

2018

Sustainable energy in Mongolia

Case study on synergies between climate finance mechanisms

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1 Executive summary

Mongolia has been benefitting from significant climate mitigation funds. Its coal and resource-extraction based economy has been growing over the last decades, leading to growing energy needs but also favorable investment frameworks, and the trend to urbanization provides significant opportunities for energy efficiency. GEF, SREP and GCF have been providing climate finance through EBRD, the World Bank, UNDP, ADB and the first private sector national Direct Access Entity, XacBank. Climate mitigation initiatives have been active in the SME sector, in building energy efficiency, and in on-grid renewables.

The synergies that have been created between the respective climate finance initiative are significant. Firstly, within the sectors, it is evident how initiatives build on each other. For example, in building energy efficiency, XacBank uses the standards that were developed under the UNDP/GEF project for assessing mortgages and supports the supply chain for efficient building envelopes with its sustainable small business loan programme. Among other things, this clearly demonstrates the benefits of national Direct Access Entities.

The benefits of having consistent country investment planning come out clearly in the activities around the SREP's investment plan: the research that was done for the planning exercise pointed to the imperfections in the policy regime and helped direct SREP funding flows to areas of need and in a way that avoided the crowding out of the private sector activity. The initial investment into the first independent power producer, the Salkhit wind farm, by EBRD provided an important learning object to build a structured investment program around it. This also demonstrates how important the right combination between grants funding and concessional loan funding is – technical assistance which is mainly funded from grants remains a necessary component for the green transition.

Since CIF and GCF funded interventions in Mongolia are addressing sustainable energy and only GEF is addressing climate change adaptation, the analysis of synergies is restricted to sustainable energy.

2 Overview of sector and country

1. Mongolia is a land-locked country in Central Asia with an average altitude of 1,580 m above sea level. With an average annual solar irradiation of 1,400 kWh/m² and a regional wind speed of up to 7.1 m/s at a height of 30 m, Mongolia has very good solar and wind resources.¹
2. Over the past 25 years Mongolia has transformed into a vibrant private economy. In particular, the exploitation of mineral resources has benefitted Mongolia, leading to high growth rates – for example 10.6 % in real output growth on average between 2012 and 2014.² Between 2014 and 2016 Mongolia suffered a sharp economic slowdown by fall in commodity prices. But in 2017 Mongolia's economy recovered strongly with a real GDP growth by 5.1 % buoyed by strong coal

¹ Bundesministerium für Wirtschaft und Energie (BWI), 2015, Länderprofil Mongolei, Informationen zur Nutzung und Förderung erneuerbarer Energien, p: 9

² IDA: Review of IDA Graduation Policy. 2016

exports, a recovery of FDI, and improved business sentiments. In 2018 and for the future, growth trends remain positive.³

3. Mongolia traditionally has a nomadic culture but today most of the population (67 % in 2016) live in urban areas. 45 % of the almost 3 million Mongolians live in the capital Ulaanbaatar, and rapid urbanization is ongoing. When former nomads settle in the periphery of Ulaanbaatar, they often use their traditional yurts (gers) for housing. This way, new residential “ger areas” are created. They often have unserviced plots and unpaved roads. In 2016, an estimated 774,000 residents were living in the ger areas of Ulaanbaatar, in an area of about 350 km². In comparison, the serviced built-up areas of the city center comprise some 130 km.⁴
4. The power sector in Mongolia is a vertically integrated, regulated public system. Both the power generation and distribution capacities and the regulation of the market are in state hands. But the default power source is coal which is mostly burned in combined heat-and-power generation. Of the 1,158 MW in installed capacity, less than 970 MW is available as the power facilities are ageing. According to the ADB, this makes Mongolia the world’s fifth most carbon-intensive economy. Around 20 % of the power consumed in 2017 was imported.⁵
5. So far, renewable energy technologies have mainly been used in off-grid applications to supply power to remote villages and the nomadic population. In the "National Renewable Energy Programme" of 2005, targets set for 2020 were to deploy hydropower of 100 MW, wind energy of 30-50 MW and a total of 100,000 solar home systems. The latter two goals have already been achieved. The official goal of the Mongolian government – for example expressed in the Intended Nationally Determined Contribution to the UNFCCC⁶ - now is to increase the share of renewable energy to 20 % of the country's total installed capacity by 2023 and to 30 % by 2030. The Law on Renewable Energy involves a set of regulatory arrangements with a US Dollar denominated feed-in-tariff (FIT) and has facilitated the deployment of 137 MW of solar photovoltaic (PV) and wind power plants.⁷
6. Private sector investors are developing wind and renewables generation including the country's first grid-connected wind farm (Salkhit Windfarm) since 2013. In 2007, a specific Renewable Energy Sources Act was passed which, among other things, sets feed-in tariffs for the various renewable energy technologies.⁸ Renewable energies accounted for 12 % of installed capacity in 2017.

³ <https://www.worldbank.org/en/country/mongolia/overview>

⁴ GCF & Asian Development Bank, 2018, F077: Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project (AHURP), p: 17

⁵ ADB PAM 50088-002

⁶ INDC of Mongolia

⁷ ADB PAM 50088-002

⁸ Bundesministerium für Wirtschaft und Energie (BWI), 2015, Länderprofil Mongolei, Informationen zur Nutzung und Förderung erneuerbarer Energien, p: 6-13

3 Context and timeline of GEF, CIF and GCF interventions

7. Mongolia has been successful in attracting climate finance mitigation funds at scale, through different channels and from different sources. It is benefitting from Green Climate Fund resources through International Access with EBRD, and through a national Direct Access Entity, XacBank. In addition, it is a SREP country with ADB as the lead agency of the investment plan. Prior to these two funding streams it has also benefitted from GEF climate change funds, through the World Bank and through UNDP.
8. Since CIF and GCF funded interventions in Mongolia are addressing sustainable energy and only GEF is addressing climate change adaptation (e.g. in the thematic areas of land degradation, carbon sink enhancement and forest protection, livestock adaptation, etc.) the analysis of synergies is restricted to sustainable energy.

3.1 Timeline

9. Figure 1 illustrates the timeline of climate-financed interventions in Mongolia since 1997. Annex I contains the full list of project titles, implementers, financing sources and financial volumes of these projects. In the following, the cookstoves projects will not be discussed in more detail.

Figure 1 Timeline of climate financed interventions in Mongolia (Small business loans for investments into more sustainable energy and Buildings energy efficiency)

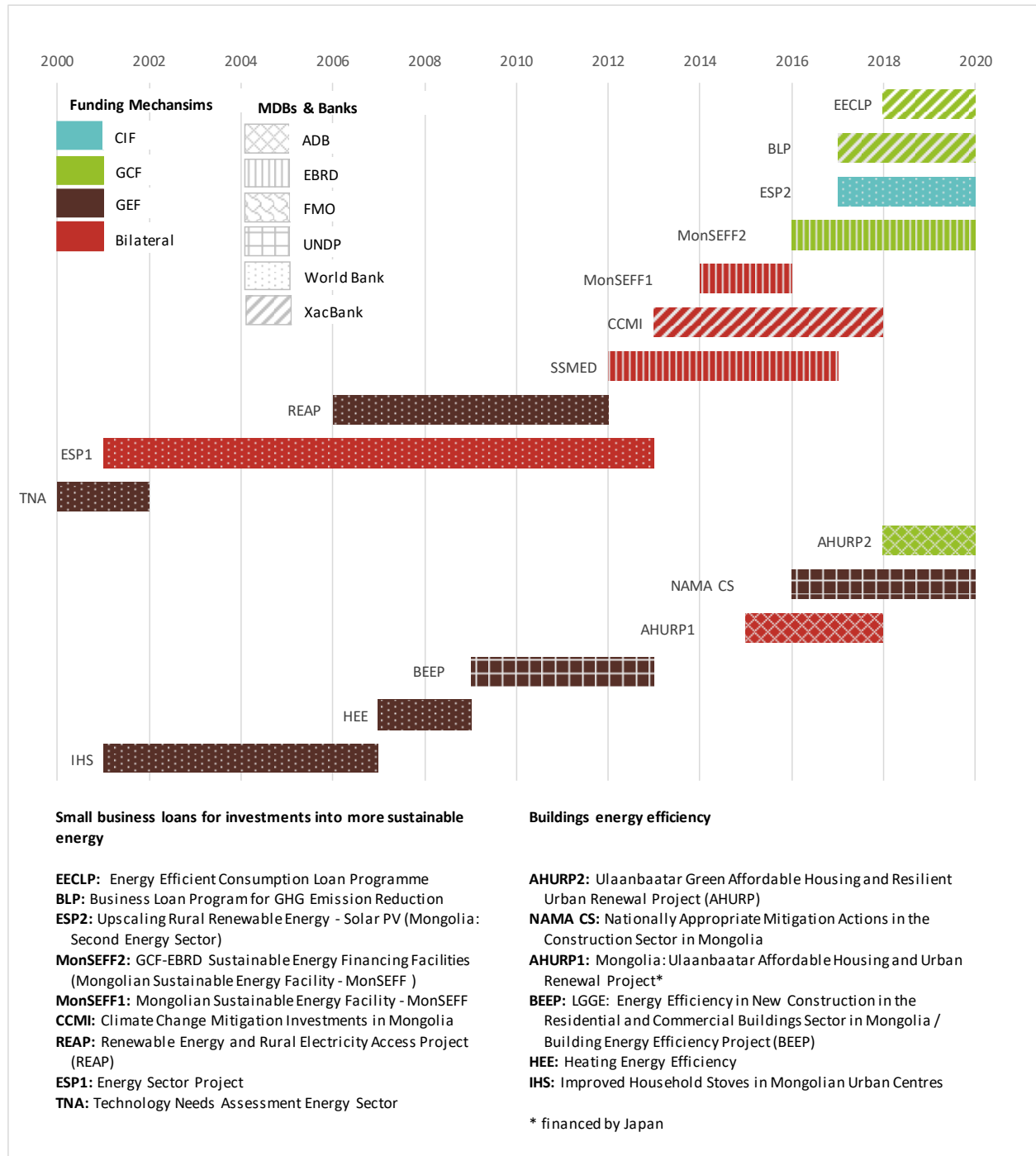
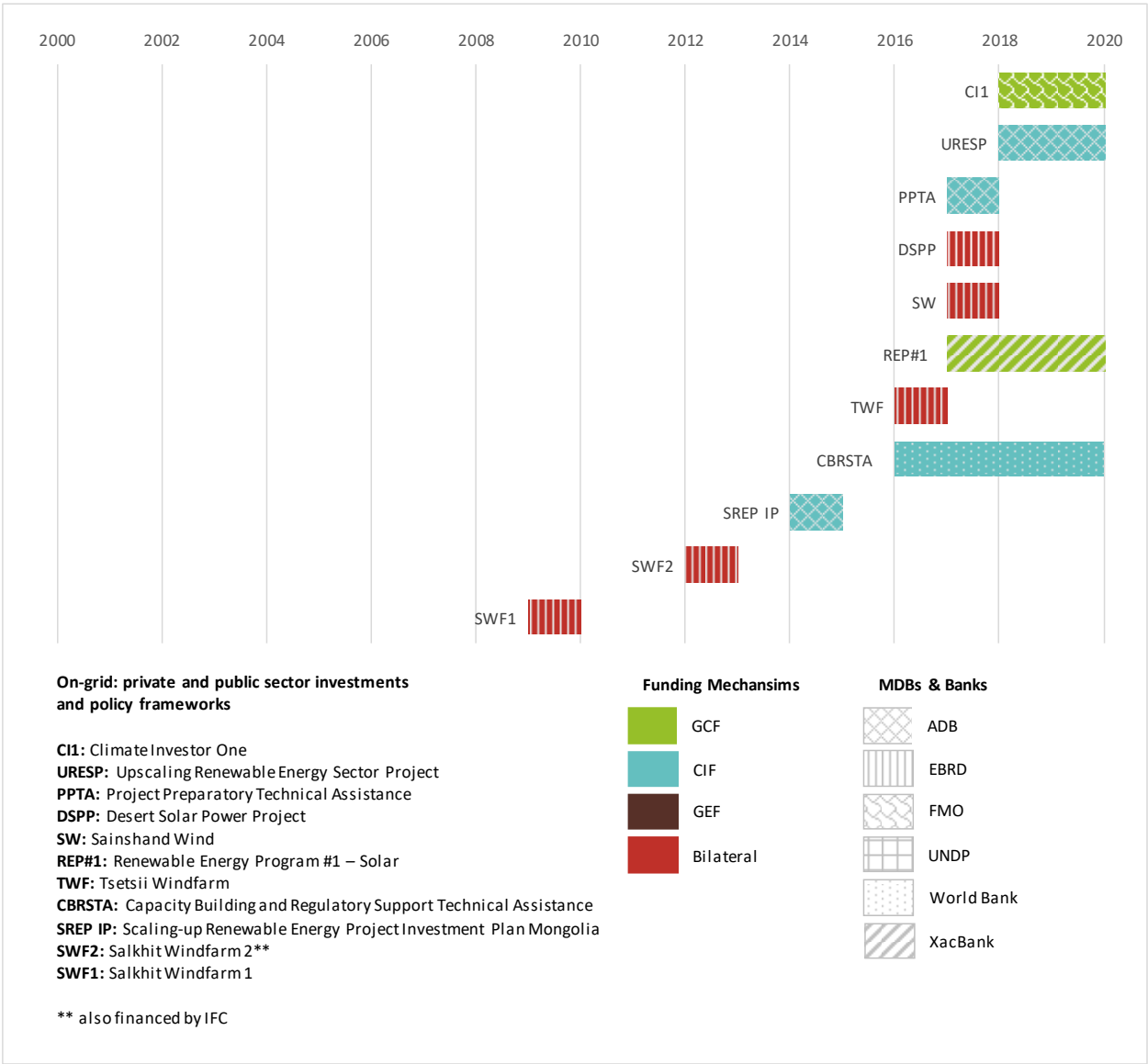
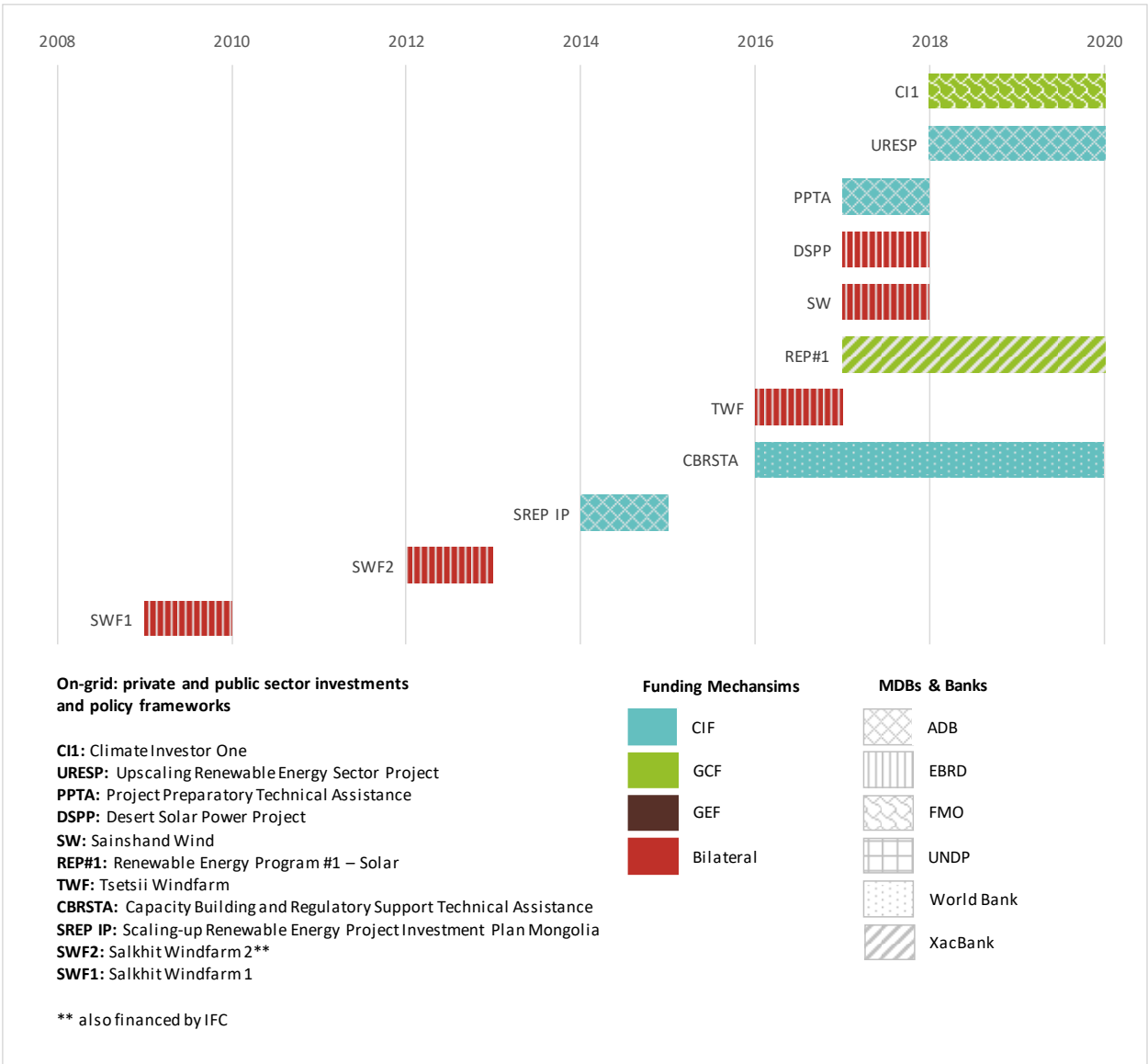


Figure 2 Timeline of climate financed interventions in Mongolia (On-grid: private and public sector investments and policy frameworks)





10. In the 1990s, the World Bank was the only climate-finance accessing entity that was working in Mongolia. The range of entities that were active in Mongolia, as well as the number of climate finance mechanisms that supported these activities, increased continuously over the years. They widened in terms of scale and scope – initially, only rural and off-grid energy technologies were included, but increasingly energy efficient buildings and on-grid renewable energy generation gained importance.
11. 2009 was a year in which a significant number of projects started. For example, UNDP and the Government of Mongolia implemented the GEF-financed project *LGGE: Energy Efficiency in New Construction in the Residential and Commercial Buildings Sector in Mongolia / Building Energy Efficiency Project (BEEP)* from 2009 until 2013. In the same period, EBRD invested in the Salkhit Wind Farm as one of the first pure private sector-led efforts. Both efforts led to larger sectoral developments and ensuing climate financed initiatives, which are described in the next chapters.

3.2 Timeline of climate finance support to sectoral development

12. As this quick timeline highlights, climate financing has enabled Mongolia to drive mitigation forward on three “strands”: on-grid renewables, small business loans for renewable energy and energy efficiency, and building energy efficiency. It is noteworthy that the national Direct Access Entity is active in all three areas. The following discussion attempts to illustrate how the climate finance projects are building on each other in each of these themes.

3.2.1 Small business loans for investments into more sustainable energy

13. A definition of Small and Medium Sized Enterprises (SME) was introduced in Mongolia only in 2007.⁹ While during the resource boom years, other sectors were in the forefront of development, the reduced growth rates afterwards brought a focus on SMEs in Mongolia as a source for domestic growth and investment. Development efforts of a number of donors focused on the development of small and medium sized businesses,¹⁰ among others with the REAP project of the World Bank. EBRD conducted various initiatives, including a large-scale SME partnership funded by the European Union which started in 2012, with € 3.8 million from the EU and € 400.000 from the EBRD, focusing on the improvement of the business environment and advise to entrepreneurs and supporting organizations.¹¹ IBRD, ADB and USAID are also active in SME support.¹²
14. This REAP project, implemented between 2006 and 2012, strived to increase access to electricity for the nomadic herder population and in off-grid Soum Centres (SC).¹³ While the project exceeded the planned 50,000 units of solar home systems (SHS) and small wind turbine systems (WTS) by about a third (17,224 units),¹⁴ it was generally not considered very successful in stimulating private sector activity around providing solar home systems. The units covered 62.5 % of the herder population in

⁹ IFC, 2014, Market Research on Women-owned SMEs in Mongolia.

¹⁰ OECD, 2016, p: 16 & 17

¹¹ <https://www.ebrd.com/cs/Satellite?c=Content&cid=1395248124416&d=Mobile&pagename=EBRD%2FContent%2FHublet>

¹² <https://www.usaid.gov/mongolia/fact-sheets/reach-project-small-and-medium-enterprise-access-credit>; the Asian Development Bank had a workshop on the SME sector in Mongolia.

¹³ GEF & World Bank, 2006, Project Appraisal Document, p: 5

¹⁴ Independent Evaluation Group (IEG), 2013, ICR Review, p: 3

331 Soum Centers. The second component of the project was to rehabilitate mini grids in 30 Soum Centers and install new technology equipment in 20 Soum Centers. But only in 15 Soums, mini grids were rehabilitated, and new technologies equipment was installed in only 15 Soum Centers.¹⁵ For the observers, the major impact of this project was actually on small business development, either because they would use solar systems in their business processes, or because their businesses were selling and maintaining solar systems.

15. Still, growing the SME sector was a major focus of economic development activities in Mongolia and also of climate finance instruments. A major initiative in this respect globally is the bilaterally-funded Global Climate Partnership Facility GCPF. Deutsche Bank as the fund manager of the GCPF started a collaboration with XacBank (cf. Box 1) for financing energy efficiency and renewable energy in the SME sector as well as the corresponding supply chain in Mongolia in 2013.¹⁶ The GCPF contribution was US\$ 20 million.

Box 1 XacBank

XacBank is a wholly owned subsidiary of the TenGer Financial Group (“TFG”), a diversified holding company of various financial services companies. TenGer is “the only Mongolian financial institution which is majority owned by a broad base of globally recognized institutional investors.”¹⁷ These include the International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD). XacBank has been founded in 2001 and provides a standard range of banking products for commercial and private customers. It has 94 branch offices in Mongolia and 1,600 employees.¹⁸ It is the only bank in Mongolia with a dedicated eco-banking department.

XacBank was created as a merger of a dedicated SME bank (Goviin Ekhiel LLC) and a microfinance institution (X.A.C. LLC) in 1999, both of which had been created in the context of ODA projects. While building up consistent and comprehensive retail and commercial banking structures, it also kept pursuing its original purpose of financing local development and private consumption. The first eco-relevant product that XacBank focused on were efficient stoves in 2010, financed through its microfinance operations.

In 2015, XacBank applied for GCF accreditation, with the intention of scaling up the “focus on climate change in its operations in the future.” Its institutional assessment and completeness check was completed on 25 December 2015 and the Accreditation Review on 13 May 2016.¹⁹ It was approved as a National Accredited Entity for direct access at B.14.

It is also an important national stakeholder in consultations on the development of sectors that are considered relevant for climate change in Mongolia. For example, they were also consulted on the SREP IP – even though there was no direct access opportunity for them here – and they organize the Mongolian Green Financing Forums.²⁰

¹⁵ Independent Evaluation Group (IEG), 2013, ICR Review, p: 3

¹⁶ <https://www.db.com/cr/en/concrete-gcpf.htm>

¹⁷ <https://www.xacbank.mn/tengerfinancialgroup>

¹⁸ <https://www.xacbank.mn/page/about>

¹⁹ GCF B.14/15 REV

²⁰ <http://mongolia.gogo.mn/r/161558>

16. Around the same time, EBRD expanded its long-standing transnational effort around Sustainable Energy Financing Facilities (SEFF), and SME finance experience to Mongolia. In line with their standing practice in other countries, EBRD developed a local strand of the SEFF, the MonSEFF, in order to facilitate loans to SMEs specifically for investments into renewable energy and energy efficiency. It partnered with two local banks, the third largest – Khan Bank – and fourth largest, which was XacBank. Starting operation in 2014, XacBank used it together with the GCPF funds for an expansion of the already established *Energy Efficiency and Renewable Energy in SMEs* facility.
17. XacBank uses these funds as co-financing for their *Business Loan Program for GHG Emission Reduction*,²¹ a direct access GCF project which started in 2017 and is estimated to close in 2025. The objective is to promote the use and the production of energy efficient and renewable energy solutions in the Mongolian market. The activities focus on identifying and financing of renewable energy and energy efficient projects, capacity building and increasing awareness.²² The loans are for businesses investing in solar or wind energy. In the case of solar energy, they have clients who are importing solar panels and sell them to rural herders for off-grid electricity. Currently 10-15 % of the loans are used for solar projects.²³
18. More recently, with the global funding from the GCF for the Sustainable Energy Financing Facility (FP025), and in light of the internal Green Economic Transformation Strategy, EBRD is expanding its global SEFF effort into a Green Economy Financing Facility GEF.²⁴ XacBank has paid back the MonSEFF loan to EBRD²⁵ who will continue its local activities in Mongolia under the successor programme MonGEFF, in synergy with the “global” EBRD efforts.²⁶ This means that the purposes for which finance is available for small businesses in Mongolia will be broadened to include water and materials efficiency and other green production aspects.

3.2.2 Building energy efficiency

19. Throughout the last two decades, Mongolia was characterized by strong urbanization trends, including settlements with yurts in ger districts. New construction in various segments provided for 10% of national GDP in 2013.²⁷ Burning of coal for heat and cooking in these homes led and still leads to very poor air quality specifically in Ulaanbaatar. According to the ADB concept note for the GCF, there is a total of 35 initiatives for a cleaner urban development planned or ongoing in Ulaanbaatar.²⁸
20. Two IBRD/GEF projects addressed the issue of coal consumption and air quality: *Improved Household Stoves in Mongolian Urban Centers* (2001 – 2007) attempted to distribute improved Ger heating stoves and to transfer the experience to other urban centres of Mongolia. In this project 16,940 improved heating stoves have been disseminated mainly in Ulaanbaatar. But the dissemination mechanism was not sustainable by the end of the project and it is likely that sales dropped after the

²¹ <https://www.xacbank.mn/page/esms?lang=en>

²² GCF & XacBank, 2016, Funding Proposal 028, p: 5 & 15

²³ Acc. to note transmitted by XacBank

²⁴ Cf. <https://ebrdgeff.com/>

²⁵ Communication EBRD

²⁶ Interview Friso de Jong

²⁷ IFC, 2014

²⁸ ADB, 2017, p: 4

project.²⁹ The second IBRD/GEF project, *Heating Energy Efficiency* was to reduce system losses of DH services in Ulaanbaatar and Darkhan.³⁰ The project was approved in 2007 but was cancelled in 2009.³¹

21. According to stakeholder interviews, the UNDP project *LGGE: Energy Efficiency in New Construction in the Residential and Commercial Buildings Sector in Mongolia / Building Energy Efficiency Project (BEEP)*, implemented between 2009 and 2014, had significant lasting impact. This Medium-sized Project has raised awareness and availability of quality knowledge products on energy efficient building design and construction that did not exist prior to the project. 223 new individual houses with lower coal consumption were built with technical assistance of the BEEP.³² It also led to the creation of the “Building energy efficient centre”, a university laboratory. (XacBank is still collaborating with this laboratory to measure energy efficiency.) The project trained more than 2,000 people on various aspects of energy efficiency in buildings and houses, including the concept of energy conservation in buildings, improvements in building design, use of insulation materials and energy labeling. One of the housing construction companies committed to build new houses using the building codes developed by the BEEP. It provided “very good sets of studies, reference material, awareness building and advisory support to the government officials of national, provincial and city governments to ensure buildings and houses” to be constructed in the future in compliance with the new building codes. In this project, UNDP was also working together with XacBank who provided housing loans of about US\$ 126,000 to households that had been supported by the project and continued to provide eco-loans to home owners after the project.³³
22. Building on this work, UNDP helped the government to raise GEF funds for *Nationally Appropriate Mitigation Actions (NAMA) in the Construction Sector in Mongolia*, and to start implementation in 2016. The Ministry of Construction and Development is the executing entity of this NAMA project and the Ministry of Environment and Green Development as well as the Ministry of Energy are the implementing entities.³⁴ This project “is distinct to, and bolsters the impacts of previous projects relevant to the buildings energy efficiency sector such as the UNDP/GEF Building Energy Efficiency Project (BEEP)”³⁵, and focuses mainly on building up an MRV system for the buildings and construction sector in Mongolia. Overall in Mongolia “three out of the five NAMAs submitted to date focus in on mitigation potentials within the building sector.”³⁶
23. The BEEP project “was able to engage mostly with small to medium sector private enterprises such as property developers, manufacturers and suppliers of energy efficient products, catering to small and single family homes and apartments” through awareness raising and capacity building workshops. It did not address large-scale property developers targeting higher income families (e.g., luxury apartments, high-rise residential buildings, etc.) and large commercial properties (hotels, office

²⁹ GEF, 2007, p: 1

³⁰ World Bank, 2000, Project Brief, p: 5

³¹ <https://www.thegef.org/project/heating-energy-efficiency>

³² UNDP/GEF, 2014, Terminal Evaluation Report, p: 24-25

³³ UNDP/GEF, 2014, Terminal Evaluation Report

³⁴ GEF, 2012, Project Document, p: 1 & 8

³⁵ GEF, 2014, Project Identification Form, p: 4

³⁶ NDC Partnership, 2017, NDC Country outlook Mongolia, p: 4

buildings, retail buildings, etc.). This was partly due to limited resources available in the BEEP and partly because the project essentially targeted lower to middle income population.³⁷

24. The ADB/GCF-Project *Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project (AHURP)* was approved in 2018 and is the follow-up project of the bilaterally-funded ADB project *Ulaanbaatar Affordable Housing and Urban Renewal Project*.³⁸ Its objective is to support the development and construction of climate-resilient and low carbon eco-districts in ger areas, supported by a GCF loan, and a green building subsidy facility funded by a GCF grant.³⁹ XacBank is very interested in participating in the project⁴⁰ and shared a lot of their insights from the UNDP BEEP project with the ADB during their project development.⁴¹
25. GIZ has worked on a building retrofit program in Mongolia.⁴² ADB and UNDP as well as USAID have analyzed and tested various approaches to improving apartment house energy efficiency and concluded that expanded polystyrol (EPS) blocks would be a cost-effective way to save significantly on heating energy. XacBank has used this knowledge and identified lending opportunities through their green mortgage programme. In its operational policies, it directly links to the standards and to the type of energy audits introduced through the UNDP/GEF BEEP programme. But they also understood that this provides an important market for companies that they could support through their small business programme and developed a small lending portfolio of three companies that now provide insulation materials to the Mongolian construction market.⁴³

3.2.3 On-grid renewables: private and public sector investments and policy frameworks

26. Mongolia has exceptional wind and solar resources. It is therefore not surprising that the government intends to exploit them for on-grid renewable power generation, with the help of climate finance. But it is particularly remarkable that the first major wind farm investment was not only an IPP that was completely private-sector originated, but the local sponsor Newcom Ltd. – an energy sector investor and mobile communications enterprise – had approached EBRD to acquire an equity stake in the SPV for Salkhit, without special support through a climate finance mechanism. This was a very unusual investment constellation in 2009 and would have been unusual even in countries with much better developed country frameworks or infrastructural preconditions. After Salkhit had reached investment maturity, EBRD also provided a loan for it.
27. EBRD and their private sector partners continued to work on the development of further wind and solar power plants. But this proved more and more difficult. By 2013, when EBRD, ADB and IBRD went to Mongolia for the discussion of the project for the SREP Investment Plan, Salkhit had not performed

³⁷ GEF, 2014, Project Identification Form, p: 5

³⁸ <https://www.adb.org/projects/49169-002/main#project-pds> & <https://www.adb.org/projects/49169-001/main>

³⁹ GCF & Asian Development Bank, 2018, Funding Proposal 077: Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project (AHURP), p: 8

⁴⁰ GCF & Asian Development Bank, 2018, Funding Proposal 077: Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project (AHURP), p: 42

⁴¹ Interview with Tuul Galzagd, Director, Eco Banking Department, Greg Zegas, Senior Project Development Officer, EBD and Anand Batsukh, Senior Project Development Officer, EBD (26.09.2018)

⁴² SREP IP, 2015, p: 53

⁴³ Short analysis on XacBank's activities in energy efficient housing, provided by A. Batsukh on 26.09.2018

to expectations. While technically fully operational, it suffered from significant curtailment,⁴⁴ and the off-taker of the power – the National Transmission Company (NTC) - was not consistently able to compensate the independent power producer (IPP) for the power that the wind farm produced. While the EBRD had two other IPP investment prospects under development, the discussion process around the Investment Plan identified these risks as a challenge to the further private –sector oriented on-grid renewable energy development until the policy framework was improved. The Investment Plan therefore focuses on public investments in upscaling rural RE and demonstrating MW-scale RE in the Western Region Energy System and, in parallel, improving RE policies and regulation for the central grid where private sector is already developing renewable energy plants. The expectation is that this foster growth in the medium to long-term through ambitious scale-up.⁴⁵

28. The investment plan is devoting significant attention to studying the challenges faced by Salkhit in great detail. It represents an excellent effort of the Mongolian Government – with the help of renewable energy experts funded by the CIFs – to take stock of the current challenges for deploying on-grid renewables in Mongolia. It discusses whether the height of the purchase price for renewable electricity should be adjusted (answer: no, the current level of the feed-in tariff would be sufficient), what the operational challenges of the Salkhit wind farm are (answer: the curtailment that is mainly occurring when the coal-heated boilers cannot be ramped down), whether the refinancing system of the feed-in tariff is sustainable (answer: no, the payments negatively influenced the ability of the NTC to borrow money from the private sector for much needed investments) and several other barriers in the market framework, including some uncertainties regarding dispatch and deployment rules, the perceived risks around the need for curtailment, grid issues, and the lack of availability of financing.⁴⁶
29. Several fixes to the framework had already been undertaken in the time between the research for the Investment Plan and the actual finalization of that document. The duty to balance the feed-in tariff account was transferred away from the NTC to another public entity. The de-facto balancing power generator CHP4 is now receiving capacity payments for providing back-up capacity. The Investment Plan therefore expects the policy regime to develop effectiveness soon and finds that there is no added value in providing more funding for the private sector led on-grid initiatives in the central part of the Mongolian power grid, but that there is still scope for improvements in the policy regime, and the SREP should provide funds for technical assistance for strengthening renewable energy regulations to create enabling environments for private led renewable energy development.⁴⁷ In this track, the World Bank is now working to support the Government of Mongolia in the context of the SREP-funded project “Capacity building and Regulatory Support Technical Assistance” in exactly those aspects in the enabling environment that had been identified as barriers to further IPP investments in renewables in the central energy grid.
30. Ultimately, already the discussion process around the SREP investment plan, and the contemporaneous changes in the government policies, led to a situation where then EBRD was again more confident to drive further three more IPP investments (two wind and one solar power plant). In addition, XacBank

⁴⁴ i.e. the wind turbine was not able to hand over its power to the consumer as the power grid was not stable enough.

⁴⁵ SREP IP, 2015, p: 19 & 20

⁴⁶ SREP IP, 2015

⁴⁷ SREP IP, 2015. Another track of the SREP funds will be providing investment funding for upscaling rural renewable energy through learning by doing in the other two energy grids, in the East and West of Mongolia.

was also able to finance a solar IPP, for which it received a US\$ 8.6 million loan and US\$ 877,846 grant from the GCF. This project will provide lending to the solar project in Sumber soum of Govisumber province with a loan tenor of 10 years,⁴⁸ also paying down the cost of capital for the project sponsor, ESB Co. Ltd., as commercial lending rates are prohibitively high (18-25 % in local currency and 8-12 % in US\$).⁴⁹ In addition, the GCF-supported private equity fund Climate Investor One can use their funding for IPPs in Mongolia.⁵⁰

4 Findings regarding synergies

4.1 Complementarity of the climate finance mechanisms can be created when country coordination and planning are combined with long-term engagement

31. Mongolia provides a number of **interesting examples for how access to different climate funds can be used to design complementary projects**. Firstly, EBRD's MonSEFF initiative is a national "off-spring" of EBRD's family of Sustainable Energy Finance Facilities (SEFFs). It has served as a kind of anchor to establish relationships with local banks through which local businesses can receive growth and investment capital for sustainable energy. It can serve as a funnel for several types of climate finance. For example, the global EBRD-GCF project "Sustainable Energy Financing Facilities" which is an EBRD-internal scale-up initiative for the SEFFs will fund its successor MonGEFF with GCF funds. With this modality, EBRD can combine different programs from the perspective of the climate funding mechanisms, into one tool for the local beneficiaries, helping them to become accustomed to it, and helping the tool to continuously expand its scale, scope and impact.
32. **This continuity enhances the quality of the global support**. EBRD was participating in the SREP Investment Planning process. It supported the logistics of the joint mission of the MDBs to the country, and it supported the consultant in his analysis of the renewable energy investment conditions. It was able to do that efficiently and effectively as it had the necessary local knowledge and partnerships, due to its long-standing engagement. This facilitated the collaboration between the Government of Mongolia and the MDBs and enabled the government to clearly ascribe roles and responsibilities for each of the MDBs in the context of the investment plan.

4.2 Building up the first private sector national Direct Access Entity of the GCF

33. **Through engagement of MDBs supported by climate finance XacBank could develop a profile of the first national financial sector institution⁵¹ that was a Direct Access Entity to the Green Climate Fund**. Since 2014, XacBank had collaborated with EBRD in climate-relevant areas. EBRD had already worked

⁴⁸ https://unfccc.int/sites/default/files/resource/Session%207_Tuul%20Galzagd.pdf

⁴⁹ The central Bank of Mongolia's policy rate is 14%. Only short loan tenors of 3-5 years are available on the market. Government bonds are priced at 18%.

⁵⁰ <https://www.greenclimate.fund/countries/mongolia>

⁵¹ The Development Bank of South Africa DBSA is also accredited with the GCF but as a global institution.

with XacBank on the establishment of a small business lending program. This led to a number of climate-finance relevant projects and results: For once, the EBRD Facility MonSEFF (Mongolia Sustainable Energy Financing Facility) collaborated since 2014 with XacBank as one of the Partner Banks. Secondly, XacBank was able to also become accredited for direct access to GCF resources –one of the few private sector national entities – and received its first GCF programme in 2017 for *Business Loan Program for GHG Emission Reduction* is a GCF project which started in 2017. It is estimated to close in 2025. The objective is to promote the use and the production of energy efficient and renewable energy solutions in the Mongolian market. The activities focus on identifying and financing of renewable energy and energy efficient projects, capacity building and increasing awareness.⁵²

34. **Through this, synergies are not only created between the multilateral banks, UN Agencies and the local Bank XacBank but also between different climate finance mechanisms.** In this case, the initiatives around energy efficient buildings were funded from both mechanisms of the convention - the GEF as well as the GCF – and through UNDP, ADB and XacBank. And the good relationship between EBRD and XacBank as well as the local competence of both in the renewable energy field, helped guide the design of the SREP investment plan towards the more difficult areas of the Western Energy System. Similarly, XacBank serves as an advisor to ADB in terms of the fundability of energy efficiency measures in the building sector.
35. **This relationship helped grow XacBank qualitatively and quantitatively.** Qualitatively, XacBank is the only bank in Mongolia with a Green Banking Department. This allows the bank to systematically understand how to scale up climate-friendly investment opportunities. By doing that, it also bridges across funding lines of different programs. For example, the business plan on building energy efficiency discusses both home mortgages as well as lending to SMEs in the supply chain for the necessary energy efficiency components. Quantitatively, XacBank has received funding of US\$ 30 million from the GCF alone and contributes to the number 1 place of Mongolia under the recipients of climate finance. XacBank’s funding request to the GCF for the “*Renewable Energy Program #1 – Solar*” was approved in 2018. To be implemented by 2029, it has the objective to finance the “development, construction, commissioning and operation of a 10 MW plant in Sumber soum of Govisumber province.” The plant will be connected to the Central Energy System of Mongolia.⁵³ This is the biggest project XacBank has taken on in the commercial sector.⁵⁴

4.3 Synergies on the country level allow climate financing to reach scale and lead to sectoral transformation

36. **Synergies on the country level between interventions that were funded by different climate finance mechanisms allowed the activity in each sector to reach a scale that allowed to trigger transformational change.** In each of the sectors described above – sustainable energy for SMEs, energy efficiency buildings and on-grid renewable power generation - the interlinkages between the mechanisms were able to mirror the upscaled investment and funding needs. Overall, there is

⁵² GCF & XacBank, 2016, FP 028: Business loan programme for GHG emissions reduction, p: 5 & 15

⁵³ GCF & XacBank, 2017, FP 046: Renewable Energy Program #1 – Solar, p: 23

⁵⁴ Interview with Tuul Galzagd, Director, Greg Zegas, Senior Project Development Officer, and Anand Batsukh, Senior Project Development Officer, all Eco Banking Department, XacBank (26.09.2018)

generally a trend from grants supporting technical assistance to highly concessional loans that provide the necessary investment capital.

37. The first on-grid wind farm in Mongolia demonstrates the importance of learning opportunities.

Salkhit wind farm was a very unusual investment by EBRD who engaged with equity and on the basis of a legal compensation scheme (the feed-in tariff) that was best practice in several other countries at the time. It helped the Mongolian government and the global community to understand challenges that were underlying this compensation scheme in Mongolia, leading to a restart of the technical assistance support in the context of the CIF. The active and research-based collaboration between the government and the MDBs in the process of developing the SREP investment plan was crucial for unlocking investment opportunities for the private sector, for the SREP and for the GCF. It was of fundamental importance that this process was supported by a research effort that analyzed the challenges in the technical and economic framework for on-grid renewable energy sufficiently to find the right corrective action. Some of these measures were already implemented during the IP process. Others will be conducted during the implementation of the SREP-supported technical assistance work with the IBRD.

38. The importance of the right combination of technical and financial assistance components is also highlighted by the synergies in the building energy efficiency theme.

The UNDP/GEF project on building energy efficiency helped develop an understanding of building energy efficiency and associated standards. It highlighted the major energy efficiency opportunities in buildings and technical options to trigger them. After understanding these, XacBank was developing its response in a targeted manner, financing energy efficient construction material companies and giving green mortgages; combining its programs in the SME and mortgage lending activities, and also different funding lines around issues and markets that have been created through climate-financed activities. XacBank's green finance team might be a very special case, as they are specifically looking into green finance opportunities. But the case demonstrates more widely how local actors can benefit from the market transformation in climate-sensitive areas which are fostered through climate finance.

5 Conclusions

5.1 Drivers and supportive factors

39. Mongolia is benefitting from a comparatively high level of climate funding. Among the SREP countries it is the country that receives the highest levels of climate mitigation funding, including from the GCF. This was facilitated by an absence of major political and economic shake-ups, and continued growth and development.

40. Mongolia seems an interesting international investment destination, as indicated by several European investors that are joining forces with EBRD for investments in renewables in Mongolia. The level of investment activity in climate relevant sectors like construction and SME activity is generally high in Mongolia. The climate finance-accessing entities seem to play an important role in it; XacBank as a National Entity benefitting from the support of MDBs and now playing a separate and independent role in climate finance. In addition, in Mongolia the non-climate-financed private sector

is interested in investing in renewable energy and possibly other opportunities: The Salkhit Wind Farm's owner Newcom is one of the biggest telecom providers in Mongolia, and Salkhit was its first venture into this new field of investment. In addition, other investors are also starting IPP initiatives in Mongolia. The new GCF funded project "Climate Investor One" is also active in Mongolia.

41. **Institutional continuity was key to synergies** – EBRD and XacBank have long-standing engagements, and a long history of collaboration. XacBank is systematically building up its green banking arm and can be expected to keep driving local action towards green growth qualitatively and in terms of investment volume.

5.2 Barriers and challenges

42. **Private and public sector green transformation need to align in speed and magnitudes.** EBRD was successfully pushing private sector IPPs, even financing the first 50 MW wind farm with its own equity and keeping up the movement with follow-on investments in private IPPs in wind and solar, seemingly implying that the investment environment was mature enough. However, important barriers led to several projects not taking off, requiring significant persistency and patience until the barriers were removed.
43. **Lack of capacity and lack of link with global best practices can pose significant limitations on providing good policy frameworks and consistently staying on a green growth path.** It cannot be expected that countries have sufficient competence to understand all best practices and pit falls for the effective deployment of renewable energy and energy efficiency in power sector, SMEs and buildings. The global community, and specifically the MDBs are called upon to support but not over-challenge the local policy makers and investors, including by providing financial but also and specifically technical resource and access to the international body of lessons and experiences.
44. **Policy changes and incomplete policy implementation.** Mongolia is a resource-driven economy. While resource extraction – including coal extraction – was responsible for the economic growth in the last years, it is not particularly easy to consistently agree and maintain a growth path that avoids additional coal emissions in such a macroeconomic situation. But Mongolia is also blessed with abundant renewable energy resources. Yet a more strategic exploitation of that resource also for heating purposes still requires a significant additional effort.

5.3 Policy recommendations

45. **Governments should have the opportunity to coordinate climate funding with sectoral investments plans that cover all climate funds and agencies.** The CIF Investment Plan has worked well in Mongolia and provided important lessons: it was supported by thorough analysis and included a good coverage of private and public sector experiences as well as stakeholders. This allowed for a thorough planning and planned division of roles between the MDBs, as well as identification and closure of gaps in the policy framework and prevented crowding out of private sector. The case also demonstrates the need for a number of preconditions without which investment planning cannot be successful: there needs to be an open dialogue between the participants (in this case specifically also between the MDBs) where the mutual interests need to be explicitly aligned to avoid harmful competition. In the case of

the CIF these were required for purposes of coordination between the MDBs. Understanding better the lessons and possibilities to expand that process into national planning and NDCs would be a helpful step towards more effective and synergistic climate funding.

46. **Build up competent and ambitious local institutions.** Provided with international level competence and capacity, they can often understand the local environment better than international agencies, particularly in small countries. They can combine this with their access to local stakeholder groups and investors. If they are motivated to expand their business – like financial institutions would be if the investment opportunities are comparable in profitable to other opportunities – they will search for novel opportunities and provide scale-up with their own resources. This can contribute effectively to local green growth and development.
47. **Combine capacity building and grant-financed technical assistance and investment funds in a strategic and systematic manner.** Most mitigation areas require some kind of ongoing support, either because policy frameworks need to be constantly improved and adjusted, or because investors need support in understanding investment opportunities. This is an important role of climate finance but requires that highly concessional funds are complemented with grants.
48. **Identify most relevant areas to avoid future emissions growth,** specific to the country by looking beyond the direct next step. In Mongolia, for example, most emissions result from burning coal in CHPs for home heating – they are currently indispensable. Coal is also an important domestic resource for Mongolia for export. A green growth path should help countries like Mongolia understand (and then deploy) carbon-free options for improving lifestyles and leveraging growth opportunities while maintaining cultural and social integrity.

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Annex I. List of climate-financed interventions in Mongolia

No	Project Name	Implementation	Volume	Financed by	Implemented by
Small business loans for investments into more sustainable energy					
1	Technology Needs Assessment in Energy Sector	2000-2002	GEF US\$ 98,000 (Grant) Total project cost US\$ 113,000	GEF	World Bank
2	Energy Sector Project	2001-2013	IDA US\$ 30 mio. (Loan) Total project cost US\$ 30 mio.	World Bank	World Bank
3	Renewable Energy and Rural Electricity Access Project (REAP) / (RERA)	2006-2012	GEF US\$ 2.46 mio. (Grant) GEF US\$ 315,000 (Agency Fees) IDA US\$ 3.43 mio. (Grant) Recipient US\$ 10 mio. Netherlands US\$ 5.85 mio. Total project cost US\$ 22.23 mio.	GEF	World Bank
4	Support for SME Development in Mongolia	2012-2017	EBRD 9.3 mio. € (for indirect financing via credit lines, providing financing, risk sharing, business advice and policy dialogue)	EBRD	EBRD, together with Mongolia's SME Agency
5	Climate Change Mitigation Investments in Mongolia	2013-2018	GCPF: US\$ 20 mio. (Loan)	GCPF	XacBank
6	Mongolian Sustainable Energy Facility - MonSEFF	2014-2016	EBRD US\$ 45 mio. (Loan)	EBRD	XacBank Khan Bank

No	Project Name	Implementation	Volume	Financed by	Implemented by
7	GCF-EBRD Sustainable Energy Financing Facilities / Mongolian Sustainable Energy Facility (MonSEFF)	2016-2033	GCF US\$ 344 mio. (Loan for all countries) GCF US\$ 34 mio. (Grant for all countries) EBRD US\$ 973 mio. (Loan for all countries) EBRD & Bilateral/Multilateral donors US 34 mio. (Grant for all countries) EBRD US\$ 25 mio. (Mongolia: Corporate Energy Efficiency Loan & Renewable Energy Investments)	GCF	EBRD
8	Upscaling Rural Renewable Energy - Solar PV (Mongolia: Second Energy Sector Project)	2017-2022	IDA US\$ 42 mio. (Loan) CIF (SREP) US\$ 12.4 mio. (Loan) Co-financing US\$ 1 mio. Total project cost US\$ 55.4 mio.	CIF	World Bank
9	Business Loan Program for GHG Emission Reduction	2017-2025	GCF US\$ 19.5 mio. (Loan) GCF US\$ 500,000 (Grant) Global Climate Partnership Fund 20 mio. (Loan) EBRD US\$ 15 mio. (Loan) DWM Securitizations US\$ 5 mio. (Loan) Total project cost US\$ 60 mio.	GCF	XacBank
10	Energy Efficient Consumption Loan Programme	2018-2028	GCF US\$ 9 mio (Loan) GCF US\$ 1 mio. (Grant) XacBank US\$ 9 mio. Renewable Energy, Environment and Solidarity Group US\$ 2.5 mio. (Grant)	GCF	XacBank
Buildings energy efficiency					
11	Improved Household Stoves in Mongolian Urban Centers	2001-2007	GEF US\$ 750,000 (Grant) GEF (PDF) US\$ 25,000 GoM US\$ 147,363 Private Manufacturers US\$ 650,000 Total project cost US\$ 1,572,363.00	GEF	World Bank

No	Project Name	Implementation	Volume	Financed by	Implemented by
12	Heating Energy Efficiency	2007-2009 (Project cancelled)	GEF US\$ 7.2 mio. (Grant) IDA US\$ 15 mio. Others US\$ 5 mio. Total project cost US\$ 27.2 mio.	GEF	World Bank
13	LGGE: Energy Efficiency in New Construction in the Residential and Commercial Buildings Sector in Mongolia / Building Energy Efficiency Project (BEEP)	2009-2013	GEF US\$ 1 mio. (Grant) Co-financing US\$ 2,840,000 Total project cost US\$ 3.84 mio.	GEF	UNDP
14	Mongolia: Ulaanbaatar Affordable Housing and Urban Renewal Project	2015-2018	Japan Fund for Poverty Reduction US\$ 1 mio.	ADB	Japan Fund for Poverty Reduction
15	Nationally Appropriate Mitigation Actions in the Construction Sector in Mongolia	2016-2020	GEF US\$ 1,269,863 (Grant) GEF US\$ 120,637 (Agency Fees) Ministry of Construction and Urban Development US\$ 200,000 (In-kind) Ministry of Construction and Urban Development US\$ 100,000 (Grant) Ministry of Environment and Green Development and Ministry of Energy US\$ 150,000 (In-kind) Ministry of Environment and Green Development and Ministry of Energy US\$ 50,000 (Grant) Private Sector US\$ 2,479,452 (Loan) Private Sector US\$ 2,000,000 (Investment) UNDP US\$ 50,000 (Grant) UNDP US 50,000 (In-kind) Total project cost US\$ 8,269,863	GEF	UNDP

No	Project Name	Implementation	Volume	Financed by	Implemented by
16	Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Project (AHURP)	2018-2026 (2058)	GCF US\$ 95 mio. (Loan) GCF US\$ 50 mio. (Grant) ADB US\$ 80 mio. (Loan) Banks US\$ 111.4 mio. (Loan) Developers US\$ 103.7 (Equity) Beneficiaries US\$ 63.9 mio. (Equity) Ulaanbaatar US\$ US\$ 35 mio. (Equity) HTL Fund US\$ 5 mio. (Grant) Total project cost US\$ 544 mio.	GCF	ADB
On-grid: private and public sector investments and policy frameworks					
17	Salkhit Windfarm Development	2009	EBRD US\$ 700,000 (Loan) Total project cost US\$ 2.8 mio.	EBRD, World Bank	Newcom Ltd.
18	Salkhit Windfarm Development	2012	EBRD US\$ 5 mio. (Loan) Newcom Ltd.and other development investors US\$ 110 mio. Total project cost US\$ 115 mio.	EBRD	Newcom Ltd.
19	SREP IP	2014-2015	CIF US\$ 300,000 (Grant and low-debt financing)	CIF	ADB
20	Capacity Building and Regulatory Support Technical Assistance	2016-2020	CIF US\$ 1.2 mio. (Grant) Government of Mongolia US\$ 100,000 (In-kind) Total project cost US\$ 1.3 mio.	CIF	World Bank
21	Tsetsii Windfarm	2016	EBRD US\$ 25 mio. (Loan) Co-financing US\$ 95 mio. Total project cost US\$ 120 mio.	EBRD	Newcom Ltd.
22	Renewable Energy Program #1 – Solar	2017-2029	GCF US\$ 8.7 mio. (Loan) Co-financing US\$ 8.9 mio. (Equity) Total project cost US\$ 17.6 mio.	GCF	XacBank
23	Sainshand Wind	2017	EBRD US\$ 30 mio (Loan) Co-financing US\$ 90 mio. Total project cost US\$ 120 mio.	EBRD	Sainshand Salkhin Park LLC

No	Project Name	Implementation	Volume	Financed by	Implemented by
24	Desert Solar Power Project	2017	EBRD US\$ 10,206,750 (Loan) Co-financing US\$ 37,313,500 Total project cost US\$ 47,520,250	EBRD	Desert Solar Power One LLC
25	Project Preparatory Technical Assistance	2017-2018	CIF US\$ 1.5 mio. (Grant)	CIF	ADB
26	Upscaling Renewable Energy Sector Project	2018-2023	SREP US\$ 14.60 mio. (Grant) Japan Fund for the Joint Crediting Mechanism US\$ 6 mio. (Grant) Ordinary Capital Resources US\$ 40 mio. (Loan) Total project cost US\$ 60.6 mio.	CIF	ADB
27	Climate Investor One	2018-2038	GCF US\$ 100 mio. (Grant for all countries) Development Fund US\$ 26.5 mio. (Grant for all countries) CEF Tier 1 US\$ 75 mio. (Grant for all countries) CEF Tier 2 US\$ 310 mio. (Equity for all countries) CEF Tier 3 US\$ 310 mio. (Grant for all countries)	GCF	FMO