

## **Cover Note**

### **Pilot Program for Climate Resilience IFC-PPCR Program under Mozambique's Strategic Program for Climate Resilience**

#### **1. Introduction**

The enclosed Project Proposal lays out the reasons for IFC's request to change the scope of its program under Mozambique's Strategic Program for Climate Resilience (SPCR).

#### **2. Background**

On June 2011, the PPCR Sub-Committee endorsed Mozambique's SPCR and allocated a total of USD86 million of PPCR funds to the Government of Mozambique. IFC's allocation under the country's SPCR is USD11 million and focused on the priorities identified in the country's SPCR, more specifically in two major programs: (i) Developing climate resilience in the agricultural and peri-urban water sectors through provision of credit lines from Mozambican banks; and (ii) develop community climate resilience through private sector engagement in forest management, sustainable timber harvesting and/or tourism.

To date, IFC carried out project preparation activities and has worked with private firms and banks to explain climate risks and develop investment opportunities. Two in-depth market studies of potential investments opportunities were undertaken using PPCR project preparation grants<sup>1</sup>. More than 50 private sector companies and banks in Mozambique were interviewed and analyzed during business development activities. In addition, IFC has maintained close coordination and communication with the PPCR Focal Point throughout the development of the program. IFC has also coordinated its activities with the World Bank and African Development Bank teams working with PPCR projects in Mozambique.

In parallel, IFC has begun implementation of an advisory services project (approved by the PPCR Sub-Committee in April 2015), that is testing the technical and financial viability of multi-purpose irrigation scheme working with a lead firm to benefit smallholder farmers. Increased access to improved irrigation will enable Mozambican farmers to protect their crops and livelihoods in the face of increasing unpredictable weather patterns. Improved irrigation technology will also make Mozambique's agricultural sector more resilient to changes in climate and will contribute to food security for the country.

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<sup>1</sup> The studies have been published on the PPCR website and shared with key stakeholders to promote awareness and share knowledge as an important objective of the PPCR.

Developing investment projects within the scope defined in the country's SPCR that also meet IFC's investment requirements (social, environmental and financial standards) has proved challenging in part because of the novelty of the topic of adaptation, but also due to the other major barriers that prevent private sector companies and banks to operate in the agriculture and forestry/ecotourism sectors. They include: (i) constrained agriculture productivity and limited access to markets due to high transportation costs (which reflect poor road and other infrastructure conditions), and lack of storage and processing facilities; (ii) inability of farmers to comply with the requirements of financial institutions to access finance (such as adequate collateral, guarantees and business plans); and (iii) widespread illegal logging, which reduces the timber stock, and restrictive legislation and other policy barriers for private sector to operate in the sustainable timber and ecotourism sector.

### **3. Current Proposal**

In 2015, the Government of Mozambique asked IFC's assistance to help the country recover from the devastating impacts of heavy rains and floods, and promote private sector investments in measures that can increase the country's resilience (in particular of vulnerable communities). Specifically, the Government of Mozambique has requested IFC's help with their national priority to increase the resilience of the energy sector by diversifying the national energy generation.

Mozambique's power sector, which is fundamental to sustain economic growth and provide basic services, is extremely vulnerable to climate change. Over 50 percent of Mozambique's current power capacity comes from one hydropower plant that is located in a drought-affected river basin. Moreover, the country's power system is dependent on a single long distance power transmission system that is vulnerable to interruptions particularly from severe floods and storms. To respond to the government's request to help Mozambique diversify its power generation and decentralize its power distribution system, IFC is seeking to invest the PPCR funds in a 40 MW Solar PV project with a localized grid system.

IFC is, therefore, proposing to use its PPCR allocation which is currently allocated for investments in climate resilient agriculture/forestry/ecotourism towards an investment that will promote the climate resilience of Mozambique's power sector. Details on the proposed changes and the new project are described in the enclosed project proposal entitled "*Building resilience of Mozambique's power sector through private sector investment*". The Government of Mozambique has provided its full support to the new IFC-PPCR project that meets the country's National Strategy for Climate Change Mitigation and Adaptation's as well as the PPCR's objectives in Mozambique. A letter to that effect from the Ministry of Land, Environment and Rural Development—the focal point agency for Mozambique's PPCR program—is enclosed as Annex 1 to the Program Proposal.

| Pilot Program for Climate Resilience                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                             |                                                                                              |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------|
| Program Approval Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                             |                                                                                              |                                |
| 1. Country/Region:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Mozambique                                                                                                                  | 2. CIF Project ID#:                                                                          | (Trustee will assign ID)       |
| 3. Source of Funding:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIP                                                                                                | <input checked="" type="checkbox"/> PPCR                                                     | <input type="checkbox"/> SREP  |
| 4. Project/Program Title:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Building resilience of Mozambique's power sector through private sector investment                                          |                                                                                              |                                |
| 5. Type of CIF Investment:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> Public                                                                                             | <input checked="" type="checkbox"/> Private                                                  | <input type="checkbox"/> Mixed |
| 6. Funding Request in million USD equivalent:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Grant: n/a                                                                                                                  | Non-Grant: USD 10.00 million                                                                 |                                |
| 7. Implementing MDB(s):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | IFC                                                                                                                         |                                                                                              |                                |
| 8. National Implementing Agency:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Private sector                                                                                                              |                                                                                              |                                |
| 9. MDB Focal Point and Project/Program Task Team Leader (TTL):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Headquarters- PPCR Focal Point:<br><br>Joyita Mukherjee<br>(jmukherjee1@ifc.org)<br><br>Laura Gaensly<br>(lgaensly@ifc.org) | TTL:<br><br>Neelam Patel<br>(npatel2@ifc.org)<br><br>Maria Pateguana<br>(mpateguana@ifc.org) |                                |
| 10. Program Description (including objectives and expected outcomes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                             |                                                                                              |                                |
| <p><b>1. Project Description</b></p> <p>The proposed Project seeks to utilize US\$10 million of PPCR concessional finance to invest in a private sector renewable energy project in a PPCR Mozambique targeted region, the Zambezia province – one of Mozambique's poorest regions with over 70 percent of its population living in poverty.<sup>2</sup> Energy infrastructure and the availability of distributed, clean, and reliable energy systems are fundamental to Mozambique's development and its ability to adapt to climate change impacts.</p> <p>The 2015 floods in Mozambique demonstrated the vulnerability of the Zambezia region, and the country as a whole, to the devastating impacts of extreme weather events on communities,</p> |                                                                                                                             |                                                                                              |                                |

<sup>2</sup> Mozambique: Poverty Reduction Strategy Paper, IMF, 2011

businesses, hospitals and schools. In particular, Mozambique's power sector, which is fundamental to sustain economic growth and provide basic services, is extremely vulnerable to climate change. Over half of the country's power capacity comes from one hydropower plant, and the country relies on a centralized and fragmented power transmission system that is vulnerable to interruptions due to floods and storms. Future climate change scenarios predict significant increases in the frequency and severity of similar extreme events in the region this Project is targeting.

To address these challenges, especially for vulnerable communities, the Project's main objective is to increase the resilience of Mozambique's power sector by supporting private sector investments that can diversify the country's sources of power generation and help decentralize the power system by building localized generation capacity in the Zambezia region.

## **2. Country and Project Context**

Mozambique's annual growth has averaged 7% over the past two decades. However, it continues to be one of the poorest countries in the world. Economic growth has not translated into significant poverty reduction and approximately 55 percent of the country's population lives below the national poverty line.<sup>3</sup> Mozambique is ranked 180 out of 188 countries in the 2015 Human Development Index. The adult literacy rate in the country is 56%, and the country faces other significant socio-economic challenges such as increasing malnutrition and stunting (approximately 47 percent of children under age five suffer from stunting, a rate that has remained virtually unchanged since 2003). Over the next 40 years, consequences from a changing climate are likely to complicate the already considerable development challenge in Mozambique. In fact, close to 60 percent of the population and more than one-third of Mozambique's economic activities are vulnerable to two or more natural hazards, which translates into 1.1 percent annual average loss in GDP.

Mozambique's natural topography includes an extensive coastline and low-lying landscape downstream from the Zambezi River Basin—the fourth largest major river basin on the African continent. Given its geographic characteristics, Mozambique is exposed to periodic cyclones, flooding, droughts, and other extreme weather events. In fact, Mozambique ranks third among African countries most exposed to multiple weather-related hazards.<sup>4</sup> During the past 50 years, the country endured close to 70 natural disasters that killed more than 100,000 people and affected up to 30 million others. These losses were compounded by outbreaks of disease, causing even more death, disrupting the delivery of basic social services and increasing in economic losses. Droughts have been the most frequently occurring natural disaster, but the country has also suffered from severe flooding, saline inundation, and coastal storms - all of which are expected to be exacerbated by an

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<sup>3</sup> World Bank Open Data

<sup>4</sup> GFDRR Mozambique Country Profile (2009).

increase in global temperatures, change in rainfall patterns, and rise in sea level.

Climate change is expected to impact the country's agricultural productivity and the already poor infrastructure in the country, especially its limited road access, critical for trade of goods and services, as well as its power sector. Sea level rise is predicted to increase the negative effects of storm surge and flood events along the coast. Economic losses in Mozambique are expected to significantly increase under future climate scenarios, which would disproportionately impact poor people and contribute to high poverty rates.<sup>5</sup>

Mozambique's power sector, in particular, is extremely vulnerable to flooding and droughts that are expected to become more severe due to climate change. The country relies mainly on hydropower generation as a source of energy (over 60 percent of Mozambique's total capacity comes from hydropower), and one hydropower plant – the Cahora Bassa dam in the Zambezi River Basin – contributes to more than 50 percent of power supply in the country via a single high voltage power transmission line. The sources of electricity in the Zambezia region are even more limited, leaving it almost fully dependent on Cahora Bassa (located 500km away from the region) to meet its electricity demand.

### ***Flood impacts***

In Mozambique, floods cause an annual average losses in the order of US\$60 million (in damage to housing, roads and bridges, power systems, and in losses in agriculture production)<sup>6</sup>. They can last for several months and occur most frequently in the central and southern regions, including the Zambezia province. Floods are linked to heavy rainfall and to water drainage from rivers in neighboring upstream countries – waters from the Zambezi Basin and several major rivers systems in southeastern African subcontinent find their way to the Indian Ocean through Mozambique. More than 60 percent of Mozambique's population lives in coastal areas that are very susceptible to flooding because they are in low-lying regions with poor drainage systems.<sup>7</sup> Since 1958, approximately nine million people have been affected by floods in the country.

Over the last sixteen years, heavy rains and severe floods have increased and caused devastating damage in Mozambique. In 2000, the country experienced its worst flood in 50 years. In the country's central region, more than 800 people were killed and basic infrastructure such as houses, schools, health centers, roads and telecommunications networks were severely damaged, affecting several million others. In 2007, an estimated 285,000 people were affected and 163,000 were left displaced after heavy rains and a cyclone hit the central regions. During the 2011/2012 cyclone season, 44

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<sup>5</sup> Economics of Adaptation to Climate Change, World Bank 2010

<sup>6</sup> Mozambique 2015: Damage Assessment and Early Recovery / Sustainable Reconstruction Priorities, *Joint Rapid Assessment following the January-February 2015 Hydro-Meteorological Events in the Central and Northern Regions*; GoM-World Bank-UN-EU, June 2015

<sup>7</sup> Ibidem

people died and over 108,000 people were affected. In 2013, the country was again devastated by floods, with 113 people killed in the Limpopo River Basin and 186,000 people evacuated. Disaster-related losses were estimated to be in excess of USD 250 million,<sup>8</sup> approximately equivalent to 1.5 percent of the country's GDP in 2013.

Most recently in 2015, the devastating impacts of extreme weather events on the power sector, water sector, and roads confirmed once again the country's vulnerability to climatic events. Much of northern and central Mozambique, including the Zambezia province, was hard-hit by heavy rains and winds. This disaster resulted in an increase in the poorest people's vulnerability, and severely damaged social and physical infrastructure. Close to 160 people were killed as a result of this disaster, and an estimated 326,000 people were directly affected by the floods.<sup>9</sup> It also caused a cholera outbreak effecting over 6,000 people and created conditions for breeding malaria mosquitoes. The impact of these heavy rains and flooding is estimated to have negatively impacted GDP growth in 2015 by 0.2 to 0.5 percent. Although Mozambique as a whole, and Zambezia province in particular, are regularly affected by floods; the level of infrastructure devastation provoked in 2015 was unprecedented and will require significant investment to repair the large number of damaged bridges, roads, health posts and schools.<sup>10</sup>

The 2015 floods also affected the country's power supply and hampered disaster relief. Transmission and distribution lines carrying power from the country's major hydropower plant (Cahora Bassa) were swept away and Electricidade de Moçambique (EDM), the national energy utility, could not access the affected areas for a long period of time due to continual rain and damage to roads and bridges, leaving many communities without electricity for a month.<sup>11</sup> As a consequence, communication systems were disrupted which obstructed the delivery of aid response to the affected populations. People could not be reached as there were no means to charge mobile devices or other means of communication. Without power, important services like water supply, hospitals and sanitation services were also compromised.

Future climate change scenarios for Mozambique predict that the duration and timing of the rainy season are expected to change. The country will experience longer rainy seasons in the north as well as coastal regions. The number of heavy rainfall events is projected to increase by 2060, particularly during the dry season (January-June). Hydrological modeling indicates that some areas in the north

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<sup>8</sup> Mozambique Floods 2015 response and recovery proposal. World Food Program.

<sup>9</sup> Mozambique 2015: Damage Assessment and Early Recovery / Sustainable Reconstruction Priorities, Joint Rapid Assessment following the January-February 2015 Hydro-Meteorological Events in the Central and Northern Regions; Government of Mozambique-World Bank-UN-EU, June 2015

<sup>10</sup> *Ibidem*

<sup>11</sup> Asoko Insight, Mozambique News Agency [<https://asokoinsight.com/news/power-restored-northern-mozambique/>] (Accessed on January 12, 2016)

will experience floods more frequently. In the Zambezia region, models show significant increases in precipitation in wet periods.<sup>12</sup>

Expected increases in heavy rainfall and floods would add to the vulnerability of Mozambique's power sector. As mentioned above, the country relies on a centralized transmission and distribution system to carry electricity from the Cahora Bassa dam into the country. Further, more extreme rainfall and greater soil moisture increases the likelihood of landslides directly affecting Mozambique's transmission and distribution lines.<sup>13</sup>

### ***Drought impacts***

In addition to the negative impacts of heavy rain and floods on Mozambique's power sector, droughts have considerable effects on river flows and hydropower production. The Zambezi River Basin, which powers the Cahora Bassa hydropower plant, is already suffering from severe droughts that have a sustained long term-impact on Mozambique's hydro-dependent generation.

Furthermore, the current distressed state of the Kariba dam further upstream in the Zambezi River Basin adds to the vulnerability level of the downstream Cahora Bassa dam. The Kariba dam has nearly stopped electricity production due to a prolonged drought. The plunge pool that was carved by the dam's six floodgates is threatening to undermine the dam's foundation, which would result in a collapse of the dam. If this were to happen, the water that would be released could knock down the Cahora Bassa dam and wash away homes, roads, electricity systems, and water and sanitation systems, impacting the livelihood of millions of people who rely on this infrastructure in their daily lives.<sup>14</sup>

Due to the expected increase in temperature and decrease in rainfall, the Intergovernmental Panel on Climate Change (IPCC) has categorized the Zambezi as the river basin expected to have the "worst" potential effects of climate change among 11 major African basins.<sup>15</sup> Studies show that the Zambezi Basin will experience drier and more prolonged drought periods. There will be a significant reduction in the amount of water flowing through the river system, affecting all eight countries it passes through, including Mozambique. In fact, the water that feeds the basin is expected to decrease by between 26 to 40 percent by 2050.<sup>16</sup> As a result, there would be considerable reduction in overall power production. For Mozambique, in particular, it means devastating impacts for the country's

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<sup>12</sup> World Bank Group Climate Change Knowledge Portal, Mozambique Country Profile

([http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country\\_profile&CCode=MOZ&ThisTab=Dashboard](http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile&CCode=MOZ&ThisTab=Dashboard))

<sup>13</sup> World Bank, 2010, Economics of Adaptation to Climate Change: Mozambique, p.37

<sup>14</sup> <http://www.newyorker.com/tech/elements/one-of-africas-biggest-dams-is-falling-apart> (Accessed on February 3, 2016)

<sup>15</sup> Ricahrd Beilfuss, A Risky Climate for Southern African Hydro, Assessing Hydrological Risks and Consequences for Zambezi River Basin Dams, International Rivers, 2012.

<sup>16</sup> *Ibidem*

social and economic development.

### ***Alignment with Government Strategies***

The Government of Mozambique acknowledges that the challenges described above can jeopardize the recent and planned developments in the country. The impacts of floods and droughts have highlighted an urgent need to build resilience of Mozambique's power sector to reduce the vulnerabilities of the country's population. In recognition of this urgency, Mozambique's National Disaster Management Institute has affirmed that clean, reliable, resilient energy is necessary to reduce vulnerability and enhance Mozambique's capacity for preparedness, recovery and rebuilding.<sup>17</sup>

The government's National Renewable Energy Strategy 2011-2025 (EDENIR) has also recognized the need to adapt to the negative impacts of climate change on energy supply, especially in rural and peri-urban areas.<sup>18</sup> In particular, EDENIR emphasizes the need to diversify energy supply and support the development of local grids.<sup>1920</sup>

IFC's proposed Project aims to respond to the Government of Mozambique's adaptation strategy and will finance the first private sector utility-scale solar photovoltaic (PV) plant in the country. The Project aims at enhancing the climate resilience of Mozambique's power sector, which is becoming increasingly important for the country's economic development and key to adapting to climate change. The Project would be located in the poor, energy deprived Zambezia province, a target province under PPCR Mozambique.

The goal is to help Mozambique diversify and decentralize its power generation to lessen the negative impacts from climate events and to make electricity systems more reliable by allowing decentralized systems to continue to operate during these events.

### **3. Description of Market barriers**

There are several market barriers preventing the development of solar PV systems in Mozambique by the private sector. They are:

**a) First mover challenges.** This Project would enable the first renewable energy project to be

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<sup>17</sup> Study on the Impact of Climate Change on Disaster Risk in Mozambique: Main Report, 2009. Instituto Nacional de Gestao de Calamidades de Mozambique (National Disaster Management Institute).

<sup>18</sup> Strategy for New and renewable Development 2011-2025 (Edenir), p.8

<sup>19</sup> International Renewable Energy Agency (IRENA), "Mozambique Renewables Readiness Assessment 2012", p.26-37

<sup>20</sup> Estratégia de desenvolvimento de Enrgias Novas e Renovaveis (EDENR), Para o Período de 2011-2025, Ministéria da Energia, República de Moçambique, 2011

developed through the private sector in Mozambique and among the first in Sub-Saharan Africa (excluding South Africa). As a result, commercial lenders are reluctant to fund such projects, mainly due to a perception of high investment risk and capital costs. In addition, being the first of its kind in Mozambique, the Project faces unique financial, technical and operational challenges (e.g. engineering contractors, grid integration, and operations and maintenance contractors) linked to the learning curve of participating project parties and the need to execute in the absence of an established supply chain and local contractors.

**b) Long term sustainability of solar PV tariff.** While solar PV is a proven technology in many emerging markets, its specific application in Mozambique has been impaired by the high first mover costs described above, which in turn, requires a relatively high tariff in order to attract project developers to Mozambique. At the same time, the tariff should not be so high that the power purchaser (in this case, EDM, through a long-term Power Purchase Agreement or PPA) cannot afford to pay it over the long-term and may breach its contractual obligations through delayed payment or even non-payment. This is critical for project finance, as lenders require a bankable PPA, which would include a tariff that is expected to be honored and paid by the power purchaser. Without the right balance in the tariff level for the project developer and the power purchaser, it is challenging for lenders to provide long-term financing to any project.

**c) Least-cost power generation options.** Lower cost alternatives for power generation create another market barrier for the development of solar PV. These include:

- Fossil fuels: Natural gas deposits were discovered in Mozambique's northern offshore Rovuma basin in 2010, and in 2012, Mozambique surpassed Zimbabwe to become the second-largest coal producer in Africa.
- Hydropower: Mozambique is planning to double hydropower capacity by building two large hydropower plants on the Zambezi River. However, given the lack of reliability and availability of hydro resources, hydropower may not ensure adequate supply of power in the country. Further, hydro resources will continue to become increasingly scarce and will need to be shared with other sectors such as agriculture.

In contrast to potential expansion of fossil fuel-based and hydropower, solar PV is poised to help diversity electricity supply while also meeting both climate adaptation and mitigation objectives. But given the relatively higher costs (and perceived risks) at this time for solar PV projects relative to cheaper alternatives, private investors have a greater interest in the least-cost options over solar PV.

#### **4. Project Objective and description.**

The Project's main objective is to increase the climate resilience of Mozambique's power sector by supporting private sector involvement to diversify power generation and develop decentralized clean power supply. PPCR funds will be used to finance the development of a 40MW utility-scale solar PV plant in Mozambique – the first utility-scale private sector PV project in the country.

Given Mozambique's vulnerable power sector, the Project will help to reduce the power supply risk the country currently faces from climate-related extreme weather events by promoting the development of solar power generation. The Project will also reduce the vulnerability of electricity supply due to electricity transmission on long distances. The bulk of the electricity generated by the Project will be consumed locally, reducing the local communities' exposure to weather-induced transmission and distribution outages. This is also consistent with EDM's plans to significantly increase decentralized supply in the coming years to keep up with increased demand and adapt to climate change.

Moreover, the Project will enable individual and community level adaptation. Increased access to reliable, renewable energy can help communities to adapt to climate change, for example by enabling the use of mobile phones, TVs and radios to track weather forecasts. Better information—made available through these technologies — and increased access to electrical machinery and tools will also allow for increased use of drought-resistant plant varieties and irrigation techniques. Moreover, increased local supply of electricity is essential for critical institutions like hospitals, schools, and water treatment facilities.

By providing long term concessional finance, PPCR will enable project developers and commercial lenders to mitigate first mover risks and address costs that are currently hindering the development of solar PV in Mozambique. These costs include: (i) new type of equipment and installation (utility scale solar PV) and (ii) additional infrastructure (local grid upgrades). Moreover, the PPCR funds will help reduce the Project's tariff to improve affordability for electricity consumers in the country. Moreover, Mozambique has significant and largely untapped solar potential of approximately 1.5 million GWh – many times more than the country's current energy consumption.<sup>21</sup> It is expected that the IFC-PPCR investment will establish a track record for the development of climate resilient solar PV, sending a positive signal to investors and financiers looking to enter the power sector in Mozambique, and eventually catalyzing further investments in climate resilient power generation.

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<sup>21</sup> International Renewable Energy Agency, Mozambique Renewable Energy Readiness Assessment 2012.

### **11. Consistency with Investment Criteria:**

The Project is embedded in the broader context of sustainable development and poverty alleviation contexts as elaborated in Mozambique's SPCR. By investing in a climate resilient power sector, the Project will contribute to a sustainable and more efficient sector that is required for enabling adaptation in other sectors. The implementation of the Project will help to address the electricity supply demand gap in Mozambique which has been a major constraint to economic development and poverty alleviation. Moreover, the Project will help address associated climate change impacts on communities and business.

The Project aims also to demonstrate a model of private sector engagement in climate adaptation in Mozambique's power sector. To date, there is no track record of private financing in Mozambique that is supporting adaptation in the power sector. This is a transformative Project as it will establish a track record for private investments in renewable energy (other than hydropower) in Mozambique, and consequently scale up and leverage additional private investments for climate resilient infrastructure financing. The potential demonstration effect of this Project is significant, especially considering the large untapped potential for solar power in Mozambique.

### **12. Stakeholder Engagement**

This Project builds on the stakeholder engagement process that was conducted during the development of Mozambique's National Renewable Energy Strategy 2011-2025 (EDENIR).

### **13. Gender considerations**

It is documented that natural disasters and their subsequent impact on average kill more women than men.<sup>22</sup> Boys are likely to receive preferential treatment when it comes to rescue efforts and both women and girls suffer more from lost access to economic resources in the aftermath of disasters.<sup>23</sup> By increasing the supply of local, clean, and resilient energy that can power basic institutions (such as hospitals and schools), the Project will contribute to reducing women's' and girls' vulnerability to prepare for and recover from climatic events.

Gender aspects will be reviewed in accordance with IFC's environmental and social management framework, which that will be applied to the project.

### **14. Indicators and Targets (consistent with PPCR core indicators):**

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<sup>22</sup> Neumayer, Eric and Plümpert, Thomas (2007) The gendered nature of natural disasters: the impact of catastrophic events on the gender gap in life expectancy, 1981–2002. LSE Research Online ([http://eprints.lse.ac.uk/3040/1/Gendered\\_nature\\_of\\_natural\\_disasters\\_\(LSERO\).pdf](http://eprints.lse.ac.uk/3040/1/Gendered_nature_of_natural_disasters_(LSERO).pdf))

<sup>23</sup> *Ibidem*

| Core Indicator                                                                                                | Target                        |
|---------------------------------------------------------------------------------------------------------------|-------------------------------|
| (a) Number of people supported by the PPCR to cope with the effects of climate change (PPCR core indicator 5) | - Up to 173,000 <sup>24</sup> |
| (b) Leverage of PPCR funding against private investments in climate sensitive sectors                         | - 1:5                         |
| (c) Renewable energy expected to be produced (MWh/year)                                                       | - Up to 77,000 MWh/year       |
| <b>15. Budget</b>                                                                                             |                               |
| Expenditures <sup>25</sup>                                                                                    | Amount (USD) - estimates      |
| PPCR Concessional finance for Investment                                                                      | 10,000,000                    |
| <b>PPCR Total</b>                                                                                             | <b>10,000,000</b>             |
| Co-Financing:                                                                                                 |                               |
| • IFC – fully commercial                                                                                      | Up to 20,000,000              |
| • Private Sector – fully commercial                                                                           | Up to 33,000,000              |
| • Other concessional finance                                                                                  | Up to 17,000,000              |
| <b>Co-Financing Total</b>                                                                                     | <b>70,000,000</b>             |
| <b>TOTAL</b>                                                                                                  | <b>80,000,000</b>             |
| <b>16. Project/Program Timeframe</b>                                                                          |                               |
| PPCR Sub-Committee Approval (anticipated): June 2016                                                          |                               |
| Board Approval (anticipated): within 9 months of PPCR Sub-Committee approval                                  |                               |

<sup>24</sup> Calculated based on expected generation (77 GWh/year) divided by per capita electricity consumption in Mozambique MZ (444 kWh/year).

<sup>25</sup> Expenditure categories should be provided by the MDBs based on own procedures.