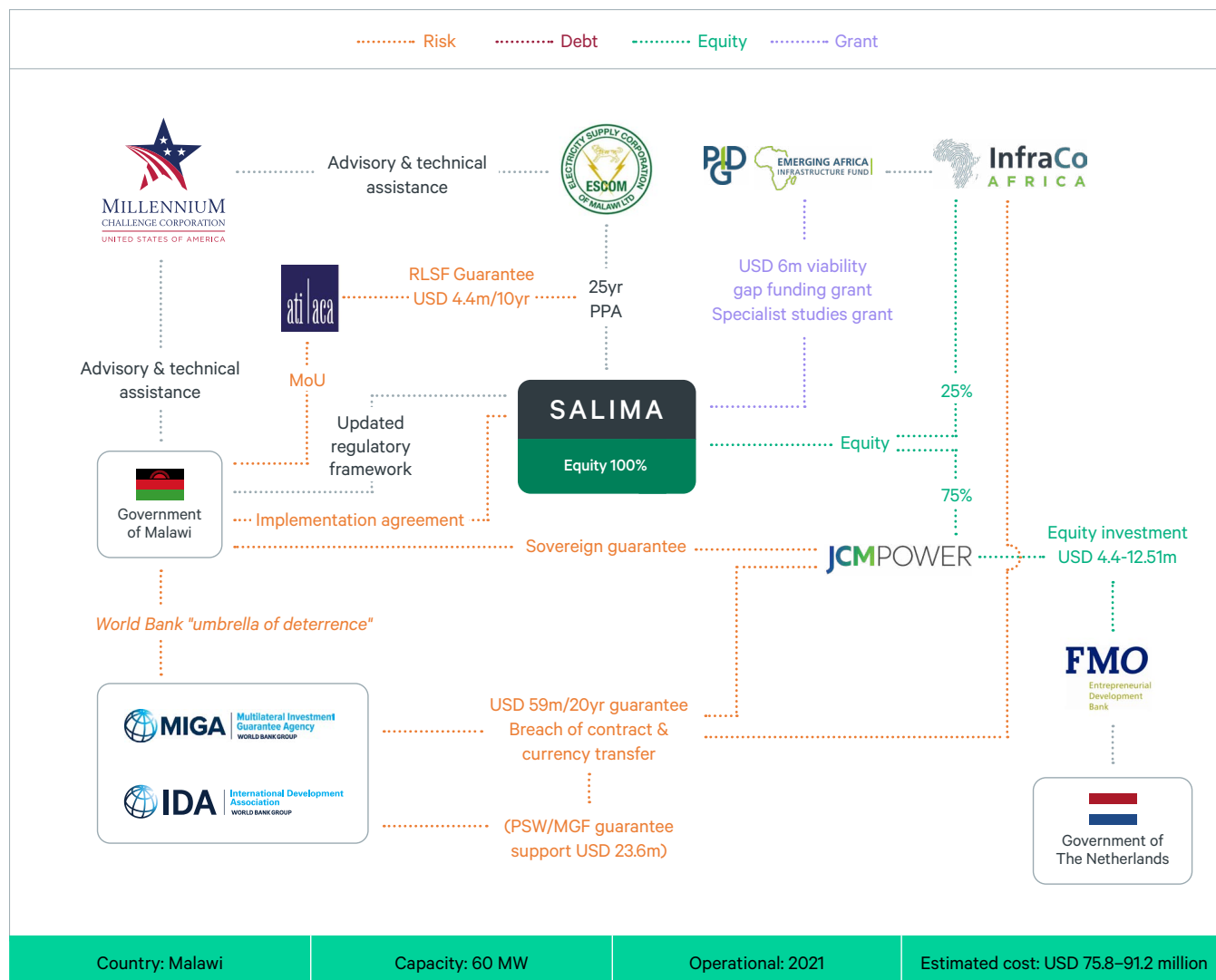
In 2016, Malawi needed rapid renewable energy deployment to cover power shortages caused by lack of installed capacity and recent challenges to hydropower production due to droughts and flooding. In 2017 the public utility [Escom](#) launched a competitive bidding process for solar IPPs. This benefitted from the framework developed as part of the US partnership through the [Millennium Challenge Corporation \(MCC\)](#), which included reforms of the national public utility ([Escom](#)) for increased operational efficiency as well as regulatory changes to allow private sector participation (*Star Report: Malawi*, 2020). The first ever PPA in the country was signed in 2018 for [Salima](#), a 60 MW project 75 km east of the capital [Lilongwe](#). The Canada-based developer [JCM Power](#) partnered with [InfraCo Africa](#), part of [PIDG](#), and the local developer [Matswani](#) and reached commercial operation in October 2021.

The project, with projected costs of USD 91.2 million, was fully funded through 75% construction equity provided by [JCM Power](#) and 25% by [InfraCo Africa](#) ([InfracCo Africa](#), 2016). [JCM](#) also received equity investment from [FMO](#), the [Dutch Entrepreneurial Development Bank](#), and the project plans on seeking refinancing after reaching commercial operation when risks are considerably lower.

[PIDG](#) Technical Assistance provided a USD 6 million [Viability Gap](#) grant to the project, as well as a grant for specialized studies, through its [Technical Assistance](#) programme.

Given Malawi's challenging economic position and inexperience with IPPs and solar energy, the use of [RMT](#) was instrumental to [Salima](#)'s construction. In addition to the government's work with [MCC](#), which represents an example of policy de-risking, a number of financial [RMT](#) instruments were utilized in order to reach financial close (see [Figure 2](#))

Figure 2: The Salima Project



Source: own elaboration

MIGA offered a 20-year guarantee of up to USD 59 million to equity investors to cover potential currency transfer restrictions and breach of contract. The MIGA guarantee was supported by the IDA Private Sector Window with first-loss layer protection of 40%, amounting to USD 23.6 million (World Bank, 2021). The IDA contribution came through the MIGA Guarantee Facility designed to mitigate the risks to MIGA via a first-loss layer, and in some cases to subsidize premiums where costs would be too high for the given levels of risk.

ATI provided payment security through its RLSF to help protect investors against potential payment defaults by Escom. The product is structured as a revolving liquidity guarantee to be triggered following any payment delays by the utility. The product is available for 10 years and is worth USD 4.4 million (InfraCo Africa, 2021). This served as an alternative to the traditional method of having the public utility provide a letter of credit (LC) from a bank in favor of the project company or to set up collateral in an escrow account, which was not feasible given the utility's credit rating.

A similar project awarded to the same developers is Golomoti. The 20 MW project has been operational since December 2021 and features a 5 MW/10 megawatt-hour (MWh) lithium ion (li-ion) battery, the first of its kind in sub-Saharan Africa, financed through a grant from Innovate

UK (InfraCo Africa, 2022). The battery will be able to reduce variability and support voltage and frequency control for the grid. At present, the grid in Malawi is believed to be reaching solar saturation due to lack of dispatchable capacity, climate damage to its existing hydropower capacity, and limited grid infrastructure. Most of Malawi's hydro capacity is run-of-river and frequently affected by seasonal drought, making it insufficient as a solution to drops in solar generation due to cloud cover or other issues.

The number and breadth of RMT instruments applied to the two projects in Malawi illustrates the challenges of reaching financial close in challenging markets with little track record on solar energy. MIGA requiring a first-loss layer from IDA's PSW due to the high risks of the projects also suggests the challenges faced. However, the fact that this was possible in the aftermath of the Covid-19 crisis in one of the least developed countries in the world is a testimony to the effectiveness of RMT instruments. Anecdotal evidence from project stakeholders suggests that none of the instruments have been officially triggered. However, ATI is believed to have intervened to prevent payment delays from the utility, and MIGA has assisted in getting the investors the needed foreign exchange for repatriation. The main developer was not available to discuss potential challenges during the operational phase. While the tender leading to Salima and Golomoti was launched in 2017, it is important to note that the two projects were possible thanks to policy de-risking measures started as early as 2011 through the MCC.

4.2 Mocuba and Metoro - Mozambique

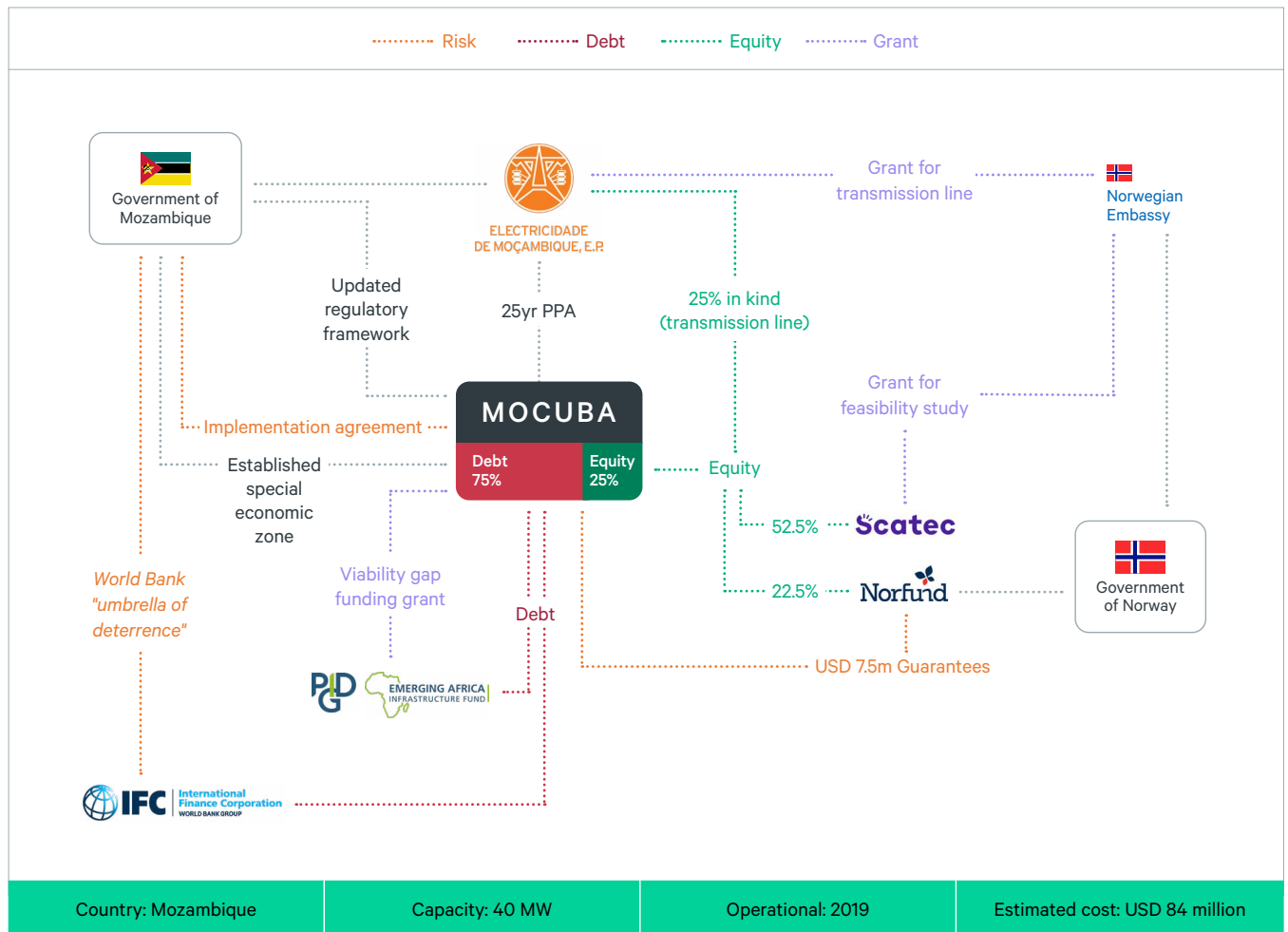
Mozambique is a climate-vulnerable country with a high reliance on hydro capacity. While generally a net exporter of power, Mozambique is looking to diversify its sources and take advantage of its solar energy potential. In this context, the government considered options for setting up the required policies and regulations to integrate a private IPP-developed solar PV project.

The Mocuba 40 MW solar PV project (see Figure 3), which is the first of its sort in the nation, was meant to help the northern region's relatively underdeveloped electrical grid but also to create the demonstration effect. It was developed by Norwegian IPP Scatec following a development process which involved different actors and the creation of the required regulations, including the PPA term sheets and other agreements as the project moved through its various stages. Mocuba reached commercial operation in July 2019, three years after the project initiation. Electricidade de Moçambique (EDM) – the state-owned utility – is the offtaker under a 25-year PPA.

The total cost of the project was USD 76 million and the debt-to-equity ratio was 75 to 25. The lenders were the IFC as the lead arranger and the Emerging Africa Infrastructure Fund (part of PIDG). Scatec (52.5%) and the Norwegian Investment Fund for developing countries (Norfund) (22.5%) provided the project equity. The Norwegian Embassy in Maputo offered a grant for a transmission line from the solar plant to the grid and an upgrade of the existing transformer substation. This was structured as a grant to EDM, who then contributed the transmission line in kind to the project and ended up having a 25% stake in the project company.

Investors and lenders were worried about the country's worsening public finance and credit rating, even before Covid-19. The macroeconomic climate appeared negative, and the spiraling debt translated into imminent hard currency availability problems. In addition, the offtaker, EDM, presented a high credit risk. The novelty of the project and the regulatory changes required caused significant delays and bottlenecks, which increased the convertibility and currency risks.

Figure 3: The Mocuba Project



Source: own elaboration

In this context, Norfund provided a set of guarantee instruments. This included a guarantee on the debt service reserve account (DSRA),⁴ implemented via a parent company guarantee, as “lenders insisted” (Norfund, 2020). In addition, having the WBG and PIDG as lenders and Norfund as both equity investor and provider of guarantees enhanced the risk mitigation architecture of the project.

Metoro was the second utility-scale PV project to come online in Mozambique. The 41 MW project was developed by French IPP Neoen. The project reached financial close in 2020 and started construction the same year. However, it has not yet reached operation as it encountered several difficulties on the ground, particularly due to the security situation in the Cabo Delgado province where it is located. In June 2022, an armed attack prompted the engineering, procurement, and construction (EPC) contractor Efacec to suspend work and evacuate all workers.

The estimated USD 56 million Metoro project was funded by Proparco, the private sector financing arm of AfD, who provided USD 40 million in concessional loans. The project company is owned 75% by Neoen and 25% by EDM, who is also the offtaker via a 25-year PPA. EDM’s stake is also the result of an in-kind contribution of the transmission line and substation, financed by the project and transferred to EDM. The risk mitigation instruments have not been made public.

⁴ In project finance structures, because of the non-recourse nature, lenders condition their support on having a debt service reserve account, always replenished to ensure debt payment before other non-essential payments. In this case, the requirements of the lenders were to double the amount in the DSRA and to have a guarantee on it (offered by Norfund through a parent company guarantee).

Practitioners have argued that the structure at Mocuba should not be seen as replicable, given its custom development process. All the required documentation and regulations were addressed as hurdles in the process. For example, arrangements for a tax exemption, licensing and logistics of imported equipment were all complex and lengthy. While the grant financing the Mocuba interconnection facility and the highly concessional lending was part of the “whatever it takes” approach by development partners to get the first PV in the country and to prop up the highly vulnerable northern grid, this complex structure is not expected to be replicable at scale.

However, the demonstration effect seems to have been successful. The Metoro project quickly followed Mocuba and benefited from the path carved by its predecessor regarding documentation and regulations. While still highly concessional and development-centered rather than commercial, Metoro continued the advancement of Mozambique’s solar energy sector.

As a follow-up to Metoro, AfD with European Commission funding launched the Proler programme. The programme aims to help EDM to manage competitive procurement processes through technical assistance and features a built-in payment guarantee by the offtaker, offered through a commercial bank without a sovereign guarantee. The programme already selected four sites in the north of the country: three for PV and one for a wind project and awarded the Dondo 40 MW projects to Total Eren. Proler looks like a solid continuation of both Mocuba and Metoro, confirming the demonstration effect that was envisaged, introducing a clearer process with a competitive component for EDM’s procurement and renewable energy integration for the prospects of scalability.

In addition, to be able to support more projects like Mocuba, the Ministry of Foreign Affairs of Norway has launched a new initiative providing approximately USD 150 million in guarantees for RES projects in developing countries through MIGA (Norway Ministry of Foreign Affairs, 2021).

At the same time, the difficulties encountered by the EPC contractor in the construction phase of Metoro also need to be noted. While unusual risks such as armed conflict do sometimes materialize, they are difficult to quantify.

4.3 Hardap - Namibia

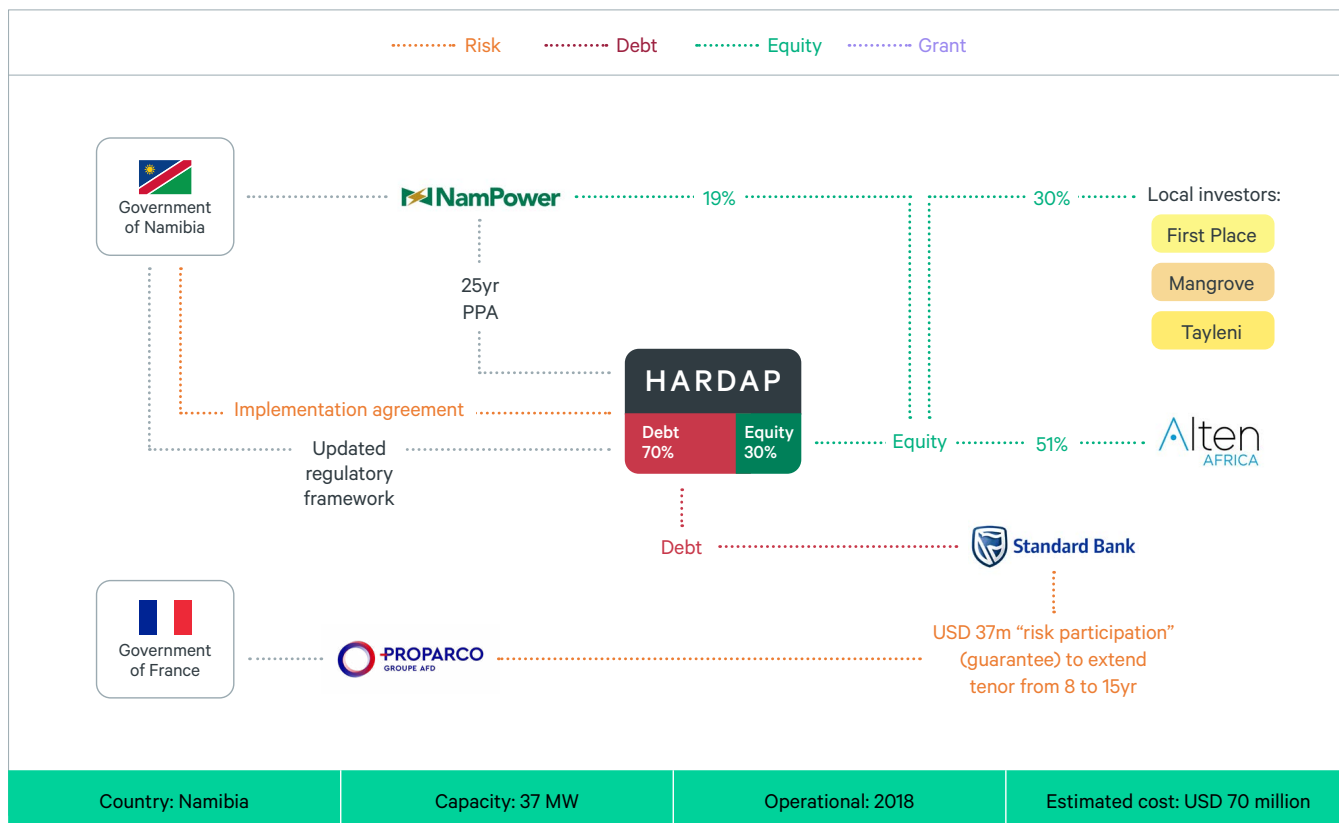
Namibia’s public utility Nampower, with an investment grade rating of BBB-, represents an exception in the region. The government of Namibia, while recently downgraded by Fitch to BB-, is still one of the most creditworthy in the region.

Namibia is a net importer of electricity from South Africa, Zambia and Zimbabwe. It also faces challenges due to overreliance on hydroelectricity that is increasingly affected by droughts and climate change. In this context, the government decided to take advantage of the high solar resource and pursue utility-scale PV under different models.

At 37 MW, Hardap was the first project of this scale in the country and the first completed under the IPP model (see Figure 4). Located in the south of the country 230 km from the capital Windhoek, the project achieved financial close in early 2018 and was completed in record time, reaching operation in September of the same year. NamPower served as the offtaker under a 25-year PPA. The lead developer was the Spanish company Alten who contributed 51% of equity, with the rest shared between NamPower (19%) and other local investors (30%). The debt-to-equity ratio was 70/30 and the lender was Standard Bank (USD 25 million). The presence of a local (regional) bank is relevant, as it stands as proof of the solidity of the offtaker. The deal was attractive enough for the bank to be the co-mandated lead arranger for the project finance structure.

More importantly, the lending was in local currency. The bank also provided currency and interest rate hedging, accessible under commercial terms, again reflecting that currency risks in Namibia were seen as manageable. Local currency lending with adequate hedging was more competitive than DFI hard currency lending with included risk mitigation.

Figure 4: The Hardap Project



Source: own elaboration

RMT was provided through a guarantee offered by Proparco under a hybrid guarantee structure, whereby Proparco provides a guarantee to Standard Bank, which starts at 30% and increases to 100% in the eighth year of operations, covering various risks and effectively enabling tenor extension. Should the covered risks materialize, Standard Bank has the option to transfer different portions of the loan to Proparco (up to 100% in year 8), which makes it possible for the loan to be extended for 15 years. The longer tenor resulted in better financing terms and a better tariff. The project was not covered by a sovereign guarantee nor by political risk insurance.

Apart from Hardap, Namibia is developing other large projects. Khan is a 20 MW project developed and financed by local players, including pension funds, which is expected to reach operation in 2023. Omburu is another 20 MW project, operational since June 2022 and financed entirely by the utility. Thanks to a levy introduced to utility bills, NamPower was able to fund the project on its balance sheet, completing financing and construction in record time at a relatively low cost. In addition, NamPower is in the early stages of developing a 40 MW wind project.

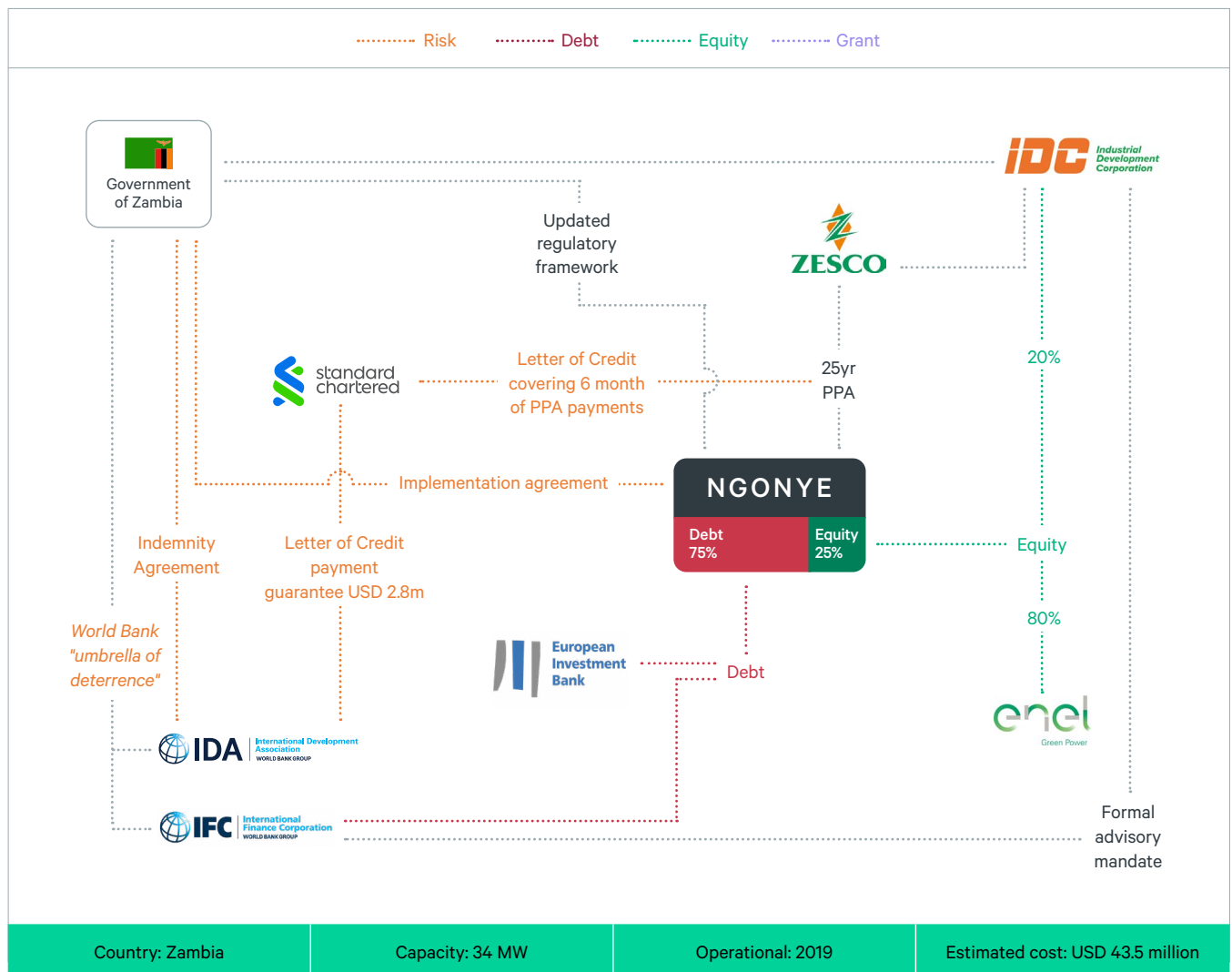
Namibia illustrates that the most effective risk mitigation is based on financial sustainability of the utility and sound governance. When a basic level of administrative capacity, ease of doing business and credit worthiness are reached, the financing and development processes are naturally smoother and cheaper.

NamPower is one of the only utilities in the region with cost-reflective tariffs, good liquidity and cash reserves. This allowed the development of three projects in a short time span under different arrangements: DFI and local bank lending in local currency with minimal risk mitigation; entirely local private and public funding; and utility own-balance sheet funding. As a result, Namibia has already increased its installed capacity significantly and is likely to continue to do so in the near future. For example, Bank Windhoek, Namibia’s second biggest lender, launched a green bond on the Namibia Stock Exchange to fund renewables projects (Bank Windhoek, 2018).

4.4 Ngonye and Bangweulu - Zambia

Ngonye was developed by Enel Green Power in the Lusaka South Multi-Facility Economic Zone, which created an initial tax benefit to the project (see Figure 5). The project equity is owned 80% by EGP and 20% by the Industrial Development Corporation (IDC⁵). The offtaker is the national utility Zesco under a 25-year flat PPA at 7.839 cents per kilowatt hour (USc/kWh). The total cost for the 34 MW project was USD 43.5 million. The debt-to-equity ratio was 75/25 and the lenders included the IFC (USD 22 million) and the EIB (USD 11.75 million).

Figure 5: The Ngonye Project



Source: adapted from (Kruger and Eberhard, 2019)

The *Scaling Solar* programme included a number of options for risk mitigation. The main instrument was a guarantee offered by IDA amounting to USD 2.8 million. It was a payment guarantee offered to ZESCO which enabled it to post a LC from Standard Chartered covering 6 months of PPA payments. Thus, ZESCO did not need to provide cash collateral. All bidders requested IDA payment guarantee. The LC would be drawn upon by the Project Company (Ngonye Solar) only in case of

5 The Industrial Development Corporation of Zambia is the holding company for most Zambian state-owned enterprises registered under the Companies and Banking and Financial Services Acts, including the power utility Zesco.

non-payment by ZESCO. In that case, IDA would reimburse Standard Chartered. The government of Zambia finally indemnifies IDA through the indemnity agreement.

MIGA political risk insurance and IDA loan guarantees were available but not requested.

As part of the policy de-risking strategy, the WBG sought to strengthen the IDC's institutional capacity with IFC Advisory serving as transaction adviser to prepare and execute the procurement process, tender documents, on-the-job learning and others. The IDC's capacity for managing solar public-private partnership projects would be enhanced by its role as a minority shareholder in the operational projects. The IFC also targeted Zesco and the Ministry of Energy with capacity building, especially for the competitive procurement component.

The other *Scaling Solar* project, Bangweulu, is very similar to Ngonye. With 54 MW of installed capacity, it is situated in the same economic zone of Lusaka and also reached operation in 2019. It was developed by Neoen (55%) and First Solar (25%), with the IDC also holding a 20% stake in the project company. The PPA terms are identical except for the price, which is a flat 6.0150 USc/kWh. The lenders were the IFC (USD 26.6 million) and US Overseas Private Investment Corporation (OPIC)⁶ (USD 13.3 million).

5. Deep Dive Zambia

Zambia can be seen as a testing ground for risk mitigation in renewable energy in sub-Saharan Africa. Because of the numerous programmes and projects implemented in recent years, the country managed to attract significant private sector interest and investment for renewable energy capacity and has critical energy requirements for its sizable mining sector. At the same time, Zambia has one of the oldest regulators in sub-Saharan Africa and constantly ranks among the top countries in the Africa electricity regulatory index (African Development Bank, 2020). Zambia was the first country included in the World Bank *Scaling Solar* programme that resulted in two operational projects. Another major renewable energy procurement and risk mitigation programme in Africa, GET FiT, implemented through KfW, was implemented in Zambia after the successful experience in Uganda. While the GET FiT procurement phase was completed successfully in 2019 with six projects awarded totaling 120 MW – at record low PPA prices – financial close has not been completed as of 2022. In addition, Zambia has been the first country to pilot the Africa GreenCo model in 2022. The first tender awarded a 25 MW project in the western part of the country. The private utility Copperbelt Energy Corporation (CEC)⁷ is building a self-financed 33 MW power plant.⁸

⁶ OPIC was the United States Government's development finance institution until it merged with the Development Credit Authority of the United States Agency for International Development to form the U.S. International Development Finance Corporation

⁷ CEC acts as a trader and relies on 80 MW back-up generation and an existing 1 MW solar plant.

⁸ Other projects with limited public information include Kululushi, a planned 200 MW CSP in the Copperbelt region and the 200 MW Serenje PV plant

5.1 Economic Overview

The economy of Zambia has been going through challenging times.

Zambia's economic position became vulnerable with a drop in the price of copper, the country's main export, in 2015-2016 leading to reduced growth. Droughts also affected agriculture, power production and output from mining due to lack of power. The Covid-19 crisis added to an already challenging situation as the local currency (kwacha) depreciated, the inflation rate soared and public finances suffered. The government continued to borrow to fund its operations and public investments (IMF, 2022b). With increased spending and declining revenues, Zambia's ability to service its debts was compromised and in November 2020, Zambia defaulted on its Eurobond and accumulated arrears to other creditors, especially in foreign currency (IMF, 2022b).

BOX: ZAMBIA KEY ENERGY AND ECONOMIC INDICATORS

- Installed Capacity: 3318 MW (2021)
- Installed Capacity by source: hydro (2704 MW); Coal (330 MW); Diesel (85 MW); Heavy fuel oil (110 MW); Solar (89 MW)
- Electricity demand: 17636 GWh
- Population with access to electricity: 45% (2020)
- Population: 19.4 million (2021)
- GDP / capita: USD 1137 (2021)
- GDPppp / capita: USD 3300 (2021)
- Credit Rating Moody's: Ca (2022)

Source: IRENA, 2021; Energy Regulation Board Zambia, 2022; Moody's, 2022; World Bank, 2022a

After the elections of 2021, several economic reforms and higher copper prices created the space for some of the challenges to be addressed, and there have been signs of economic recovery. With growth resuming in 2021, some appreciation in the local currency and lower inflation rates (from 25% in 2021 to 9.7% in 2022), the economic prospects for Zambia improved (IMF, 2022b). Yet deep challenges remain with public debt sustainability, rising fuel prices and persistently high rates of poverty and inequality. A USD 1.3 billion loan programme with the IMF was approved in August 2022 (IMF, 2022a), focusing on public spending reforms, reduced subsidies and improved revenue collection. Further discussions on debt restructuring under the new G20 Common Framework are ongoing; this restructuring is hoped to restore Zambia's profile as an investment destination going forward.

On the energy side, the persistent droughts of the last decade affected hydropower (85% of Zambia's installed capacity), leading to load shedding and emergency purchases of expensive power from neighboring countries. The depreciating currency created an additional burden for the public utility Zesco, whose payments toward IPPs are linked to hard currency.

Zambia has experience working with IPPs before the solar projects. The 120 MW Itezhi-Tezhi hydroelectric plant was developed by a joint venture including Zesco and Tata Africa, part of the Indian Group Tata. Another IPP active in Zambia is the Lunsemfwa Hydro Power Company, controlled by Norwegian company Scatec, which is building and operating hydro assets totaling around 500 MW. Finally, the largest coal-fired power plant in Zambia is Maamba (300 MW), controlled by the Indian company Nava Bharat Ventures with lending mostly from Chinese banks and some from South African banks.

The financial position of Zesco, the country's public utility, represented a dedicated chapter in the IMF programme, as the utility's debts reached USD 1.5 billion in loans and USD 1.4 billion in payables to IPPs at the end of 2021, together representing around 13% of Zambia's GDP. As with many utilities in the region, tariffs have been kept lower than costs, with the latter ballooning due to the hydropower shortage, emergency purchases and IPP payments. A turnaround strategy was adopted with the aim of gradually implementing cost-reflective tariffs with a multi-year approach, reducing costs and rationalizing investments. The prospects of the company have improved, with the kwacha appreciating and the new regulatory regime based on multi-year tariff framework and a new cost-of-service study promising to create a more stable environment for the company going forward. However, the situation at present continues to be difficult.

A relevant feature of Zambia's economy is its large mining sector, which accounts for more than 70% of its exports revenue and is thus a crucial source of hard currency (IMF, 2022b). The mines – mainly copper – are located mostly in the northwest of the country, close to the border with DRC, and have significant energy needs for pumping water out of the underground pits, operating the on-site machinery and smelting. They use a large amount of the country's power and have the ability to pay for it in hard currency. The Copperbelt Energy Corporation is an integrated private electric utility company owning and operating generation and transmission (including cross-border) assets in the mining region, as well as purchasing power from Zesco and trading on the Southern African Power Pool (SAPP) market.

5.2 Risk mitigation and transfer in Zambia

Zambia was the first country to implement the WBG's *Scaling Solar* programme. The programme, implemented together with Zambia's Industrial Development Corporation, was designed as a one-stop shop providing both project preparation support, technical assistance for the competitive procurement process, built-in concessional lending and financial RMT through the different arms of the WBG. The country took advantage of the technical assistance offered by the IFC and created the framework required to attract large international developers with competitive bids. In 2019, after some delays, both Ngonye and Bangweulu, totaling 88 MW, were commissioned with PPA prices widely seen as competitive for the region (Kruger and Eberhard, 2019).

As the economic situation worsened through 2020 and 2021, the projects continued to receive payments in due time despite Zesco's difficult financial position and the depreciation of the kwacha. While other, non-solar IPPs have witnessed delays in payments⁹, the obligations under *Scaling Solar*, much smaller in absolute terms, have been met. The extent to which the added USD-linked IPP payables from the *Scaling Solar* projects contributed to Zesco's difficulties is hard to establish. On the other hand, the ultra-competitive procurement process and the concessional IFC financing is believed to have led to record low tariffs, quickly providing badly needed installed capacity and cost-effective power. Whether those tariffs are sustainable, replicable or scalable under commercial terms is also a matter of debate. What is certain is that from a risk mitigation point of view, *Scaling Solar* has delivered the expected outcomes. A second round of *Scaling Solar* was planned for April 2019, targeting 200 MW, but was subsequently canceled (Kruger and Eberhard, 2019).

The full package envisioned by the *Scaling Solar* programme seems to have been successful in Zambia. The PPA prices represented record lows at the time and the attached technical assistance and RMT were adequate to attract reputable international investors. However, even with such a comprehensive approach to risk mitigation, there have been some issues that contributed with delays and additional costs to developers. As part of *Scaling Solar*, the sites had been pre-selected and prepared, with land rights and interconnection secured. Yet for one of the sites, the developer required additional geotechnical works to bring it up to its internal standards. One of the project sites also overlapped a conservation area, which required a change

⁹ Whether the delays have been deliberate is a matter of debate, see section 6.2. The payments may have been withheld due to disagreements over the initial PPA terms and not necessarily because of the financial difficulties of Zesco.

in law to allow the site to be used and pushed out the project's timeline by at least a year (Kruger and Eberhard, 2019). This illustrates that site preparation challenges remain even when the government and international partners undertake this task. Given the experience with the Ngonye and Bangweulu sites, it is likely that developers will incorporate site risk in future projects through higher bids.

During implementation and the operational phase, the financial situation of the country worsened. PPA payments have been made at the last minute, sometimes requiring engagement from the WBG. Anecdotal evidence suggests that payments were still made by the offtaker to the Ngonye and Bangweulu projects when other payments were being delayed. This would confirm the halo effect of the WBG, whose presence in a project in any capacity, particularly with the IDA indemnity agreement, serves as a strong incentive for State Owned Enterprises (SOEs) to honor their commitments. This may also be the reason why additional RMT instruments such as MIGA PRI or IDA loan guarantees were not requested. While the risks were undoubtedly present, the heavy involvement of the WBG provided enough comfort for lenders and investors to commit capital to the project.

The GET FiT programme offers a contrasting experience to that of *Scaling Solar*. Similar in many ways, with a well-designed competitive procurement platform, technical assistance, a capacity development component and standardized project agreements with built-in risk mitigation, including a termination guarantee as part of the implementation agreement, GET FiT successfully awarded six projects from three bidders totaling 120 MW at record-breaking tariffs in April 2019.¹⁰ However, the awarded projects have so far been unable to reach financial close. The sovereign default of November 2020 and Zesco's woes made lenders reluctant to back the projects without debt restructuring being concluded. The 2022 IMF deal has set limits on the amounts of new non-concessional debt that the government, Bank of Zambia or Zesco take. This has been interpreted to include contingent liabilities such as sovereign guarantees (IMF, 2022b). Timing appears to have been the key difference between *Scaling Solar* and GET FiT, with the latter being initially developed when all the sectoral signals were encouraging, only to have the economy sour when it was time to reach financial closure.

Zambia has also seen the development of an alternative approach to long-term PPAs with local public utilities, which are often in economic distress. Africa GreenCo is aiming to become a highly rated offtaker in the SADC region, trading electricity in the regional power pool (SAPP) at a margin. The Africa GreenCo model is seen as another form of risk mitigation, with the donor-backed balance sheet of the offtaker providing comfort to lenders and reducing the cost of capital, while the trading activity is expected to optimize power utilization in the region. In 2019, the Electricity Act of Zambia was revised to allow entities to trade in electricity as an intermediary offtaker. This paved the way for Africa GreenCo to award the successful bidders for the tender for its first PPA in 2022 to a 25 MW PV plant in the country's Western Province¹¹. Whether this model will be successful in scaling up renewable energy in Zambia while maintaining the financial sustainability of the offtaker remains to be seen. Given Zesco's and the government's difficult credit position, viable alternative offtakers for scaling up renewable energy in Zambia are badly needed. It will however be important that these models demonstrate that they will not require guarantees or need the government to indemnify the obligations of the utility.

CEC has for many years played the role of trader, but has the added benefit of owning transmission infrastructure. It has established a track record trading electricity in SAPP, and it is also developing its own renewable energy projects under various arrangements. The company forms part of one of the winning project consortia under GET FiT. They are furthermore developing on their own balance sheet a 33 MW PV project, with the intention of refinancing

¹⁰ Another difference compared to *Scaling Solar* consists of the fact that under GET FiT, developers are responsible for their own sites, including securing land rights and interconnection. Also, they are not offered a financing package; thus, developers need to secure financing themselves.

¹¹ The PPA has not been signed at the time of writing.

it after entry into operation. By selling directly to the mines, a source of hard currency, risk is greatly mitigated, allowing CEC to experiment with different approaches that can result in scaling up renewable energy in Zambia.

According to press reports, despite its difficult financial situation, Zesco launched a tender for 50 MW of solar power in August 2022. There was not enough public information to evaluate the progress on the procurement process and its prospects of success.

6. Discussion

This section presents evidence from the perspective of practitioners and project stakeholders on several key areas, including:

- The relevance of RMT instruments in the project development process;
- The performance of RMT instruments during the operational phase, especially in challenging economic times;
- The replicability and scalability of RMT instruments;
- The adequacy of existing RMT instruments in reaching financial close for new projects during the current economic challenges;
- The potential for improvement of RMT instruments;
- The effects on host country public finance;
- The potential moral hazard and maladaptation.

6.1 Relevance of RMT instruments in the project development process

According to many developers and lenders interviewed, most projects in analyzed countries would not reach financial close without RMT instruments. Some developers indicated they would not even have considered some of the projects without the comprehensive risk mitigation provided. The approach in selecting and combining the various available RMT instruments seems to be one of trial and error. During the initial phases, various potential combinations of available RMT instruments are often tested against the developer's financial model and the requirements of lenders, and the one that makes the project meet the selection criteria at the lowest cost is attempted. To quote one interviewee, "whatever makes the lenders happy".

RMT instruments are highly relevant for project development in all studied countries

Stakeholders indicated that RMT instruments are highly relevant for project development in all studied countries, and decisive in many cases that would not advance without them. The extent to which RMT instruments are required depends mostly on the country and the offtaker risk profiles. The offtaker is generally the state-owned utility, which means that the sovereign rating is the single most important determinant of financial risk and, consequently, of the choice of RMT. As was seen in the case of Namibia, the fact that the utility was rated investment grade translated into limited RMT requirements, despite Hardap being the first large-scale solar PV project in the country. On the other hand, for the projects in Mozambique and Malawi, a wide spectrum of RMT instruments was required for financial close. Some instruments were custom made to address particular risks that investors and lenders would not be comfortable with, such as Norfund's guarantee for Mocuba.

6.2 Effectiveness of RMT instruments during the operational phase

The post-Covid-19 economic shocks provide for a natural experiment to test the effectiveness of RMT instruments. Most studied projects reached financial close before the start of the current debt crisis, inflation, rising interest rates, depreciating currencies and fuel price hikes. The extent to which the project investment value is being protected in times of economic distress can attest to whether RMT instruments work as expected.

All countries in the region have suffered as the concurrent crises described above have exacerbated the debt situation. Rising interest rates in the US contributed to depreciating currencies throughout sub-Saharan Africa, making debt service even more difficult. For offtakers, whose payments to IPPs are in local currency but tied to USD, the situation became severe.

Based on the accounts from project owner-operators and DFIs who underwrite the RMT instruments, the latter are rarely, if ever, triggered. While so far political risk insurance, loan guarantees and payment guarantees (liquidity instruments) have not been triggered, it appears that the current situation contributes to additional delays in payments, for which more frequent contact is required. In addition, within DFIs underwriting the various RMT there is a concern of a potential cascade of drawdowns if the macroeconomic situation continues to worsen.

In the specific case of *Scaling Solar*, for example, the solar projects continued to receive payments from Zesco even while others IPPs were recording delays. It is believed, however, that the delays in Zesco payments to some other IPPs, including Maamba and Itezhi Tezhi, were caused by disagreements over the financial model on which the PPA was based and less on the actual difficulties of Zesco in making payments. Negotiations on revised tariffs are ongoing (IMF, 2022b).

For the projects in Malawi, interventions from ATI were occasionally needed to speed up payments from the public utility, but the delays have been managed without triggering the official letter of credit. This suggests that so far, the analyzed RMT instruments have been effective – they have protected the investment value of the project even in challenging times. The effectiveness appears to derive from the influence of the DFIs backing RMT instruments on host governments. In the event of a government decision, or lack thereof, that affects a project with DFI involvement either as lender or as provider of RMT, the repercussions can cover other crucial financing sources of the government, which provides for a powerful deterrent. This is particularly evident for the World Bank Group, and what some refer to as its “umbrella of deterrence”. As many countries in the region continue to face deteriorating public finances, it remains to be seen whether RMT instruments continue to provide value through their soft deterrence, or whether one or more end up being officially triggered.

Finally, the project in Namibia, financed in LCY, again shows that the best risk mitigation comes with sound policy and financial management. While the economy was also affected in the post-Covid-19 environment, the project had virtually no exposure to hard currency and the offtaker was shielded from the most significant consequences of currency depreciation.

Most projects would not have been possible without RMTs. Recent experience shows they are necessary, even though they may not be sufficient or effective in all circumstances. Most developers and lenders acknowledge that projects could not have been even considered without RMTs and the wider programmes around them.

6.3 Replicability and scalability of RMTs

The aim of this approach to RMT seems to have been to build the first utility scale project in each of the countries. The approach to RMT instruments required technical assistance for developing contract templates and suitable regulation, arguably one of their main legacies. The role RMT instruments played in achieving financial close in the projects studied suggests they fulfilled their goal for that stage of renewable energy development in SADC.

However, arrangements like the one at Mocuba in Mozambique or Salima in Malawi do not seem well suited for replicability and scalability. The numerous, and to some extent ad hoc, RMT instruments used were indicative of the “whatever it takes” attitude of the project developers, strongly backed by DFIs. For example, the use of viability gap grants in Malawi and Mozambique demonstrates this approach on the part of DFIs. Once the first projects are on the ground and the demonstration effect kicks in, other projects can be developed using the same or slightly adapted regulatory or contractual architecture.

The *Scaling Solar* programme was explicitly aimed at replicability and scalability. By co-creating much of the needed regulation and documentation with the government, regulators and offtakers, and with pre-selected sites, IC, concessional financing and RMT instruments, the idea was that the bidding would be iterated in the same country and then replicated in other countries. The reality on the ground showed that the replicability component so far is limited, as each round of *Scaling Solar* and each country has generated a unique set of challenges, requiring significant amounts of time and work to get to financial close.

Many IPPs interviewed acknowledged the efforts that DFIs make in pushing pioneering projects in countries without a utility-scale solar power track record. They also point, however, to the need to eventually move to a model that involves commercial banks, taking advantage of private sector experience to a greater extent. There appears to be a developer preference that even processes backstopped by DFIs, such as site selection, preparation, term sheets and financing, should be carried through private sector organizations where possible to reduce process time and increase scalability.

The fact that all countries included in this analysis have had subsequent projects after the first ones came online with extensive use of RMT instruments shows that the demonstration effect is relevant. The lead times, however, continued to be long, which tends to add to risk perception for investors and to increased costs. The fact that *Scaling Solar* Zambia, a programme that explicitly aims at scalability and replicability, has been only partially successful at that proves that RMT instruments are necessary but not sufficient for significant renewable energy growth in the SADC region.

6.4 The adequacy of RMTs for new projects during the current economic challenges

Many of the projects studied have reached financial close during a period of relatively stable macroeconomic conditions. RMT instruments were required to lower borrowing costs against the perceived risks from adverse events linked to an economic or political crisis, such as a shortage of hard currency, depreciation of local currency, defaults or delays from the offtaker and their sovereign backers. While the risks to the operating projects have not materialized so far, the economic realities of 2021 and 2022 in the region are somber. If projects can still be developed and reach financial close with the help of RMT instruments, this proves they are a powerful and versatile tool for renewable energy growth in the region.

Under current circumstances in Zambia, RMT instruments as identified in this report do not seem to be strong enough to convince the credit committee of any lender to move forward with the otherwise sound projects

The experience with GET FiT suggests that expectations need to be managed. The projects have been selected, the tariffs are competitive, and the conditions have improved in Zambia. The country needs the extra power capacity the projects would provide and the offtaker has a positive track record with the solar IPPs selected under *Scaling Solar*. However, lenders including DFIs have been unable to extend credit to these projects because of the implacable problem of the credit rating, which is likely to only change once the debt restructuring negotiations are concluded. Zesco has embarked on a path to reform but still looks financially vulnerable. As an SOE, Zesco is linked to the sovereign rating of Zambia which is now Ca – “highly speculative (...) in or very near default”. *The latest Moody’s report* cites that “Zambia’s recent default and track record of accumulating domestic and external payments arrears to contractors, suppliers, pensioners, and other non-creditors are also indicative of very weak fiscal management and payment culture.” Under these circumstances, current RMT instruments as identified in this report do not seem to be strong enough to convince the credit committee of any lender to move forward with the otherwise sound projects.

In other SADC countries, the situation is mixed. Namibia continues to be able to finance projects on a mostly commercial basis, thanks to its better credit rating, with minimal RMT required. There is less visibility on further solar projects being developed in Malawi, given climate damage to existing generation capacity and current limitations to incorporate additional intermittent resources. In Mozambique, the GET FiT programme is yet to be fully implemented, which may be an indication of economic challenges, but the Proler programme seems to be advancing.

It is difficult to clearly establish if crowding out actually happens, and if it does, if it has truly net negative effects. Some DFIs, especially in the WBG, are better positioned than others to provide RMTs, thanks to their “halo” effect. Sometimes, such RMTs may be paired with concessional funding offered by the same group under terms that cannot be matched by any competing private sector actors. In that sense, it can be argued that private sector finance is crowded out. While this may expedite deployment in the short term, it may slow down the scaling up of renewable energy on a fully commercial basis. Moreover, the cost advantage of DFIs is said to be hiding risks that the host country ends up bearing, such as currency depreciation risk, which the private sector prices in more correctly.

Another consideration is whether low PPA prices achieved through concessional funding create unrealistic expectations. Concessional funding and RMTs can greatly reduce the cost of capital and make projects feasible in countries that could not afford them otherwise. The low PPA prices achieved through competitive selection, concessional finance and RMTs, however, may not be replicable and create tensions in regular procurement processes.

6.5 Effects on host country public finance

RMTs tend to be offered by DFIs as part of packages that include technical assistance and other capacity-building components, making them accessible. Affordability is not easy to establish, as the pricing is not always public. Even if prices were public, it would be difficult to establish whether they are reflective of actual risk. Anecdotal evidence suggests RMTs are more competitive than what the private sector could offer but come with significant strings attached. Many investors have also argued that RMTs are relatively expensive and add significantly to project costs.

Some RMTs do require indemnity from the host government, which represents a contingent liability for the sovereign and thus adds to public debt. This is the case for IDA's loan guarantees. Others such as MIGA political risk insurance or ATI's RLSF do not directly affect sovereign debt. However, since the state, as the owner of the utility, in effect serves as a backstop of the PPA, it can be argued that any additional liabilities assumed by SOEs add to public liabilities. As RMTs enable such PPAs in the first place, one could say they can have such an effect. At the same time, if the project being financed is value-creative, replacing emergency purchases of electricity and load shedding, it may be contributing to longer-term debt sustainability by enhancing the financial health of the offtaker. This discussion is particularly relevant for the GET FiT programme. The IMF deal is said to prevent sovereign guarantees to restore debt sustainability, yet lenders are not willing to back projects without it. However, the projects have been selected after a competitive process at record low tariffs. It may be the case that they are improving Zesco's financial position.

The discussion on public debt sustainability is further complicated by the thorny issue of hard currency lending. It is argued that extending hard currency credit to countries with vulnerable economies is intrinsically unsustainable, even if the funds are used effectively (Hirschhofer, 2022). This discussion has implications for the international financial architecture, which is beyond the scope of this paper.

6.6 Potential for moral hazard and maladaptation

RMTs are needed to shield investors from adverse events that can hurt the value of the projects. These events are more probable in contexts characterized by weak governance and economic instability. For example, a utility suffering from chronic revenue shortfalls and mismanagement in a country with a low credit rating will require RMT for lenders to be able to accept a PPA from such an offtaker. If that reduces the incentive for the utility and the government that owns it to address the underlying problems by implementing effective management and pursuing cost-reflective tariffs, then RMT may be contributing to consolidating an unsustainable status quo. However, most RMT instruments in the projects studied have been part of greater programmes that included capacity building of the offtaker and regulators, and are coupled with policies and reforms with a longer-term view. RMT may weaken the incentive for reform, but they also tend to be complemented by programmes that contribute to improved regulation and financial management of utilities.

7. Conclusions and recommendations

In this report, by examining the role of RMTs at project level and discussing with stakeholders involved in project development, we conclude that RMTs have been effective, as existing projects are unlikely to have reached financial close without them.

RMTs are versatile and flexible. They can be combined to add stronger protection in countries with insufficient track record and challenging situations, such as seen in Malawi, or stripped to the bare minimum in countries with investment-grade offtakers, as showed for Namibia. Coupled with gradual policy interventions that improve regulation and utilities performance, as well as create legal frameworks conducive of renewable energy growth, RMTs can provide the additional security needed by investors to make projects possible.

RMTs have been effective, as existing projects are unlikely to have reached financial close without them. At the same time RMTs are proving insufficient to tip the balance for new projects under current market conditions in the region

In the operational phase, RMTs seem to have been effective so far at protecting existing projects during the current economic challenges. The guarantees that cover payments or the political risk insurance policies have not been triggered, with DFI involvement acting as a strong incentive for state-owned offtakers to respect their commitments and make timely payments.

At the same time, RMTs on their own are unable to overcome risks that are perceived as being too high. The current market conditions in the region, with the unsustainable levels of public debt after the Covid-19 crisis, are preventing financial close for new projects and RMTs are proving insufficient to tip the balance. As one lender noted, “It sometimes feels like you are only offered an umbrella when it’s not raining.”

The case of Zambia is illustrative. The country implemented the *Scaling Solar* programme of the World Bank successfully with two operational projects supplying Zesco with power at record low tariffs. However, as several macroeconomic challenges accumulated, the country’s public debt position deteriorated and led to a sovereign default. The subsequent procurement process – GET FiT – selected much-needed projects at competitive prices, but has been unable to reach financial close despite attempting various combinations of RMTs. Zambia is now experimenting with an alternative model, one that does not depend on the credit rating of the offtaker and the sovereign. Africa GreenCo is piloting a model of PPAs with itself as an investment grade offtaker backed by DFIs, trading power into the SAPP and/or selling directly to bilateral customers. The first 25 MW solar PPA has been awarded and is in negotiations.

Other downsides of RMTs include their cost, which can be significant, and the transaction cost, particularly in terms of the time and amount of custom work needed to negotiate and sign them off, which can also be considerable.

Following the findings of this project, the authors would like to offer some recommendations to DFIs and other development partners backing RMTs.

7.1 Make it work under debt distress

The urgency of quickly deploying clean affordable energy technologies in the SADC region cannot be overstated, both from a development and from a global climate perspective. At the same time, debt distress is a reality for many developing countries in the early 2020s, a crisis unlikely to be resolved any time soon. Given the urgency and magnitude of the development and climate challenges, the world cannot allow another “lost decade” (Gallagher, 2022). Hence,

workarounds must be found, particularly for clean energy to continue to be deployed even during macroeconomic shocks and their aftermaths. Waiting for the economy to be strong enough to make lenders comfortable will take too long, and some of the strategies used to repair public finances may have the unintended side effects of ending the possibilities for otherwise viable renewable energy projects.

Debt relief/restructuring packages should explicitly address their effects on renewable energy (and other climate investments) and consider how these will be financed in the short and medium term

One particular area that deserves special attention is that of debt relief/restructuring packages and the effects they may have on renewable energy projects already in the pipeline, particularly in the short term. For example, the IMF Zambia arrangement under the Extended Credit Facility, agreed in September 2022, limits the government from providing sovereign guarantees, with no provisions in place for renewable energy or other climate infrastructure (IMF, 2022b). Consultations with developers and financiers make it clear that, at present, financing of renewable energy projects in Zambia reliant on sales to the utility is not feasible without sovereign guarantees.¹² Thus, the IMF arrangements have the unintended effect of stalling renewable energy development. To avoid this situation, debt relief/restructuring packages should explicitly address their effects on renewable energy (and other climate investments) and consider how these will be financed in the short and medium term.

7.2 Share the burden of currency risk by establishing currency risk safeguards

Currency risk is of particular relevance to renewable energy. The financial architecture behind energy projects is based on the fossil fuels model, whereby funding is provided in hard currency but the production is then exported on global markets and also paid in hard currency. By contrast, renewable energy investments also tend to be financed in hard currency, but consumption is local, revenue streams are in local currency, and the risk reflects the local economy. This problem is compounded by the fact that renewable energy costs are mostly upfront, with operation and maintenance being relatively minor and no fuel costs. Therefore, renewable energy investments are extremely vulnerable to currency depreciation risk.

While there are many instruments covering problems of convertibility or transfer restrictions, currency depreciation is more difficult to cover¹³. Moreover, initial financing cost in hard currency can be significantly lower than financing in local currency and thus projects can offer lower tariffs. This makes it appealing for offtakers (and the governments backing them) to take the short-term benefits of lower PPA tariffs linked to hard currency at financial close and overlook the likely scenario of future depreciation which will automatically increase tariffs later. This leads to a large accumulation of liabilities linked to hard currency which manifest themselves through cyclical debt crises, affecting economies that are already vulnerable (World Bank, 2022b).

Under existing finance models in SADC countries, and in fact most developing countries, the ultimate currency devaluation risk is borne by the government and/or the final consumer. This is often a “hidden” risk than only surfaces in times of distress, to often disastrous consequences. There needs to be a coordinated effort on addressing currency mismatch and risk of debt distress for fragile economies, especially for climate-related projects. Instead of letting countries

¹² Some have expressed doubt that, given junk rating status and recent defaults, projects could be financed even if sovereign guarantees were available.

¹³ Hedging for developing countries' currencies is offered by TCX but can be expensive for certain currencies.

accumulate hidden currency risk, development partners should consider ways of sharing the burden. Countries are very aware of this problem, with calls for the Indian presidency of G20 to push for an agreement on scaling up solutions to currency risk management for developing countries (Gupta and Eichengreen, 2022).

DFIs should establish currency risk (for local governments) safeguards in their lending

DFIs should establish currency risk (for local governments) safeguards in their lending. In the same manner that DFIs set social and environmental safeguards, DFIs should determine under what conditions (e.g. a predetermined spread between hard and local currency borrowing costs) loans would create unsustainable debt situations detrimental to their development mandate. When these situations arise rather than giving unsustainable loans, or even worse, not giving them, DFIs should consider subsidizing currency hedging as an effective way to achieve their mandate. This can be done, for example, by increasing funding for the Currency Exchange Fund (TCX), a fund set up by many of the same DFIs behind RMT instruments in the SADC region to manage currency risk in developing and frontier markets (Duma and Muñoz Cabré, 2023). DFIs can also provide more support to local commercial financiers to meet tenor and pricing expectations of developers through vehicles like GuarantCo.

7.3 Reduce DFI transaction costs

The fragmentation of DFI products and programmes available in sub-Saharan Africa comes at a price: increased transaction costs. As shown by RES4Africa (2019), there are close to a hundred products in the region. Given that they are not standardized or easily comparable, developers often find that in order to compare available terms, high levels of engagement with each of the DFIs is required, thus leading to high transaction costs.

The introduction of competing and innovative solutions by different DFIs may be positive; however, the fragmentation and redundancy of the various risk mitigation programmes and instruments may be suboptimal for fast renewable energy deployment. Greater coordination and replication of successful models could be more effective. For example, an area that could benefit from enhanced cooperation and coordination is that of unified practices in terms of due diligence, including environmental and social standards.

Transactions costs could be reduced by further leveraging the processes and know-how of local private institutions

Another way that transaction costs could be reduced is by further leveraging the processes and know-how of local institutions who may have more agile processes and familiarity with private players and local circumstances. This may include local private financial institutions and national development banks and can take several shapes, including channeling some RMTs through local institutions.

7.4 Leverage the “D” in DFI’s to finance riskier projects

Unlike commercial banks, DFIs have an opportunity to leverage their development mandate towards taking on risks that others cannot. Developers argue that DFIs sometimes are even more risk-averse than commercial lenders, demanding onerous RMT before they can back a project. The strength of DFIs should be better applied to take risks that others cannot bear, in parallel with work on reducing those risks in the longer term. This illustrates the discussions on MDBs and their approach to risk, which is in need of reform (G20 Expert Panel, 2022). Their preferred creditor status and extra security given by the unique shareholding arrangements should be reflected in risk management allowing MDBs to increase lending toward sustainable development.

References

- African Development Bank (2020) *Electricity Regulatory Index for Africa, African Development Bank - Building today, a better Africa tomorrow*. African Development Bank Group. Available at: <https://www.afdb.org/en/documents/electricity-regulatory-index-africa-2020> (Accessed: 6 December 2022).
- Bank Windhoek (2018) *Bank Windhoek issues first Green Bond*. Available at: <https://www.bankwindhoek.com.na/Pages/News/Bank-Windhoek-issues-first-Green-Bond.aspx> (Accessed: 11 January 2023).
- Convergence (2022) *climate blended finance, state of blended finance - Convergence Resources | Convergence*. Available at: <https://www.convergence.finance/resource/state-of-blended-finance-2022/view> (Accessed: 23 December 2022).
- Damodaran, A. (2022) 'Country Risk: Determinants, Measures and Implications - The 2022 Edition'. Rochester, NY. Available at: <https://doi.org/10.2139/ssrn.4161010>.
- Donovan, C. and Corbishley, C. (2016) *The cost of capital and how it affects climate change mitigation investment*. Briefing paper No 15. London: Imperial College London, p. 16.
- Duma, D. and Muñoz Cabré, M. (2023) *Risk mitigation for renewable energy investments in Sub-Saharan Africa: a review*. Stockholm Environment Institute.
- Eberhard, A. et al. (2017) 'Independent Power Projects in Sub-Saharan Africa: Investment trends and policy lessons', *Energy Policy*, 108, pp. 390–424. Available at: <https://doi.org/10.1016/j.enpol.2017.05.023>.
- Energy Regulation Board Zambia (2022) 'THE ENERGY SECTOR REPORT 2021 – Energy Regulation Board'. Available at: <https://www.erb.org.zm/document/the-energy-sector-report-2021> (Accessed: 11 January 2023).
- G20 Expert Panel (2022) *An Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks*. Available at: https://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_it/news/news/CAF-Review-Report.pdf.
- Gallagher, K.P. (2022) *No Time for Lost Decade: Why Debt Restructuring Must Be Linked with Climate and Development Goals, Just Money*. Available at: <https://justmoney.org/kevin-p-gallagher-no-time-for-another-lost-decade-why-debt-restructuring-must-be-linked-with-climate-and-development-goals/> (Accessed: 5 January 2023).
- GCF (2018) *FP080: Zambia Renewable Energy Financing Framework, Green Climate Fund*. Green Climate Fund. Available at: <https://www.greenclimate.fund/project/fp080> (Accessed: 10 January 2023).
- Gupta, P. and Eichengreen, B. (2022) *A Financial Agenda for India's G20 Presidency | by Barry Eichengreen & Poonam Gupta, Project Syndicate*. Available at: <https://www.project-syndicate.org/commentary/financial-agenda-for-india-g20-presidency-by-barry-eichengreen-and-poonam-gupta-2-2022-12> (Accessed: 11 January 2023).
- Hirschhofer, H. (2022) *Four ways to make development finance fairer and more effective, Development Matters*. Available at: <https://oecd-development-matters.org/2022/12/08/four-ways-to-make-development-finance-fairer-and-more-effective/> (Accessed: 11 January 2023).
- IEA (2021a) *Renewables 2021 - Analysis and forecast to 2026*. International Energy Agency, p. 175.
- IEA (2021b) *The cost of capital in clean energy transition, International Energy Agency*.
- IFC (2019) *Press release: Two Scaling Solar Projects in Senegal Advance to Construction with IFC Financing Package, IFC*. Available at: <https://ifcpressreleasesprod.aseprod.ifc.org/all/pages/PressDetail.aspx?ID=16849> (Accessed: 10 January 2023).
- IMF (2022a) *IMF Executive Board Approves New Extended Credit Facility (ECF) Arrangement for Zambia, IMF*. Available at: <https://www.imf.org/en/News/Articles/2022/08/31/pr22297-imf-executive-board-approves-new-extended-credit-facility-arrangement-for-zambia> (Accessed: 24 December 2022).
- IMF (2022b) *Zambia: Request for an Arrangement Under the Extended Credit Facility-Press Release; Staff Report; Staff Supplement; Staff Statement; and Statement by the Executive Director for Zambia, IMF*. Available at: <https://www.imf.org/en/Publications/CR/Issues/2022/09/06/Zambia-Request-for-an-Arrangement-Under-the-Extended-Credit-Facility-Press-Release-Staff-523196> (Accessed: 6 December 2022).
- Infraco Africa (2016) *Salima Solar – Infraco Africa*. Available at: <https://infracofrica.com/project/salima-solar-2/> (Accessed: 11 January 2023).
- Infraco Africa (2021) *ATI Steps in to Provide Liquidity Cover for the 60 MW JCM Salima Solar PV – The Second Project in Malawi to Benefit from the Regional Liquidity Support Facility (RLSF) – Infraco Africa*. Available at: <https://infracofrica.com/ati-steps-in-to-provide-liquidity-cover-for-the-60-mw-jcm-salima-solar-pv-the-second-project-in-malawi-to-benefit-from-the-regional-liquidity-support-facility-rlsf/> (Accessed: 11 January 2023).

- InfraCo Africa (2022) *JCM Power: The 20MW Golomoti Solar PV and Battery Energy Storage project has successfully entered Commercial Operations*. – InfraCo Africa. Available at: <https://infracoafrica.com/the-20mw-golomoti-solar-pv-and-battery-energy-storage-project-has-successfully-entered-commercial-operations/> (Accessed: 11 January 2023).
- IRENA (2016) *Unlocking Renewable Energy Investment: The Role of Risk Mitigation and Structured Finance*. Abu Dhabi: International Renewable Energy Agency, p. 148.
- IRENA (2021) *Renewable Capacity Statistics 2021*, /publications/2021/March/Renewable-Capacity-Statistics-2021. Available at: <https://www.irena.org/publications/2021/March/Renewable-Capacity-Statistics-2021> (Accessed: 21 January 2022).
- IRENA and AfDB (2022) *Renewable Energy Market Analysis: Africa and Its Regions*. Abu Dhabi and Abidjan: International Renewable Energy Agency and African Development Bank.
- Kruger, W. and Eberhard, A. (2019) *Zambia Country Report*.
- Moody's (2022) *Moody's affirms Zambia's Ca ratings; outlook stable*, *Moodys.com*. Available at: http://www.moodys.com:18000/research/Moodys-affirms-Zambias-Ca-ratings-outlook-stable--PR_469699 (Accessed: 11 January 2023).
- Muñoz Cabré, M. et al. (2020) *Expanding Renewable Energy for Access and Development: the Role of Development Finance Institutions in Southern Africa*. Boston University, Global Development Policy Center. Available at: https://www.bu.edu/gdp/files/2020/11/GDP_SADC_Report_EN_Nov_16.pdf.
- Norfund (2020) *DEVELOPMENT IMPACT CASE STUDY CENTRAL SOLAR DE MOCUBA MOZAMBIQUE*. Available at: <https://statics.teams.cdn.office.net/evergreen-assets/safelinks/1/atp-safelinks.html>.
- Norway Ministry of Foreign Affairs (2021) *New guarantee initiative to generate investments in renewable energy in developing countries*, *Government.no*. regjeringen.no. Available at: <https://www.regjeringen.no/en/aktuelt/new-guarantee-initiative-to-generate-investments/id2884650/> (Accessed: 10 January 2023).
- Platts (2019) *World Electric Power Plants Database*. New York, NY. Available at: <http://www.platts.com/>.
- RES4Africa (2019) *A New Instrument to Foster Large-Scale Renewable Energy Development and Private Investment in Africa*. Available at: <https://www.africanpowerplatform.org/resources/1027-a-new-instrument-to-foster-large-scale-renewable-energy-development-and-private-investment-in-africa.html> (Accessed: 22 December 2022).
- RES4Africa (2020) *Scaling up Africa's renewable power: the need for de-risking investments and the case for RENEWAFRICA*. Rome.
- Scaling Solar (2021) *Power On in Senegal, Scaling Solar*. Available at: <https://www.scalingsolar.org/power-on-in-senegal/> (Accessed: 10 January 2023).
- Star Report: Malawi (2020) *Millennium Challenge Corporation*. Available at: <https://www.mcc.gov/resources/doc/star-report-malawi> (Accessed: 2 December 2022).
- Steckel, J.C. and Jakob, M. (2018) 'The role of financing cost and de-risking strategies for clean energy investment', *International Economics*, 155, pp. 19–28. Available at: <https://doi.org/10.1016/j.inteco.2018.02.003>.
- UN (2022) 'Financing for Development', *United Nations Sustainable Development*. Available at: <https://www.un.org/sustainabledevelopment/financing-for-development/> (Accessed: 26 December 2022).
- World Bank (2021) *World Bank*. Available at: <https://www.worldbank.org/en/about/partners/brief/ida-private-sector-window-support-for-salima-solar-in-malawi> (Accessed: 2 December 2022).
- World Bank (2022a) *Population, total - Zambia | Data*. Available at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ZM> (Accessed: 11 January 2023).
- World Bank (2022b) *Press Release: Debt-Service Payments Put Biggest Squeeze on Poor Countries Since 2000*, *World Bank*. Available at: <https://www.worldbank.org/en/news/press-release/2022/12/06/debt-service-payments-put-biggest-squeeze-on-poor-countries-since-2000> (Accessed: 11 January 2023).

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