LOST IN TRANSITION:
Analysis of the World Bank's Renewable Energy Investments since Paris

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Participants from Liberia and Malawi at the end of their six-month solar engineering course conducted by UN Women. Today some participants will dress up and visit the local market, while the others are happily packing for their return to Africa. On the edge of the bed is the solar lantern kit that everyone of them will take home. Photo Credit: UN Women/Gaganjit Singh

EXECUTIVE SUMMARY

The Paris Agreement was signed in 2015 In response to the urgent need to address climate change and transition to renewable energy sources. Since then, Multilateral Development Banks (MDBs) including the World Bank (WB) have committed to align their investments with the objectives of the Paris Agreement. Despite its increased attention on renewable energy investments, the WB still faces a number of challenges including calls from various international bodies and groups to triple renewable energy capacity by 2030.

More importantly, concerns remain on how the WB's renewable energy investments still risk repeating the mistakes of the fossil fuel past: from land rights conflict associated with large scale renewable energy projects, extractivist and profit-driven energy models, to labour rights issues in energy transition investments. With governments providing unprecedented levels of public spending to accelerate the energy transition to renewables, international public finance institutions such as the World Bank need to take into account the longstanding demands for it to deliver a just energy transition and support renewable energy economies in the Global South.

These fundamental challenges prompt a closer look at the WB's clean energy portfolio. This research studies the WB's clean energy investments in the period between 2017 to 2022 based on OCI's Public Finance for Energy Database and WB project documents. Some of the key findings of the study include:

- The World Bank's investments in clean energy show an inconsistent trend peaking at $4.8 billion in 2018 after which follows a significant 54% dip in 2019.
- Overall, a total of 88% ($16.5 billion) of the WB's clean energy finance between 2017 to 2022 were disbursed in the form of debt-creating loans.
- Only 7% ($1.3 billion) were in the form of concessional finance, whereas 5% (less than $1 billion) were guarantees.
- The majority (51%) of clean energy investments supported solar photovoltaic (PV) projects mainly in the form of solar mini-grids and solar rooftop initiatives.
- Wind projects only accounted for 5.6% while 4.8% went to geothermal development.
- Out of the 114 total clean energy investments studied in this research, 9.6% (11) of projects were categorised as high risk and 11.4% (13) were considered to have substantial risks.
- Only one project got a low-risk classification, whereas the majority of projects or 41.2% (47) studied were classified to have moderate risk.
- Findings demonstrate that 45.6% (52) of the Bank's clean energy investments have potential impacts on land rights, mostly pertaining to involuntary resettlement.
- Some 12.2% (14) of projects analysed had potential impacts on indigenous communities, mostly requiring construction or exploration activities in indigenous lands, while 32% (37) of projects risk potential damage to cultural resources and heritage including ancestral lands and forest and marine resources.

Based on the analysis, the recommendations for the World Bank include:

1. Increasing highly concessional and targeted financing for renewables. Best practices include:
   a. Providing capacity building support alongside non-debt-creating finance.
   b. Prioritising high-impact projects and hard-to-decarbonise sectors for the provision of grants and guarantees.
   c. Monitoring and evaluating the impact of projects financed through highly concessional funding.

2. Strengthen environmental, social and rights safeguards. To do this, the World Bank must:
   a. Effectively incorporate community engagement and early meaningful stakeholder consultation into the assessment and monitoring process.
   b. Avoid projects that take up huge tracts of land to develop renewable energy facilities.
   c. Consider providing incentives for sustainable practices that reward projects for complying with environmental, social and transparency standards.
   d. Address systemic barriers affecting gender equality in gender assessments and action plans.

3. Ensure transparency in financial intermediary investments. Specifically, the World Bank must:
   a. Ensure public disclosure of sub-project level information including at the minimum the name, sector, and location of high-risk sub-projects, including through second and third-level sub-investments.
   b. At the same time, the World Bank must require FI clients to disclose disaggregated sub-project information in a timely manner.

Further recommendations for renewable energy expansion include the following:

1. Prioritise transformative sectors and sustainable solutions to enable universal energy access. Specifically, we urge the Bank to:
   a. Channel funds to off-grid and decentralised renewable energy solutions which can bring clean electricity to remote and underserved areas including energy access to women and indigenous communities.
   b. Support energy storage solutions such as advanced batteries, which are essential for integrating intermittent renewable energy sources into the grid.
   c. Strengthen grid infrastructure investments as crucial for accommodating higher shares of renewable energy.
   d. Invest in renewable electrification technologies for sectors like residential heating, cooling and transportation consistent with environmental and social standards.

2. Avoid high-risk, unsustainable, uneconomic solutions that distract from the energy transition. Specifically, we recommend that the WB:
   a. Approach green hydrogen investments with caution.
   b. Avoid high-risk investments such as in the form of large hydropower projects which pose significant threats to indigenous communities' lands and cultural resources as well as biodiversity and natural resources.

c. Ensure renewable energy support goes towards sustainable and economically sound renewable energy solutions as opposed to energy types like nuclear technology which comes with high capital costs, and long-term environmental risk and waste management issues.

3. Support developing countries' transition to renewable energy economies. To do this, the Bank must:
   a. Scale up successful renewable energy investment models.
   b. Promote technology transfer and innovation.
   c. Develop and strengthen domestic regulatory frameworks that facilitate renewable energy development.

INTRODUCTION

The Paris Agreement, signed in December 2015, marked a significant turning point in global efforts to combat the impacts of climate change and transition towards a sustainable, renewable energy future. One of the central pillars of this landmark agreement was the commitment to accelerate the adoption of renewable energy sources and curb greenhouse gas emissions. As the largest multilateral provider of climate finance, the World Bank (WB) assumed a critical role in supporting and financing renewable energy projects, especially in developing economies.

Several milestones stand out in the evolution of renewable energy investment in the World Bank Group in the past decade. In its 2013 Energy Sector Strategy, the World Bank committed to "support and finance all forms of renewable energy based on the country's resource endowment, institutional and technical capacity, policy environment, availability of financing for cost differences, and trade-offs."[1] According to official WB figures, 90% of its total power generation-related lending was channeled to renewable energy from 2018 to 2022. Additionally, the WB claims that in the same period, 7.6GW of renewable energy generation capacity was either constructed or rehabilitated through the Bank's lending operations.[2]

In April 2023, the World Bank released its new framework for energy transition, Scaling Up to Phase Down[3] which "serves as a roadmap to catalyze financing and sustain a virtuous cycle that unleashes urgently needed investment in power sector transition."[4] While many aspects of the framework resonate with longstanding demands to phase down coal and scale up financing for renewables, several questions remain on how the framework relates to the existing Paris Alignment Methodologies, and how it translates to actual policy shifts across the Bank's lending instruments.

Starting 1 July 2023, the WB has committed to align all its operations with the Paris Agreement. The Bank released its Paris Alignment Methodologies during the 2023 Spring Meetings pledging to make "finance flows consistent with a pathway towards low GHG emissions and climate-resilient development."[5] While the initiative to implement this methodology is welcome in principle, the instrument methodologies and sector notes released thus far "fail to respond to the scale of the climate crisis confronting the world today."[6]

Despite the WB's increased attention on renewable energy financing in recent years, it faces the major challenge of how to keep up with calls to triple renewable energy capacity by 2030. According to the International Renewable Energy Agency's (IRENA) estimates, annual renewable power additions must reach 1,000GW on average until 2030 "to immediately course-correct the 1.5°C climate pathway."[7]

More importantly, concerns remain about how these investments still risk repeating the mistakes of the fossil fuel past: from land rights conflict associated with large scale renewable energy projects, extractivist and profit-driven energy models, to labour rights issues in energy transition investments. With governments providing unprecedented levels of public spending to accelerate the energy transition to renewables, international public finance institutions such as the World Bank need to take into account the longstanding demands to deliver a just energy transition and support renewable energy economies in the Global South.

These fundamental challenges prompt a closer look at the WB's current clean energy portfolio with particular focus on how renewable energy-related investments must change to align with global climate objectives as well as social and environmental standards, while respecting and promoting the rights of project-affected communities. This paper gives particular attention to renewable energy technologies implemented by the WB in the period between 2017 and 2022 as well as the potential risks associated with these projects. The data analysis of the Bank's clean energy portfolio is complemented by case studies of WB-supported renewable energy projects in Chile, India, Indonesia and Senegal.

Methodology for assessing the World Bank's clean energy portfolio

In April 2023, Recourse published a methodology[8] to help examine the World Bank Group's renewable energy investments. The methodology was written in consultation with a wide range of civil society organisations from around the world, including partners from the Global South, who are engaged in holding the World Bank Group to account over its policies and use of public money to deliver its mission and its investments in lower- and middle-income countries in a way that upholds human rights, dignity, and environmental integrity.

Using a rights-based approach, the methodology's starting point is that it is currently the poorest and most vulnerable who are suffering the most from climate change, despite doing the least to cause it. The transition to renewable energy should happen in a way that does not further place the burden and costs on those same communities – women, indigenous, marginalised. For example, when land is used for renewable energy projects, extracting the minerals necessary for the transition, or when sources of livelihood and access to basic needs are put at risk because of irresponsibly implemented greenfield renewable energy projects. The energy transition should not further burden low-income countries with increased debt and hardship. Rather it should benefit these groups through increased energy access, decent work, enhanced natural environment and thriving local and national economies.

The methodology uses a clear, science-based taxonomy of technologies which can guide the WB's policy reform and investment decisions. The following taxonomy was developed based on 1.5°C aligned trajectories with the clear exclusion of fossil gas, oil or coal projects. This is consistent with the International Energy Agency's World Energy Outlook (IEA WEO) 2021: "Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our [net zero] pathway, and no new coal mines or mine extensions are required."[9]

In addition, the taxonomy excludes untested and false solutions that divert resources from delivering a 1.5°C aligned trajectory, such as fossil-based hydrogen and carbon capture technologies among others.

Table 1. Renewable energy transition taxonomy table[10]

EXCLUSIONS	INCLUSIONS
Coal extraction, transport and use	Clean cooking options, non-fossil fuel
Oil extraction, transport and use	On and offshore wind power
Fossil gas extraction, transport and use	Solar photovoltaic, onshore or floating
LNG infrastructure	Solar thermal
Carbon capture, use, and storage (CCUS)	Mini hydro
Blue hydrogen	Geothermal*
Nuclear power	Green hydrogen (from renewables)*
Large hydropower	Energy system stability
Industrial biofuels	Sectoral initiatives
Waste-to-Energy (WTE)	
Other unsustainable renewable energy technologies	

**with caution*

Source: Recourse (April 2023). Harnessing Public Finance Potential to Create Renewable Energy Economies.

In the methodology, we also use a clear set of scientific, environmental, social and rights-based criteria as follows[11]:

Scientific, environmental, social and rights-based criteria

All renewable energy and energy efficiency initiatives, including policy reform and financial provi-sions, must be driven by scientific and social, rights-based criteria as follows:

Science-based taxonomy must ensure environmental integrity by delivering:

- Climate change mitigation, Paris aligned to a 1.5oC trajectory
- Resilient to the impact of climate change
- Sustainable use and protection of water, marine, and forest resources
- Pollution prevention and control
- Protection of healthy ecosystems

In addition, it must meet social and human rights criteria:

- Safeguards compliance
- Respects the needs and concerns of local communities, centering them in the development of energy options and prioritising the voices of women, vulnerable and mar-ginalised people and indigenous communities.
- Free, prior, and informed consent (FPIC) of Indigenous Peoples
- Upholds human rights, decent work principles, and land rights of impacted communities
- Access to functioning grievance redress mechanisms

Using both the taxonomy and the environmental, social, and rights-based criteria proposed by the renewable energy methodology, we screened the World Bank's clean energy portfolio in the period between 2017 and 2022. The scope of the study is limited only to operations by the International Bank for Reconstruction and Development (IBRD) and International Development Assistance (IDA) – collectively known as the World Bank – and therefore does not include investments and guarantees made by the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA).

The study covers all lending operations of the WB, including Development Policy Financing (DPF) operations, investment project financing (IPF), financial intermediary lending as well as Program-for-Results (PforR). The data we used for this study is based on the Oil Change International's Public Finance for Energy Database[12] which reports on public finance flows going to fossil fuels and clean energy investments in the period between 2017 and 2022.

OVERVIEW OF MDB CLEAN ENERGY FINANCING

In 2017, major Multilateral Development Banks (MDBs) pledged to align with the goals of the Paris Agreement and have repeatedly reiterated their commitments since then. Central to the objectives of the Paris Agreement is "pursuing efforts to limit temperature increase to 1.5C" which entails a rapid phaseout of fossil fuel financing and a scale up of sustainable renewable energy investments.[13]

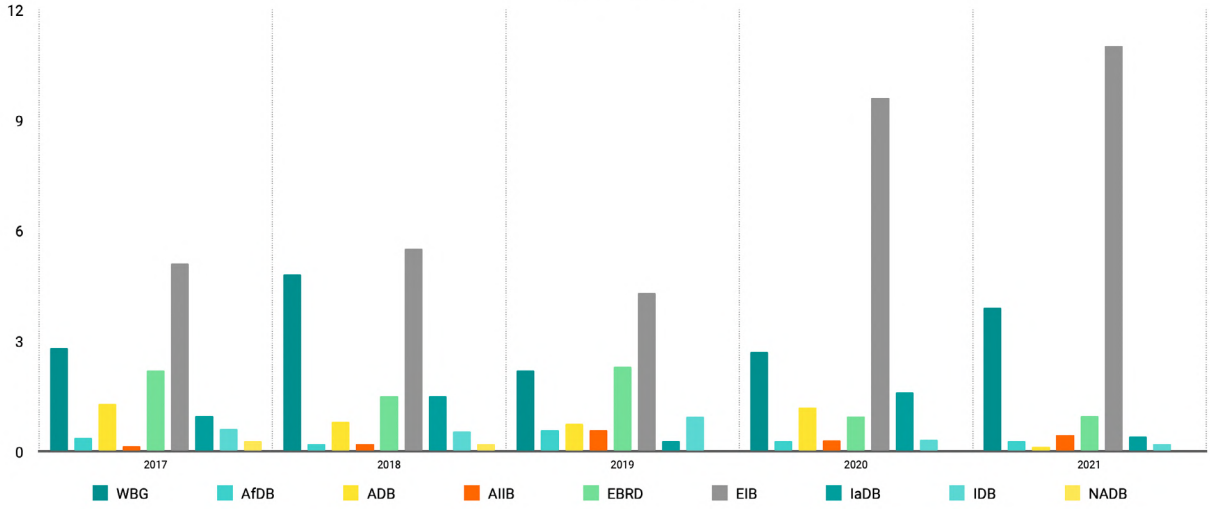
While these commitments are promising, the data on renewable energy investments made by major MDBs presents a less positive picture, with most institutions significantly reducing clean energy investments since 2017. Figure 1 shows clean energy investments of the nine major MDBs[14] in the period between 2017 and 2021.

The only exception to the downward trend of clean investments is the European Investment Bank (EIB), which doubled its renewable energy funding from $5.1 billion in 2017 to $11 billion in 2021. On the other hand, the World Bank Group's spending on renewable energy finance shows an inconsistent trend peaking at $4.8 billion in 2018, after which follows a significant 54% dip in 2019. It should be noted that the WBG's 2022 investments in renewables is 18.75% less (almost $1 billion lower) compared to its peak in 2018.

Despite being smaller in volume, the Asian Investment Infrastructure Bank (AIIB) also saw its clean energy investments increasing from around $150 million in 2017 to $450 million in 2021. Meanwhile, the European Bank for Reconstruction and Development (EBRD) saw a decrease in renewables financing, down 56% between 2017 to 2021. Likewise, the African Development Bank's (AfDB) portfolio showed a 25% decrease in clean energy investments in the same period.

Some of the worst performers among the MDBs analysed include the Asian Development Bank (ADB), whose clean energy portfolio dramatically fell 90% from 2017 to 2021, as well as the Islamic Development Bank (IBD), which saw figures plummet 67% in the same period.

Figure 1. MDB investments in clean energy in US$ billions (2017–2021)

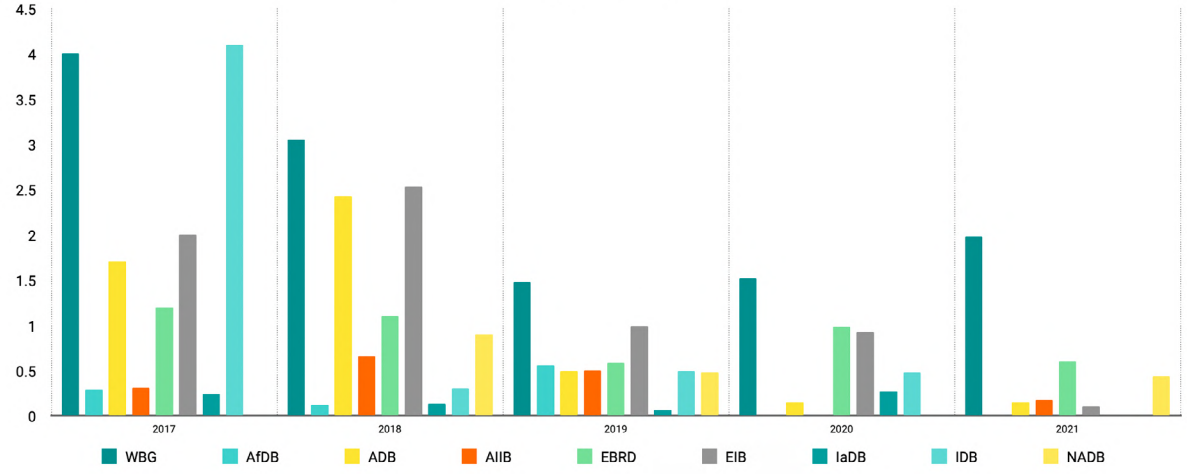


Source: OCI Public Finance for Energy Database[15] (2017–2021)

When compared to fossil fuel investments, the data shows fossil fuel investments decreasing by almost $10 billion whereas the increase in renewable energy finance was only about $3 billion. While there has been a positive trend of fossil fuel investments falling, the redirection of finance to renewable energy sources has not been commensurate. This can be demonstrated by looking at fossil fuel versus clean energy investments figures (see Figures 3 & 4) where fossil fuel-based investments were 7% higher than clean finance in 2017. This figure has drastically changed since then as fossil fuel finance dropped almost 75% from 2017 to 2021, whereas renewable energy investments only saw a meagre 26% increase in the same period. As of 2021, renewable energy investments from MDBs are four times higher than fossil fuel financing.

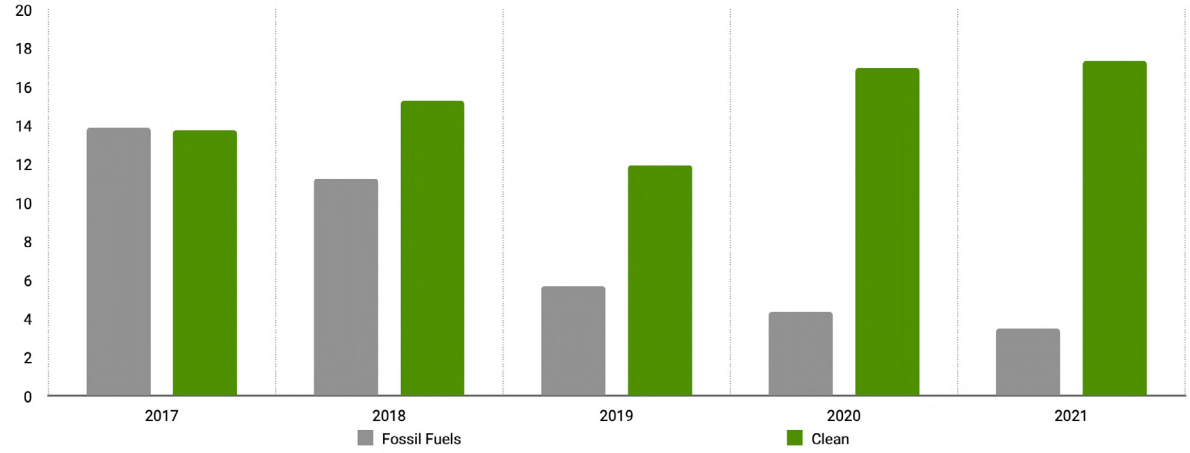
While this is indeed a positive trend in MDB public finance, continued financing in oil and gas projects remains a cause for concern as these projects can lock countries into carbon-intensive development in the next 30 years. Research suggests that the typical lifespan of energy-related infrastructure varies from 80 years for buildings to 14 years for residential cooking equipment, with a median typical lifetime of 27.5 years. Based on the median life expectancy, the infrastructure and equipment we installed in 2021 will continue operating until mid-way through 2049, just around the time the world must reach net-zero emissions.[16]

Figure 2. MDB investments in fossil fuels in US$ billions (2017–2021)



Source: OCI Public Finance for Energy Database (2017–2021)

Figure 3. MDB investments in fossil fuels in US$ billions (2017–2021)

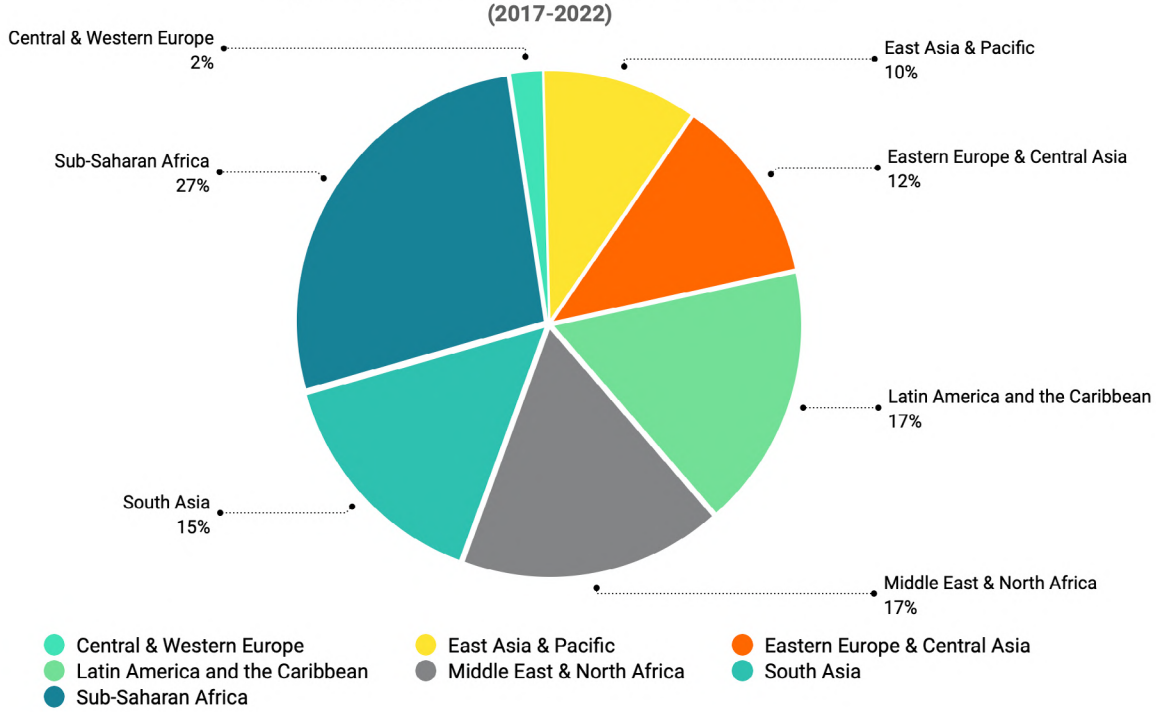


Source: OCI Public Finance for Energy Database (2017–2021)

THE WORLD BANK'S CLEAN ENERGY PORTFOLIO

Zooming in on the World Bank specific to IBRD & IDA operations, the largest share (27%) of clean energy investments went to Sub-Saharan Africa. This is followed by clean energy investments in Latin America, the Caribbean, the Middle East and North Africa garnering 17% each of the WB's renewable energy financing from 2017–2022. Meanwhile, 15% of clean investments went to South Asia, 10% to East Asia and the Pacific, and 2% to Central and Western Europe in the same period (See Figure 4).

Figure 4. Regional Distribution of WB Clean Investments (2017-2022)

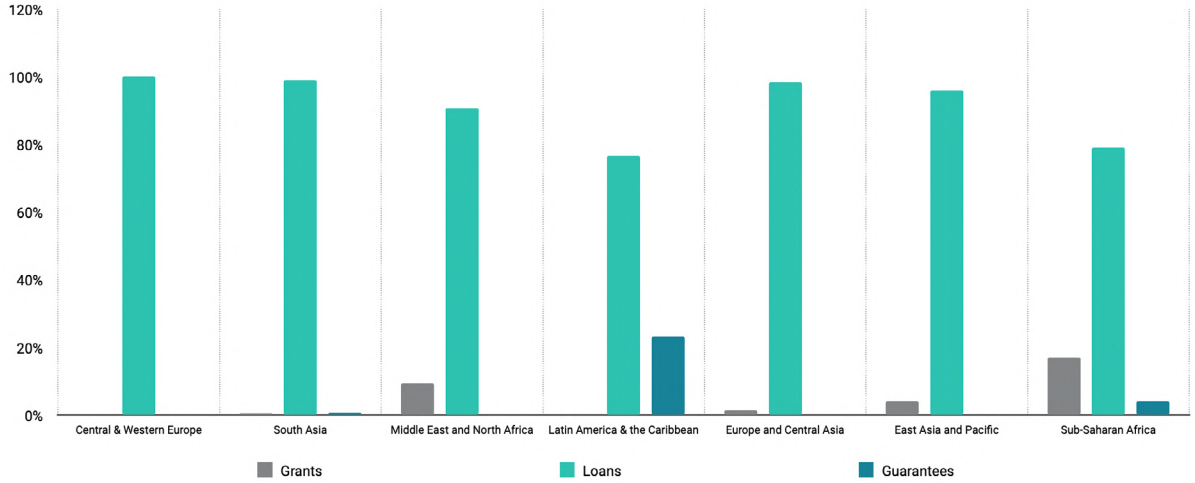


Source: OCI Public Finance Energy Database (2017–2022)

In terms of types of finance, the majority of clean energy investments between 2017 and 2022 were disbursed in the form of loans. In Sub-Saharan Africa, only 17% of WB clean energy investments were in the form of grants, whereas 4% was provided as guarantees. Only 9% of clean energy operations were allocated as grants to the Middle East and North Africa, with the remaining 91% being loans.

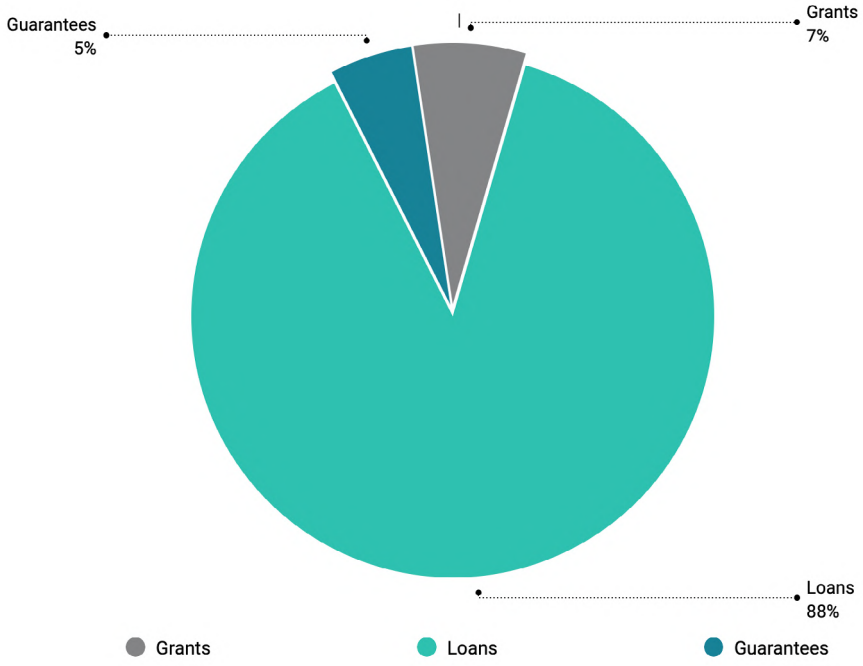
Meanwhile, almost all clean energy investments in South Asia (99%) were in the form of loans, with only 0.4% going to grants, and the rest in the form of guarantees. In Latin America and the Caribbean, 76% of clean energy investments were loans, 23% were guarantees and only 1% was disbursed as grants. Only one lending operation was documented in Central & Western Europe for the period (See Figure 5).

Figure 5. Distribution of Clean Investments by Type of Operation (2017–2021)



Source: OCI Public Finance Energy Database (2017–2022); World Bank Project Database (2017–2022)

Figure 6. WB Clean Energy Investments by Financing Type (2017-2022)



Source: OCI Public Finance Energy Database (2017–2022); World Bank Project Database (2017–2022)

Overall, a total of 88% or $16.5 billion of the WB's clean energy finance between 2017 and 2022 was disbursed in the form of debt-creating loans. Only 7% or $1.3 billion was in the form of concessional finance, whereas 5% or less than $1 billion was disbursed as guarantees (See Figure 6).

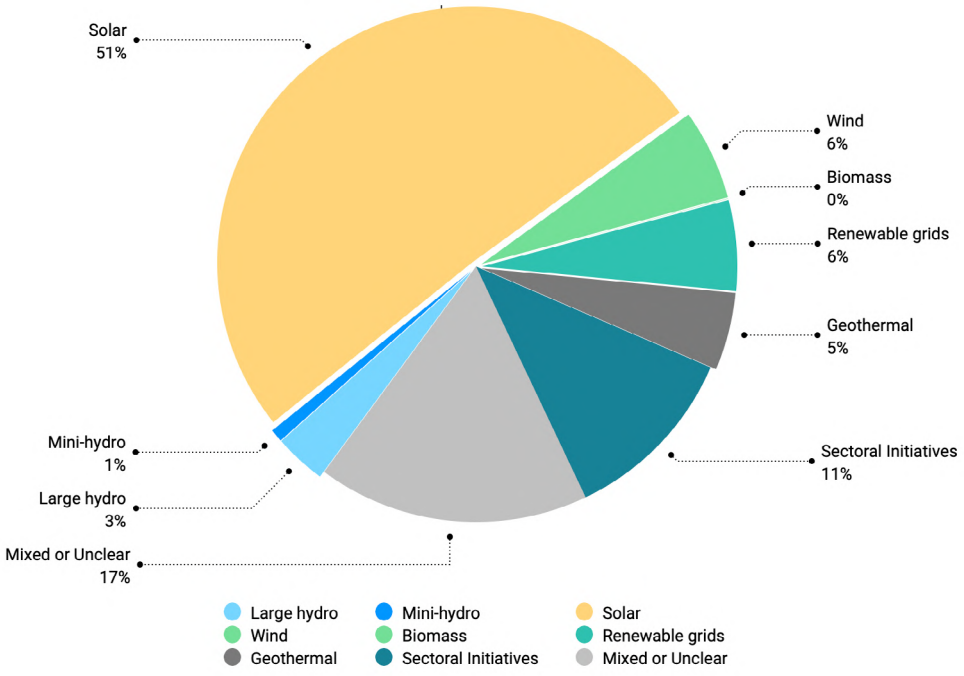
Across all the clean energy investments from 2017 to 2022, the majority, or 51%, of clean energy investments supported solar photovoltaic (PV) projects, mainly in the form of solar mini-grids and solar rooftop initiatives. Wind projects only accounted for 5.6% while 4.8% went to geothermal development. Only a very slim percentage (0.8%) went to support mini hydro (less than 10MW) projects in the same period (See Figure 7).

A mix of solar PV and wind grid connection improvements were supported by the Bank through 5.6% of its clean energy investments. This is complemented by 11.2% of projects going to sectoral initiatives, mostly in the form of energy efficiency and battery technology research and development at the country level.

On the other hand, a small percentage (0.02%) of these projects supported industrial biomass, which is not considered sustainable based on Recourse's methodology for screening renewable energy investments. In addition, 3.2% of the projects financed large hydropower investments, which is also categorised as unsustainable due to its impacts on land rights, biodiversity and on indigenous communities.

The data also shows 16.8% of investments going to 'mixed or unclear' energy technologies which may include sources such as nuclear power, biofuels and waste-to-energy incineration projects.

Figure 7. WB Clean Energy Projects by Energy Type (2017-2022)



Source: OCI Public Finance Energy Database (2017–2022); World Bank Project Database (2017–2022)

POTENTIAL RISKS AND ISSUES ASSOCIATED WITH WB RENEWABLE ENERGY INVESTMENTS

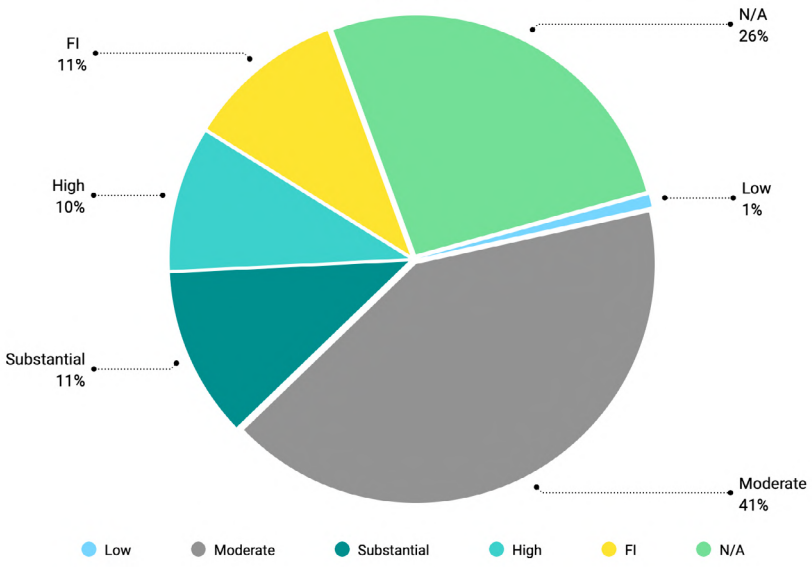
Renewable energy investments have gained considerable momentum in recent years as the world increasingly embraces sustainable alternatives to traditional fossil fuels. According to data from the International Energy Agency (IEA), investment in clean energy technologies is "significantly outpacing spending on fossil fuels as affordability and security concerns triggered by the global energy crisis strengthen the momentum behind more sustainable options."[17] While these investments hold the promise of not only mitigating climate change but also offering lucrative opportunities for investors, they are not without their share of potential risks and issues.

As the renewable energy sector continues to evolve, public finance institutions, including the WB, must navigate challenges such as regulatory uncertainties, technological advancements, market volatility, and social and environmental impacts as well as rights-based concerns. Understanding and addressing these potential pitfalls is essential for making informed and responsible investment decisions in the pursuit of a cleaner and more sustainable energy future.

As demonstrated in Figure 7, the WB's clean energy investments have focused largely on scaling up solar PV financing in the last five years. The WB has also provided support to other types of sustainable renewable energy, including mini hydro, wind, and renewable energy grid connections. While this is a welcome development in general, it is important to highlight how project implementation issues can still result in significant potential harms to communities even with renewable energy projects.

Our research reviewed the 114 clean energy projects financed by the World Bank from 2017 to 2022. We specifically reviewed environmental and social impact review documents as well as project summary files against a number of social and environmental risk factors (See figures 8 and 9).

Figure 8. Risk Classification of WB Clean Energy Investments (2017-2022)

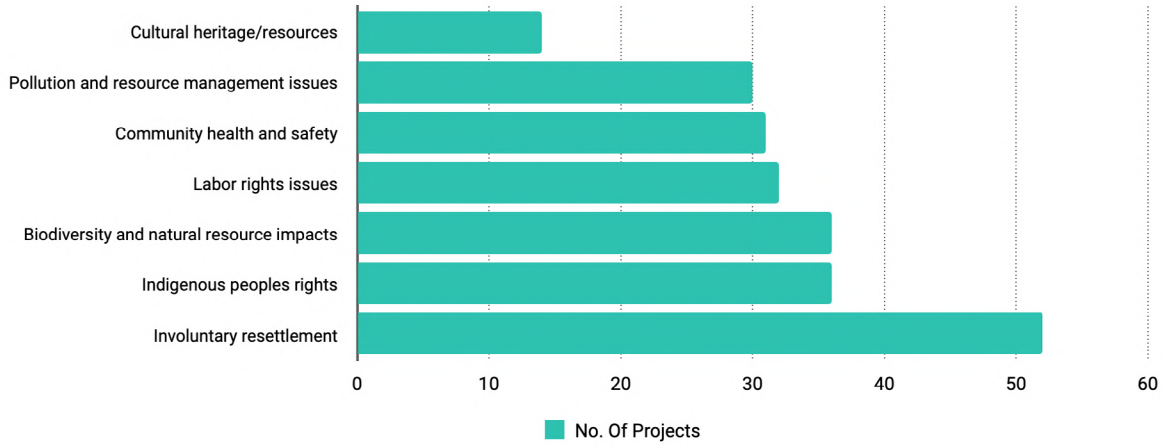


Source: OCI Public Finance Energy Database (2017-2022); World Bank Project Database (2017-2022)

Out of the 114 total clean energy investments studied in this research, 9.6% (11) of projects were categorised as high risk and 11.4% (13) were considered to have substantial risks. Only one project got a low-risk classification, whereas the majority of projects, or 41.2% (47), studied were classified as moderate risk.

Meanwhile, 10% (12) projects were categorised as financial intermediary projects, which makes it difficult to determine sub-project level impacts. On the other hand, around 26% (30) of the projects identified in the period were in the form of development policy operations (DPOs) and therefore could not be classified into the risk categorisation system (See Figure 8).

Figure 9. Potential risks associated with WB renewable energy projects (2017–2021)



Source: OCI Public Finance Energy Database (2017-2022); World Bank Project Database (2017-2022)

Environmental and biodiversity risks

In addition to screening based on how each project is aligned with 1.5°C trajectories, we also screened the WB's clean energy portfolio based on environmental criteria. We looked at potential impacts of each project on 1) resource management, pollution prevention and control; as well as 2) biodiversity and other natural resources. Out of the 114 projects surveyed in this research, 26% (30) showed potential risk related to pollution control and resource management while 31.5% (36) had potential impacts on biodiversity and other natural resources (See Figure 8). These impacts stem from various aspects of project development, implementation, and operation.

An example of this is shown in the case of a WB-supported sub-project on geothermal exploration activities and development in Indonesia. Under the Geothermal Resource Risk Mitigation Project (GREM),[18] the WB funds PT Sarana Multi Infrastruktur (PT SMI Persero), a state-owned enterprise and one of the biggest geothermal developers in the country. In May 2019, PT SMI Persero issued an environmental and social management framework for the GREM project.[19]

In this document, PT SMI mapped at least 64 potential impacts, starting from the exploration process to the operations of the geothermal facility. These include environmental damage from the discharge of air contaminants from well testing and drilling, including the release of hydrogen sulfide, mercury, and arsenic. The ESS assessment also noted potential impacts on water resources as with the "contamination of groundwater from interference

with geothermal water from abstraction wells or reinjection wells." According to PTI SMI, geothermal exploration may cause "direct damage or destruction to natural habitats" and can potentially have "indirect impacts from induced development (agriculture, poaching, land clearances, land disputes) into forested areas and protected natural areas."[20]

In another geothermal sub-project site in Rajabasa, Lampung, Indonesia that is also supported by the same WB investment, the project was carried out in the middle of the Gunung Rajabasa forest, which is a protected area under Indonesian laws and home to the Saibatin Wayhandak indigenous peoples. According to a 2023 case study conducted by Solidaritas Perempuan, PT Supreme Energy Rajabasa (PT SERB), which acts as the implementing party to explore and develop geothermal energy in Lampung, started exploration activities and supplying heavy equipment to the area even before it was granted a Borrow-Use permit by the Indonesian Ministry of Forestry in April 2014.

The World Bank's Green Hydrogen Development Facility in Chile poses a similar threat to the environment. The WB categorised this operation as a project of considerable or substantial risk due to the potential impact on water resources and risks associated with energy infrastructure disrupting wildlife corridors, leading to population decline and reduced biodiversity. The implementation of one of the green hydrogen projects in Magallanes is said to require the installation of at least 2,900 wind turbines occupying an area of 150,000 hectares in areas of high environmental and landscape value.

In a letter published in the journal Science, a group of scientists and researchers warned of the serious impacts on biodiversity in the Magallanes region that the development of green hydrogen mega projects could cause.[21] Large-scale renewable energy projects such as the green hydrogen facilities being developed in Chile often require significant land areas for installation. This can lead to habitat loss and fragmentation, affecting local flora and fauna.

Involuntary resettlement, impacts on women, and violation of Indigenous Peoples' rights

Recourse also examined these projects based on potential social and rights impacts. Findings demonstrate that 45.6% (52) of the Bank's clean energy investments had potential impacts on land rights, mostly pertaining to involuntary resettlement and especially in projects related to grid construction and in large-scale solar and wind projects (See Figure 8).

In addition, 28% (32) of projects had potential impacts on labour rights and working conditions, especially in the construction phase. Meanwhile, 27% (31) of clean energy projects triggered potential risks to community health and safety, mainly referring to chemicals generated in upstream activities. In addition, 12.2% (14) of projects had potential impacts on indigenous communities, mostly requiring construction or exploration activities on indigenous lands, while 32% (37) of projects can potentially affect cultural resources and heritage, including ancestral lands and forest and marine resources.

Out of 62 solar energy projects supported by the World Bank between 2017 and 2022, 28 projects (45%) had potential land rights and involuntary resettlement issues. There were 9 solar power projects that had potential impact on indigenous peoples' rights, 20 solar PV projects with potential impacts on biodiversity and natural resources as well as 20 other solar PV investments that had possible damages to cultural heritage and resources. It is important to take note however that data is skewed in this context since more than half of the clean energy investments examined in this research are focused on solar projects.

On the other hand, three out of four of the large hydropower projects supported by the WB had potential biodiversity impacts as well as risks of damaging cultural resources.

Table 2. Potential risks tagged by RE technology in WB clean energy projects (2017–2022)

RE Tech	Involuntary resettlement	Indigenous peoples	Biodiversity impacts	Labour rights	Community health & safety	Pollution & resource management	Cultural heritage & resources	Number of projects assessed per energy type
Solar	28	9	20	17	15	16	20	62
Wind	1		1				1	7
Geothermal	4	1	5	2	2	2	3	6
Large hydro	1	1	3	1	1	1	3	4
Mini hydro	1		1	1	1	1	1	1
Sectoral initiatives	3			1	2	2	1	14
Renewable mini grids	3	1	2		1		3	7
Biomass				1	1	1	1	3
Mixed / Unclear	10	3	8	10	11	9	8	21

Source: OCI Public Finance Energy Database (2017-2022); World Bank Project Database (2017-2022)

Table 3. Percentage of Projects by RE technology and risk classification

Risk Type	Renewable Energy Technology								
	Solar	Wind	Geothermal	Large Hydro	Mini Hydro	Sectoral Initiatives	RE Mini Grids	Biomass	Unclear/ Mix
Low	-	-	17%	-	-	-	-	-	-
Moderate	43%	14%	16%	-	100%	57%	14%	33.3%	39%
Substantial	11%	-	-	25%	-	-	43%	-	19%
High	10%	-	17%	50%	-	-	14%	-	10%
FI	10%	14%	50%	25%	-	22%	-	33.3%	-
N/A	26%	71%	-	-	-	21%	29%	33.3%	33.3%

Source: OCI Public Finance Energy Database (2017-2022); World Bank Project Database (2017-2022)

Table 3 shows how half of large hydropower projects are considered high risk investments. Meanwhile, almost half, or 43%, of solar power projects are categorised as moderate risk with 11% tagged as substantial risk and 10% in the high-risk category. Sectoral initiatives mostly grid construction for renewables show 57% of projects categorised as moderate risk. All mini hydro projects are moderate risk, while the majority, or 43%, of renewable mini grid projects have been tagged with substantial risk. Interestingly, 71% of wind projects are policy loans which are not covered by the risk categorisation system of the Bank.

Each of the projects analysed in this report had some form of gender impact assessment embedded in its environmental and social assessment reviews as well as in existing involuntary resettlement and indigenous peoples frameworks. However, it bears highlighting that some of the action plans emerging from these gender analyses tend to have a very narrow scope when it comes to gender inequality (See Box 1).

Box Story 1. Gendered Impacts of WB's Geothermal Financing in Indonesia

In the case of the WB-supported GREM financing in Indonesia implemented by PT SMI and co-financed with the Green Climate Fund (GCF), it is important to note that the gender assessment conducted for this project relied heavily on mitigation efforts by merely involving more women in the project and focusing on the aspect of wage inequality while turning a blind eye on systemic issues and structural injustices that affect women in the country. For instance, the outputs and indicators identified to advance gender equality only focused on increasing the number of female employees working in the PLTP project with no regard to the nature of employment provided by the project including whether such jobs are short-term, contractual and whether such opportunities only reinforce gender inequality in the workplace.

From these documents, it can be seen that there is a wrong paradigm in viewing gender inequality as a result of climate projects. In this case, the WB, the GCF and PT SMI are indifferent to the reality that gender inequality is exacerbated due to the management space taken away from women. The project also entails the construction of facilities that rob women of their land, but also exacerbates the impact of the climate crisis on rural women. There are hidden impacts of large-scale investment towards women, starting from the lack of women participation in research and impact assessments. The lack of gender and intersectional perspective in scrutinising impacts of investments then leads to impacts on voice and agency, socio-economic and environmental risks, as well as impacts on physical and psychological well-being of women.

Although the World Bank, GCF and PT SMI have compiled these documents, there is no information that publicly lists the location of the geothermal project in Rajabasa, Lampung or Atadei, Lembata, East Nusa Tenggara. The existence of the Rajabasa and Atadei geothermal projects in the Indonesia Geothermal Resource Risk Mitigation Project (GREM) through the World Bank website can only be accessed by browsing procurement documents. The lack of information provided to the public actually violates the access to information policy made by the World Bank. The information referred to in this case is not only the disclosure of technical documents but more importantly to provide information that can be easily understood by women and the community at the grassroots level. Furthermore, the annual performance report released by the GCF in 2020 shows the absence of implementation of a series of social and environmental and gender assessments that have been prepared.

Source: Solidaritas Perempuan (2023). Exploring Geothermal Energy Development in Indonesia: Policy Failures and Impacts on Women's Rights

Another example of risky clean energy investments by the WB can again be drawn from the same WB's GREM financing in the Rajabasa geothermal project, implemented by PT SERB in Lampung, Indonesia. Since the commencement of exploration activities in 2013, PT SERB has continued its operations despite widespread community resistance.

"There are tens of thousands people in 8 sub-districts who depend on Mount Rajabasa for their livelihood. We are ready to sacrifice ourselves in defending Mount Rajabasa. It is no longer a matter of honor but a matter of life."

– Yusuf Kahyar
Indigenous People's Representative of Rajabasa

One of the representatives of the indigenous peoples in the area argues that Mount Rajabasa became the shelter for their ancestors during the eruption of Mount Krakatau in 1883 and played an important role in the defense against invaders. Mount Rajabasa is one of the pillars of the Saibatin Paksipak Sekala Brak Customary Kingdom, in addition to four other mountains in Lampung. Mount Rajabasa also has natural water reservoirs that residents use for their daily sustenance. The destruction of the nature around Mount Rajabasa has also led to damages to historical symbols, values, and identities and has added to the struggles of indigenous peoples[22].

In another GREM sub-project this time supported by PT SMI, impacts identified include damage to local cultural heritage and resources; and "involuntary resettlement for quarries, roads, well pads, pipelines and other sites where land is required, leading to loss of livelihood and social disconnection." The ESMS framework also noted the potential restriction of access to forests and risks to cultural integrity of indigenous peoples and other remote, vulnerable communities[23].

While PT SMI introduces mitigation measures for many of the risks identified, some of the measures are grossly insufficient in addressing the problems associated with exploration, construction, and actual operations of geothermal power plant facilities in the area. An example can be seen in mitigation efforts for one of the sub-projects under GREM, where the ESMS merely cited the "lack of other alternative project locations" as justification to pursue construction in the middle of a protected forest.

These are just a few of many more examples of impacts on indigenous communities related to renewable energy projects. In regions with indigenous populations, renewable energy projects can significantly impinge on their claims to ancestral domains and other cultural resources. Failure to recognise and protect the rights of indigenous communities can lead to the violation of their rights and further damage the reputation of renewable energy projects.

In 2017, the World Bank and its private sector arm, the International Finance Corporation (IFC), invested $100 million to help finance the Rewa Ultra Mega Solar Power Project in India. Located in Gurh tehsil of the Rewa district in Madhya Pradesh, the power plant has been constructed on close to 1590 acres of forest and private land acquired from villages of Badwaar, Barsaita, Barsaita Desh, Itaar and Ramnagar of Gurh tehsil. The solar power plant has the capacity to produce 750 MW of power[24].

For the Rewa project, local sources suggest that close to 100 acres of farming land of around 200 families had been acquired for the solar power project. Among them, 12 families are said to be from the tribal community. After the land acquisition, these tribal families became landless. They gave up their land on the promise of compensation and a job in the power project. They got compensation for their land but did not get jobs. Now, once the money has been spent, these families are forced to migrate from their villages in search of work.

Though the project claims that no forest land was acquired for the project, according to local news sources, 132 acres of land has been compensated to the forest department by the state government as compensation for 82 acres of forest department land that was acquired for the solar power plant. However, the forest department tried to stall the project for an additional 25 acres of forest land. To compensate for this, revenue land was handed over to the forest department in the village Gurdari of tehsil Jawa and the village Barhat of tehsil Tyothar by the state authorities to reach a settlement[25].

Box Story 2. Lack of Meaningful Consultation and Capacity to Manage Environmental and Social Risks in WB's Green Hydrogen Investment in Chile

This year, the World Bank approved a USD $150 million investment to support Chile's National Hydrogen Strategy. The main implementor of the project is Corfo (Corporación de Fomento de la Producción), a Chilean public agency under the Ministry of Energy that aims to promote energy-related investments and the sector's competitiveness. In WB's own review of Corfo's capacity to manage the environmental and social risks and impact of the project, the WB highlighted the public agency's lack of experience in managing environmental and social risks consistent with the WB's Environmental and Social Framework (ESF). Further, the WB notes that despite having guidelines for stakeholder consultation and engagement activities, Corfo lacks an operational environmental and social policy as well as systems in place to manage potential environmental and social risks.

The Bank notes that Corfo is in the process of developing its own environmental and social sustainability policy which is expected to be operational by 2024. The project however runs between 2023 to 2028, which means the earlier parts of program implementation will not be guided by any robust ESMS framework, especially on the issue of meaningful public consultation. In the Stakeholder Participation Plan (SPP) prepared for the project, Corfo commits to define a Communication, Participation and Consultation Strategy. However, the guidelines to elaborate this strategy are general and does not take into account the principles of inclusivity and effectiveness. In particular, the plan fails to put emphasis on consultation and participation at the local level, with Indigenous Peoples and potentially affected communities, and with civil society.

Corfo states that is submitted a draft Stakeholder Engagement Plan to the Bank. The consultation process was supposed to have taken place on March 30, 2023, with hybrid face-to-face and virtual participants. However, only 42 external guests were invited to participate – most of whom are representatives of companies related to the Green Hydrogen industry and its value chain. Civil society was not included and there was no further public information available before or after the said activity.

Corfo also committed to establish a complaints and grievance mechanism for the Project as required by the WB. It intends to use the structure of the institution's current customer service and complaints system, which functions as a mailbox for receiving all types of requests and observations. The description of this system proposed by Corfo is cursory at best and does not even meet minimal international standards for an independent and secure mechanism to address community complaints. It does not clearly define the principles of a policy that will guide the mechanism, nor does it clearly define the process, procedures and how communities can freely access the mechanism.

Source: Seeger, M. (2023). The 'New Energy El Dorado?' The World Bank's Role in Promoting Green Hydrogen in Chile. Sustentarse

Large-scale renewable energy projects require large tracts of land, which can lead to the displacement of local communities. In most cases, land rights conflicts are adequately resolved and communities are relocated with adequate compensation. But in a few cases, such measures are not implemented correctly, which can lead to the violation of land rights, among others.

In the case of the WB-supported green hydrogen development facility in Chile, substantial community engagement and consultation is lacking. Corporación de Fomento de la Producción or Corfo, the implementing agency of the project, stated that it submitted for early stakeholder consultation two key documents prepared for the World Bank: the Environmental and Social Review (ESR) and the Stakeholder Engagement Plan (SEP) for the project[26].

This consultation process was supposed to have taken place on Thursday 30 March 2023, with hybrid face-to-face and virtual participants. However, only 42 external guests participated in this activity, most of them representatives of companies related to the green hydrogen industry and its value chain[27].

Meaningful community consultation and participation are essential in renewable energy projects. In some cases, local communities do not have a voice in the decision-making process, leading to the exclusion of their interests and concerns, especially in the cases of women and indigenous peoples as well as other marginalised sectors of society. The lack of community participation can undermine democratic ownership of renewable energy projects and can lead to conflicts between project developers and affected communities.

Box Story 3. The case of MIGA-supported Parc Éolien Taïba N'Diaye Wind Farm in Senegal

"The Taïba Ndiaye wind farm may be a sustainable development project. However, just as it aims to protect the environment, it must also ensure respect for the rights and safeguard the dignity of the human beings who depend on it."
- Mbene Diop, farmer

In 2018, the Multilateral Investment Guarantee Agency (MIGA), part of the WBG, issued a $150 million guarantee to support equity investments by Lekela Power Holdings in the Parc Éolien Taïba N'Diaye (PETN) wind farm. PETN is the first large-scale wind energy project in Senegal which aims to provide clean electricity to more than 2 million people. The project is classified as Category A (high risk) under the Bank's Environmental and Social Framework (ESF) due to potentially significant environmental and social impacts related to the loss of livelihoods of people affected by the project, and the loss of fauna biodiversity on the installation site.

A zone of influence has been defined to extend to a radius of 500m around each turbine, comprising a total of 2,200ha of land. Land acquisition mainly concerned the conversion of mango farms, with temporary and permanent restrictions on 423 plots, the loss of around

2,000 mango trees and the economic displacement of 409 mango farmers in the three municipalities of Taïba Ndiaye, Darou Khoudoss and Notto Gouye Diama.
The main irregularity identified by communities affected by the project was the failure of the project proponents to honour commitments made during the discussions on land and livelihood compensation. These include support for the development and irrigation of all affected productive land, even though it is not included in the project's right-of-way zone. Nearly 90% of the project-affected peoples say they are not satisfied with their compensation.

For instance, the community of Darou Khoudoss confirmed in interviews that they do not benefit from the corporate social responsibility (CSR) projects carried out by PETN. The perimeter developed for the benefit of affected communities only includes residents within Taiba Ndiaye and not the other neighbouring communities such as Darou Khoudoss, wherein the majority of residents claim they were affected by project construction; some of whom have lost their entire land holdings. The village chief of Sao, one of the Darou Khoudoss villages also impacted by the project, points out that even if the project's right-of-way area is administratively Taïba Ndiaye, mitigation measures must be carried out on a human rather than a geographical level. Mor Mar, president of the Darou Khoudoss commune's domanial commission, believes that the information that the PETN right-of-way zone exclusively concerns the Taïba Ndiaye commune is false. According to him, cadastral data show that two wind farms are located in the commune of Darou Khoudoss. The municipality has taken steps to demand royalties from PETN. Mawa Diop, the commune's municipal secretary, believes that it is the project's implementation process that has not been inclusive from the outset. For a project of this scale, the identification of stakeholders must be as broad as possible. In his opinion, the Darou Khoudoss commune could have better collaborated and defended its interests before the project was set up, which for him is now too late.

To transform PETN into a model of sustainable development and just transition, it is essential to strengthen community participation and involvement. This implies establishing mechanisms for regular and transparent consultation, as well as a systematic review of compensation and livelihood restoration policies. This could involve fulfilling commitments to support irrigation and agricultural livelihoods, while improving CSR governance by setting up a solid mechanism for community involvement.

Source: Lumière Synergie pour le Développement (2023). Case Study of Parc Eolien Taiba N'Diaye Wind Farm

LESSONS AND RECOMMENDATIONS FROM EMERGING EXPERIENCE

While the World Bank support for clean investments grows, achieving the 1.5°C Paris goal will require a significant ramp up of funding for renewable energy. This will require a concerted improvement in lending practices to further accelerate the global shift towards truly sustainable renewable energy solutions.

Based on the analysis outlined in this study, we recommend the World Bank to:

1. Increase highly concessional and targeted financing for renewables.

The World Bank must adopt more flexible and concessional financing mechanisms that cater to the diverse needs for renewable energy support, especially in developing economies. The current business-as-usual manner of investments in clean energy projects are still being disbursed in the form of interest-accruing loans that risk submerging countries further into debt. Highly concessional funding is needed to suit the challenges and opportunities in Global South countries to help unlock the full potential of renewable energy investments and maximise public benefits. Scaling up renewable energy finance cannot take the form of loans that will further tie countries into debt. Best practices include:

a. Providing capacity building support alongside non-debt-creating finance to address institutional and domestic governance challenges in the implementation of renewable energy-related investments.

b. Prioritising high-impact projects and hard-to-decarbonise sectors for the provision of grants and guarantees. Focusing concessional interventions to these sectors can accelerate the transformation of renewable energy economies, especially in the Global South.

c. Monitoring and evaluating the impact of projects financed through highly concessional funding. Regular assessments will help ensure transparency, accountability, and optimisation of resources for renewable energy solutions.

2. Strengthen environmental, social and rights safeguards.

Greenfield renewable energy projects often involve significant changes to the local environment and communities. These risks lead to various cases of involuntary resettlement, labour rights and working condition issues, as well as damages to indigenous lands and cultural resources. To mitigate these impacts, the World Bank must strengthen its environmental and social impact assessment processes to accurately gauge the potential risks and benefits of each project. To do this, the World Bank must:

a. Effectively incorporate community engagement and early meaningful stakeholder consultation into the assessment and monitoring process to help identify and readily address potential social risks and ensure projects are socially sustainable.

b. Avoid projects that take up huge tracts of land to develop renewable energy facilities. Investing in these types of projects can lead to substantial reputational risks for renewable energy development in general and must be avoided as much as possible. In cases where land acquisition is unavoidable, the WB must strive to ensure its involuntary resettlement framework is implemented in a manner that is effective and appropriately compensates project-affected communities.

c. Consider providing incentives for sustainable practices that reward projects for complying with environmental, social and transparency standards.

d. Address systemic barriers affecting gender equality in gender assessments and action plans, ensuring programmes emerging from gender impact analyses take into consideration the full gamut of women and gender-based issues relating to the project and its specific country context.

3. Ensure transparency in financial intermediary investments.

While FI transactions related to renewable energy are very few, based on the findings of this research, the analysis reveals a blind spot on indirect financing operations disbursed by the Bank. The WB must address loopholes in its FI investments where social and environmental impacts remain unclear at the sub-project level. Specifically, the World Bank must:

a. Ensure public disclosure of sub-project level information, including at the minimum the name, sector, and location of high-risk sub-projects, including through second and third-level sub-investments.

b. At the same time, the World Bank must require FI clients to disclose disaggregated sub-project information promptly.

Further recommendations for renewable energy expansion include the following:

1. Prioritise transformative sectors and sustainable solutions to enable universal energy access.

An important finding from this research is the World Bank's focus on scaling up its solar energy investments since the Paris Agreement. While this is a welcome step, especially considering how solar enables energy access to last-mile consumers, the World Bank must do more to prioritise investments in off-grid and decentralised renewable energy solutions that can bring clean electricity to remote and underserved areas. Specifically, we recommend the Bank to:

a. Channel funds to off-grid and decentralised renewable energy solutions that can bring clean electricity to remote and underserved areas, including energy access to rural women and indigenous communities.

b. Support energy storage solutions such as advanced batteries, which are essential for integrating intermittent renewable energy sources into the grid.

c. Strengthen grid infrastructure investments, which are crucial for accommodating higher shares of renewable energy. Smart grids, microgrids and transmission upgrades can enable more efficient integration of renewable sources.

d. Invest in renewable electrification technologies for sectors like residential heating, cooling and transportation consistent with environmental and social standards.

2. Avoid high-risk, unsustainable, uneconomic solutions that distract from the energy transition.

The World Bank must proceed with caution with regards to technologies that remain highly untested or uneconomic and that can distract otherwise usable renewable energy capacity for better uses rather than for export purposes. Specifically, we recommend:

a. Approaching green hydrogen investments with caution. The World Bank must proceed with caution with regards to technologies that remain highly untested or uneconomic., including green hydrogen which can distract otherwise usable renewable energy capacity for better uses rather than for export purposes.

b. Avoiding high-risk investments such as in the form of large hydropower projects that pose significant threat to indigenous communities' lands and cultural resources as well as biodiversity and natural resources.

c. Ensuring renewable energy support goes towards sustainable and economically sound renewable energy solutions as opposed to energy types like nuclear technology which comes with high capital costs, long-term environmental risk and waste management issues.

3. Support developing countries' transition to renewable energy economies.

The World Bank can play a significant role in catalysing important policy shifts that enable more financing to support renewable energy deployment in the Global South. To do this, the Bank must:

a. Scale up successful renewable energy investment models. By identifying successful renewable projects and models that comply with environmental and social standards, the Bank can support the replication of such investments and encourage a positive feedback loop.

b. Promote technology transfer and innovation. The Bank through its lending operations can facilitate access to proven renewable energy technologies and encourage the development of localised solutions that align with the specific needs of each country.

c. Develop and strengthen domestic regulatory frameworks that facilitate renewable energy development. Most of the systemic barriers that prevent the acceleration of renewable energy deployment in the Global South have to do with regulatory policies that continue to favour fossil fuel energy sources. The Bank can collaborate with governments to develop and strengthen local policies in support of renewable energy targets, feed-in tariffs, net metering and grid integration policies.

In conclusion, for the World Bank to effectively contribute to a sustainable and just energy transition, it must prioritise transformative renewable energy investments. Embracing a comprehensive approach that combines increased funding, enhanced technical assistance, and streamlined policy support for renewable projects in developing countries is essential. By fostering innovative and inclusive financing mechanisms, the World Bank can play a crucial role in accelerating the global transition to clean energy sources. Emphasising renewable energy investments not only addresses the urgent need to combat the impacts of climate change but also bolsters socio-economic development, strengthens energy security, and fosters resilient and renewable energy economies.

Endnotes

1 World Bank (2013). Toward a Sustainable Energy Future for All: Directions for the World Bank Group's Energy Sector. Retrieved from: https://documents1.worldbank.org/curated/en/745601468160524040/pdf/Toward-a-sustainable-energy-future-for-all-directions-for-the-World-Bank-Groups-energy-sector.pdf

2 https://www.worldbank.org/en/topic/energy/overview#2

3 World Bank (April 2023). Scaling up to phase down: Financing Energy Transitions in the Power Sector. Retrieved from: https://openknowledge.worldbank.org/server/api/core/bitstreams/d0c0c6a2-f331-4bb9-b9d1-638d1f039e7d/content

4 https://www.worldbank.org/en/topic/energy/overview#2

5 World Bank (2023). The World Bank Group's Approach to Paris Alignment. Retrieved from: https://documents1.worldbank.org/curated/en/099658203162320142/pdf/IDU0598309ef095cc048fd095420981d12bf8bf6.pdf

6 Responding ot the World Bank Paris Alignment instrument methodologies and sector notes (2023). Retrieved from: https://re-course.org/wp-content/uploads/2023/06/Responding-to-the-World-Bank-Paris-Alignment-instrument-methodologies-and-sector-notes.pdf

7 IRENA (22 June 2023). IRENA's World Energy Transitions Outlook calls for annual renewable power additions of 1,000 GW on average until 2030 to keep the 1.5°C climate target within reach. Retrieved from: https://www.irena.org/News/pressreleases/2023/Jun/Annual-Renewable-Power-Must-Triple-by-2030

8 Recourse (April 2023). Harnessing Public Finance Potential to Create Renewable Energy Economies. Retrieved from: https://re-course.org/wp-content/uploads/2023/03/Harnessing-Public-Finance-Potential-to-Create-RE-Economies_FINAL.pdf

9 International Energy Agency (2021). World Energy Outlook 2021. Retrieved from: https://www.iea.org/reports/world-energy-outlook-2021

10 Ibid.

11 Ibid.

12 Public Finance for Energy Database. Retrieved from: https://energyfinance.org/#/data

13 World Bank (2017). Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment. Retrieved from: https://www.worldbank.org/en/publication/paris-alignment/joint-mdb-paris-alignment-approach

14 These nine major MDBs include the ADB, AIIB, AfDB, EBRD, EIB, IaDB, IDB, NADB and the WBG.

15 OCI classifies renewable energy finance as investments related to solar, wind, tidal, geothermal, and small-scale hydro power projects. OCI categorises nuclear, biofuels and large hydro power sources as 'Other' in its database.

16 World Resources Institute (25 May 2021). What is carbon lock-in and how can we avoid it? Retrieved from: https://www.wri.org/insights/carbon-lock-in-definition

17 IEA (25 May 2023). Clean energy investment is extending its lead over fossil fuels, boosted by energy security strengths. Retrieved from: https://www.iea.org/news/clean-energy-investment-is-extending-its-lead-over-fossil-fuels-boosted-by-energy-security-strengths

18 World Bank (2020). Indonesia Geothermal Resource Risk Mitigation Project (GREM). Retrieved from: https://projects.worldbank.org/en/projects-operations/project-detail/P166071

19 PT Sarana Multi Infrastruktur (May 2019). Indonesia GREM Environmental and Social Management Framework Incorporating: Resettlement Policy Framework and Indigenous People's Planning Framework. Retrieved from: https://ptsmi.co.id/cfind/source/files/ess/esmf-geothermal-resource-risk-mitigation-project-grem.pdf

20 Ibid., p. 43

21 Norambuena, H.; Labra, F.; Matus, R; Gomez, H.; Luna, D. & Espoz, C. (April 2022). Green Energy Threatens Chile's Magallanes Region. Retrieved from: https://www.science.org/doi/10.1126/science.abo4129

22 Solidaritas Perempuan (2023). Exploring Geothermal Energy Development in Indonesia: Policy Failures and Impacts on Women's Rights

23 PT Sarana Multi Infrastruktur (May 2019). Indonesia GREM Environmental and Social Management Framework Incorporating: Resettlement Policy Framework and Indigenous People's Planning Framework. Retrieved from: https://ptsmi.co.id/cfind/source/files/ess/esmf-geothermal-resource-risk-mitigation-project-grem.pdf

24 Center for Financial Accountability (December 2020). World Bank Group and Rewa Ultra Mega Solar Power Project. Retrived from: https://www.cenfa.org/world-bank-group-and-rewa-ultra-mega-solar-power-project/

25 Center for Financial Accountability (October 2021). Are Mega Solar Projects Really the Energy Alternatives We are Looking at? Retrieved from: https://www.cenfa.org/are-mega-solar-projects-really-the-energy-alternatives-we-are-looking-at/

26 World Bank (March 2022). Environmental and Social Review Summary. Chile Green Hydrogen Facility to Support a Green, Resilient, and Inclusive Economic Development (P177533). Retrived from: https://documents1.worldbank.org/curated/en/099610103102280265/text/Concept0Enviro0evelopment000P177533.txt

27 Seeger, M. (2023). 'The New Energy El Dorado?' The World Bank's Role in Promoting Green Hydrogen in Chile. Sustentarse

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