



ADAPTATION FUND^{li}

AFB/PPRC.26.b/17

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Project and Programme Review Committee

Twenty-Sixth Meeting

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Agenda Item 9

**OPTIONS FOR FURTHER DEFINING INNOVATION IN
ADAPTATION PROJECTS AND PROGRAMMES**

Introduction

1. The Adaptation Fund Board (the Board) at its thirtieth meeting adopted the Medium-Term Strategy (MTS) in order to guide the work for the Adaptation Fund (the Fund) from 2018 to 2022, which outlines three pillars of work: Action, Innovation, and Learning and Sharing. The objective of the innovation pillar of the MTS is to support the development and diffusion of innovative adaptation practices, tools, and technologies.

2. This objective will be supported through the establishment of a dedicated Innovation Facility, which will include small and large grants in order to (a) roll out successful innovations; (b) scale up viable innovations; (c) encourage and accelerate innovations; and, (d) generate evidence of effective and efficient innovation in adaptation; which would include support via large grants of up to US\$ 5 million as well as small grants of up to US\$ 250,000.

3. At its thirty-first meeting, the Board approved the MTS implementation plan and requested the secretariat:

(b) (iii) To prepare, for each proposed new type of grant and funding window, a specific document containing objectives, review criteria, expected grant sizes, implementation modalities, review process and other relevant features and submit it to the Board for its consideration in accordance with the tentative timeline contained in Annex I to document AFB/B.31/5/Rev.1, with input from the Board's committees;

(b) (iv) Following consideration of the new types of support mentioned in subparagraph (b)(iii), to propose, as necessary, amendments to the Fund's operational policies and guidelines Fund to better facilitate the implementation of such new types of support; and

(b) (v) To monitor the progress of implementation of the MTS and report on it annually as part of the annual performance reports of the Fund, and if necessary, propose possible adjustments to the plan during its implementation in conjunction with consideration of the annual work plan

(Decision B.31/32)

4. The National Implementing Entity (NIE) Innovation Small Grants were launched at the Katowice Climate Conference (COP 24) in December 2018 with two objectives, as defined in the MTS:

(a) New innovations encouraged and accelerated through the development of innovative adaptation practices, tools and technologies; and

(b) Evidence base generated of effective solutions as a basis for scaling up.

5. The Multilateral Implementing Entity (MIE) Aggregator Mechanism was launched at the Madrid Climate Conference (COP 25) in December 2019. The US\$ 10 million programme is implemented by the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP), together with the Climate Technology Centre and Network (CTCN) to administer US\$ 5 million of small innovation grants respectively.
6. The large grants for innovation are yet to be launched and the Board is expected to consider a proposal at second part of its thirty-fifth meeting in October 2020.
7. The Board approved the first two proposals for small grants for innovation at its thirty-fourth meeting in October 2019. During the intersessional period between the first and second part of its thirty-fifth meeting (B.35a – B.35b), the Board decided to approve two further proposals and to defer one proposal.
8. During their consideration of these small grant for innovation proposals, the PPRC members raised questions and expressed views related to the innovative nature of some proposed activities and technologies. At its additional virtual meeting in the B.35.a – B.35.b intersessional period on 26 August 2020, several PPRC members expressed the need for the Committee and the Board to have a more in-depth discussion on the issue of innovation and adaptation to allow the Board to build a better conceptual understanding on funding innovation in relation to adaptation projects.
9. At the same meeting, the secretariat was requested to prepare a paper to clarify the conceptual issues related to innovation and adaptation for the twenty-sixth meeting of the PPRC to facilitate its deliberations on this matter.
10. This document presents the Options for further defining innovation in adaptation projects and programmes, as requested by the PPRC during its additional virtual meeting.

The role of innovation in supporting adaptation to climate change

11. The Theory of Change of the Fund, contained in the MTS, is aligned with Article 7 of the Paris Agreement, which calls for “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change”. The MTS outlines action, innovation and learning as the three pillars of the strategy. The Fund has experience and expertise in a variety of areas of innovative adaptation action such as introducing new financing modalities (for example direct and enhanced direct access), new systems (such as fiduciary standards, accreditation standards and processes), and services (such as the readiness grants and South-South Cooperation Grants).
12. The importance of innovation is highlighted in Article 10 of the Paris Agreement which states the need to “accelerate, encourage and enable innovation for an effective, long-term global response to climate change” (Article 10, paragraph 5). The Paris Agreement does not define what

innovation is within the UNFCCC. Under the UNFCCC, technology transfer refers to the flow of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders. The term 'technology' can include¹:

- (a) Hardware (physical tools);
- (b) Software (knowledge and skills required to use the technology);
- (c) Orgware (institutions, policies, rules, and legislation).

13. In 2010, the UNFCCC established its Technology Mechanism composed of a Technology Executive Committee (TEC) and a Climate Technology Centre and Network (CTCN). The Technology Mechanism supports developing countries to address their nationally determined mitigation and adaptation technology needs. These regional centers are catalyzing investments in adaptation and mitigation technology transfer, through piloting innovative financial instruments with technical assistance. These regional hubs serve as collaborative platforms with the Technology Mechanism of the Convention, including the CTCN. The Paris Agreement also established a technology framework to guide the work of the technology mechanism under Article 10.

14. Under the technology framework advanced in the COP24 decision in Katowice (Decision 15/CMA.1), *Technology framework under Article 10, paragraph 4, of the Paris Agreement*), innovation is the first of five pillars. According to the decision:

6. Actions and activities under this key theme should therefore accelerate and scale up innovation at different stages of the technology cycle, addressing both adaptation and mitigation in a balanced manner to help countries to build resilience and reduce their emissions, and be undertaken in a manner that enhances the effective participation of developing country Parties, fosters sustainable development and ensures gender responsiveness.

7. Fostering innovation could be done through new collaborative approaches to climate technology research, development and demonstration (RD&D); the creation and promotion of relevant enabling policy to incentivize and nurture a supportive environment for innovation; and the active engagement of the private sector and closer collaboration between the public and private sector.

8. Actions and activities in this area of work include:

- (a) Supporting countries in incentivizing innovation by improving the policy environments, strategies, legal and regulatory frameworks, and institutional arrangements for establishing and/or strengthening their national systems of innovation;*
- (b) Providing information and facilitating the sharing of information on international technology RD&D partnerships and initiatives, good practices and lessons learned from countries' climate technology RD&D policies and activities;*
- (c) Promoting the development, deployment and dissemination of existing innovative technologies and accelerating the scale-up and diffusion of emerging climate technologies;*

¹ Christiansen L, Olhoff A, Trærup S (eds) (2011) Technologies for adaptation: perspectives and practical experiences. UNEP Risø Centre, Roskilde

- (d) Supporting countries in developing long-term technological transition pathways towards the widespread uptake of climate technologies in the context of climate resilience and low greenhouse gas emission development;*
- (e) Promoting collaboration with international technology RD&D partnerships and initiatives to stimulate climate technology RD&D;*
- (f) Supporting countries in initiating joint climate technology RD&D activities;*
- (g) Identifying ways to increase the effective participation of developing country Parties in collaborative approaches to RD&D;*
- (h) Promoting the engagement of the private sector in the development of new and innovative climate technologies, including through:*
 - (i) Raising awareness of future market opportunities in climate technology innovation;*
 - (ii) Identifying ways to incentivize their participation;*
 - (iii) Promoting partnerships between the public and private sector in the development and transfer of climate technologies.*

15. The Fund's innovation pillar, as presented in the MTS, builds on the Paris Agreement and has the following expected results:

- (a) ER1 - Successful innovations rolled out. Innovative adaptation practices, tools and technologies that have demonstrated success in one country spread to new countries/regions;*
- (b) ER2 - Viable innovations scaled up. Innovative adaptation practices, tools and technologies that have demonstrated viability at a small scale piloted at larger scales;*
- (c) ER3 - New innovations encouraged and accelerated. Development of innovative adaptation practices, tools and technologies encouraged and accelerated;*
- (d) ER4 - Evidence base generated. Evidence of effective, efficient adaptation practices, products and technologies generated as a basis for implementing entities and other funds to assess scaling up.*

16. The planned delivery model within the MTS is to operate a dedicated Innovation Facility consisting of:

- (a) A large grant mechanism to roll out proven solutions in new countries/regions or to scale up innovations already demonstrated to work at a small scale;*
- (b) A micro-grant mechanism to develop and/or test innovative adaptation products (e.g. project management tools) and technologies;*
- (c) Partnerships, competitions and other approaches to stimulate innovative adaptation practices, tools and technologies.*

Innovation theory in adaptation to climate change²

17. There are a wide range of definitions of innovation and models describing the innovation process from linear models of product development to models of open innovation. Linear models of product development within firms start with research and development and progress to taking products to market. On the other end, models of open innovation involve bringing in new ideas into the organizations and firms. More recently trends to systemic innovation and portfolios of experiments use innovation to address complex problems or societal challenges.

18. Innovation can be:

- (a) Incremental – marginal improvements on existing approaches or technologies
- (b) Breakthrough – significant improvement with potential for widespread change
- (c) Adaptive – using and adapting existing approaches in new ways and new contexts

19. Frameworks focusing on technological innovation usually have the following stages and are presented in a linear model:

Research & development ---- Development ---- Deployment ---- Diffusion

20. A well-established linear model is the Stage Gate model. This includes a series of checks at each stage to evaluate the effectiveness of the innovation and confirm the investment should be continued. This model works well for some innovations that follow a linear path (often incremental improvements to existing approaches) but may exclude “more radical innovations characterized by high uncertainty a flexible, learning-based approach is appropriate”.

21. There have been a series of models developed to showcase the non-linear process of innovation in uncertain and complex systems, that require feedback loops of learning and constant iteration. These models are usually used to understand social innovation processes around societal challenges where the problem is unbounded and integrated into wider socio-economic systems.

22. Innovation can be led by the push of new technologies, tools and practices from science or R&D, demand for new ways of working or new products and services from firms, sectors (different public or private) or users (individuals or communities), or societal needs and complex problems which have defied solutions derived through existing means.

23. Systemic innovation is increasingly put forward as an approach to complex societal issues such as climate change. There are many definitions of systemic innovation but the three common dimensions identified in a systematic review are:

- (a) Innovation that requires complementary innovations to generate value;

² This section has been taken out and summarized from a document that was commissioned by the secretariat and developed by an independent consultant. For more details, including references, please refer to that document, which is appended.

- (b) Innovation that requires significant changes in other sub-systems;
- (c) Innovation in which coordination and cooperation are necessary.

Lessons learned from the AF's experience and track record with innovation and adaptation

24. Adaptation Fund is recognized as a legitimately innovative fund, having been a pioneer of adaptation and associated processes on different levels. The *Independent Evaluation of the Adaptation Fund: first phase of the evaluation report* notes the innovativeness of the Fund's funding stream, and innovative access modalities. Conclusions of this evaluation include, among others, that the Fund has made substantial progress towards establishing processes that support its objective of reducing vulnerability and increasing adaptive capacity to respond to the impacts of climate change, including variability at local and national levels and that the Fund's niche is most likely to be at the nexus of innovation and learning about concrete adaptation activities and access modalities. In addition, lessons learned include, among others, that the modality that the Fund has pioneered for more than six years, direct access. This has been a major innovation in climate finance and is appropriate to meeting countries' needs, and that such modality can be a highly relevant, effective, and efficient means of channelling adaptation finance.

25. The Second Phase evaluation shows that there are many different sectors and ways in which the Fund has supported innovation. The evaluation further states examples of innovative interventions and approaches that have concretized with the support of the Adaptation Fund, including developing climate resistant crops, introducing water conservation, improved agricultural methods and diversified livelihoods. It also identifies innovative financing, such as innovative insurance schemes and enhanced direct access as an innovative mechanism of funding adaptation.

26. Given the Fund's growing experience with innovative adaptation in various forms, as well as its mandate, it is foreseeable that the Fund will continue to build on and support innovation in adaptation. However, it is unclear whether the innovation coming out organically from the Fund's portfolio represents the optimal development under the Fund, or whether there are adjustments to be made that would help realize the full potential of the Fund to enable, encourage and accelerate innovation.

Existing AF guidance for funding innovation

27. The Medium-term Strategy (MTS) identifies innovation as one of the three pillars of the Fund, and defines its objective as to support the development and diffusion of innovative adaptation practices, tools, and technologies, with four expected results, as previously mentioned.

28. The Board has closely operationalized the framework and roadmap presented in the MTS as well as its Implementation Plan, including the launch of the small grants for innovation – direct access modality for the NIEs and approval of the MIE Aggregators. Nevertheless, there is an increasing need to better define innovation under the Fund, provide further guidance to the

potential applicants concerning the objectives and expected outcomes of the innovation interventions, culminating in proposals with a strong and suitable “innovation rationale” to complement the required climate change adaptation reasoning/rationale.

29. During June and July of 2020, the secretariat carried out two surveys for collecting information on the perspectives on innovation of the Board members and NIEs. This included surveying the Board members through an initial brief written survey followed by more in-depth one-on-one interviews of a subset of the Board, as well as a brief questionnaire (as part of a broader questionnaire on the effects of the Covid-19 pandemic on the NIEs’ activities).

30. Within the Board there were a variety of views as to whether innovation should be left very broadly defined to allow for different national circumstances or be more tightly defined to push for greater ambition. It is worth considering that not defining innovation further also shapes the proposals coming in and unless an effort is made through readiness support or workshops it is possible that these proposals will continue to cluster around more incremental projects or technology diffusion. Among the NIEs, while few cited capacity constraints around the ability to apply for additional projects, the majority expressed a continued and, in some cases, heightened interest in innovation funding windows because of the Covid-19 pandemic.

Options for further defining and developing an approach to funding innovation in adaptation projects and programmes

31. Further guidance on what qualifies as “*innovation*” under the Adaptation Fund: Drawing upon the experiences to-date with the innovation programming of the Fund, especially under the window of Small Grants for Innovation for NIEs, and based on the views expressed by PPRC and Board members and other stakeholders of the Fund, the Board may wish to refine and further develop the vision for innovation under the Adaptation Fund that can be used to help guide the Fund’s innovation programming.

32. As part of this approach, the Board could consider providing further guidance on the following elements:

- (a) Fund’s definition and/or strategic vision of what qualifies as innovation in adaptation projects and programmes, taking into account the relevant finance landscape, literature on innovation and views expressed by the Board and other AF stakeholders;
- (b) Refining the innovation-related criteria for the technical review of innovation project proposals (guidance to the AFB secretariat for their review function, particularly pertaining to the review questions on innovation specifically);
- (c) Instructions for responding to innovation funding criteria and providing an “innovation rationale” in project/programme proposals (guidance to implementing entities/ project proponents);
- (d) Defining risk appetite;

- (e) Focus on particular vulnerable groups, sectors, or themes: While the focus on vulnerable countries and groups is a cross-cutting theme and mandate of the AF, for the innovation grants, the Board may wish to specify or further focus on particular groups, sectors, themes or other, for example youth, regions (LDCs and/or SIDS), private sector, resilient recovery from COVID-19 etc.; and
- (f) Challenges and opportunities for funding innovation in the context of COVID-19.

Recommendation

33. The PPRC may wish to consider document AFB/PPRC.26.b/17 and, taking into account the discussion and views expressed at this meeting, recommend for the Board to:

- (a) To request the secretariat to prepare a document that further clarifies the definition and elaborates on the vision for innovation under the Adaptation Fund, to guide further programming, taking into account the views and considerations expressed by the members of the Project and Programmes Review Committee at its additional virtual and its twenty-sixth meeting and by the Board at the second part of its thirty-fifth meeting, and in consultation with the Board and other stakeholders, for consideration by the Board at its thirty-sixth meeting;
- (b) To request the secretariat to present as part of the above-mentioned document an analysis on the relevant elements related to innovation and adaptation, including but not limited to definition of innovation, innovation rationale, innovation review criteria, risk appetite, focus on particularly vulnerable groups, countries, sectors or themes, as well as innovation in the context of COVID-19; and
- (c) To request the secretariat to prepare, based on the above-mentioned analysis, guidance on review criteria for innovation grant proposals for consideration by the Board at its thirty-seventh meeting.

Annex I

Annex 1

Adaptation Fund and Innovation: emerging areas and strategic directions³

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³ Written by Susannah Fisher with inputs from Claudia Lasprilla and the AF innovation team.

Executive summary

The Adaptation Fund supports Article 7.1 of the Paris Agreement, “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change”. The Medium-Term Strategy 2018-2022 of the AF outlines action, innovation and learning as the three pillars of the strategy. The Adaptation Fund has experience and expertise in a variety of areas of innovative adaptation action such as introducing new financing modalities (for example direct and enhanced direct access), new systems (such as fiduciary standards, accreditation standards and processes), and services (such as the readiness grants which include South-South Cooperation Grants).

There are many definitions of innovation but they all focus on the application of something new which adds value, be that a technology, tool or practice. Innovation can be distinguished from an invention. It also includes diffusion and deployment to a new place or sector and is a systemic process. Innovation can play different roles in achieving a climate resilient future and understanding where the Adaptation Fund seeks to position itself across these approaches would help refine the innovation funding windows.

There are a variety of views as to whether the Adaptation Fund should define innovation more tightly. The definition of innovation shapes the proposals coming in, and without further definition it is possible these proposals will cluster around incremental innovation or diffusion of existing innovations. One way of defining the difference would be that adaptation to climate change is often something new in a specific context but if the intervention has been well demonstrated and understood in similar contexts, it is not innovation. With respect to technology transfer of an adaptive technology it would be that one that has already been well applied and understood in similar contexts and would therefore not count as innovation.

There are a variety of models around the innovation cycle. The Adaptation Fund will need to work across different models of the innovation process if it wishes to support a wide range of adaptation innovations. It will need to ensure the funding windows and criteria allow for more systemic models as well as linear models, based on technological development given the innovation context and capabilities of many recipient countries.

The Adaptation Fund has not been deliberately targeting a specific part of the innovation cycle with activities so far, however small grant proposals have tended to cluster on a diffusion pathway of existing technologies, tools and practices. These innovations have largely been incremental or adaptive. Many dimensions of project design will tend towards the diffusion pathway and more incremental innovation projects, unless the AF makes a set of deliberate choices to select and incentivise other pathways. There is a need to provide targeted support to some NIEs to apply for innovation funding, or to overcome the barriers of adoption. There is a need to provide support to NIEs in a way that enables them to better address the institutional constraints to innovation. This would enable the efficient use of funds available under the dedicated funding window for innovation small grants. AF has strengths as a fund that supports concrete adaptation projects with a track record of good national relationships and projects in diverse contexts. The role the AF can play within innovation funding for adaptation needs to be either highly targeted or act as a catalyst or demonstrator. In either of those roles there is a need to position the AF within a broader pipeline to other funds or forms of investment, whilst also building on and retaining the country-led nature of the funding.

There are a number of quick wins the AF could implement to further the quality of its innovation pipeline and increase the likelihood of more transformative outcomes. For example, supporting the early stage of project design under the innovation window as early processes of ideation and scoping are essential to generating more breakthrough options and genuine new approaches. Defining innovation funded through the innovation window relative to 'standard' adaptation and technology transfer would prevent confusion around what is funded under the innovation window and what is good practice within adaptation and could lead to higher number of better-quality proposals. The AF could more explicitly define its risk appetite for different types of risk and take account of the risks of not being innovative enough for concrete adaptation action on the ground. This could involve pushing all projects to take higher risk for high potential innovations or defining an envelope of risk options and seeking to fund projects across the spectrum. Generating evidence is also a critical dimension of an innovation project and needs to be practical but robust.

The context of COVID 19 presents a number of challenges and opportunities. The AF could still run innovation support virtually and including an emphasis on ideation and scoping would allow large grants to make a start under social distancing. Alternatively, the AF could be more proactive and seek to catalyse the natural innovations that have been occurring under COVID-19 to launch a challenge fund or a window designed to rapidly build on and scale those that also reduce vulnerability to climate change.

There are a number of potential directions for the large grants depending on how the AF wants to position itself. Three options would be as (i) a diffusion specialist, (ii) a catalyst of bottom-up innovation with innovation around the funding modality itself or (iii) as a funder of demonstrations of systemic solutions.

Section 1: Context

The Adaptation Fund supports Article 7.1 of the Paris Agreement, “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change”. The Medium-Term Strategy 2018-2022 of the AF outlines action, innovation and learning as the three pillars of the strategy. The Adaptation Fund has experience and expertise in a variety of areas of innovative adaptation action such as introducing new financing modalities (for example direct and enhanced direct access), new systems (such as fiduciary standards, accreditation standards and processes), and services (such as the readiness grants and South-South Cooperation Grants).

The UNFCCC recognises the importance of innovation and technology transfer. The importance of innovation is highlighted in Article 10 of the Paris Agreement which states the need to “accelerate, encourage and enable innovation for an effective, long-term global response to climate change” (Article 10, paragraph 5). The Paris Agreement does not define what innovation is within the UNFCCC. Under the UNFCCC, technology transfer refers to the flow of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders⁴.

The term ‘technology’ can include⁵:

- Hardware (physical tools);
- Software (knowledge and skills required to use the technology);
- Orgware (institutions, policies, rules, and legislation).

In 2010, the UNFCCC established its Technology Mechanism composed of a Technology Executive Committee (TEC) and a Climate Technology Centre and Network (CTCN). The Technology Mechanism supports developing countries to address their nationally determined mitigation and adaptation technology needs⁶. As part of the COP-mandated Poznan Strategic Program on Technology Transfer, the LDCF and SCCF have supported four regional Climate Technology Network and Finance Centres since 2012. These regional centres are catalysing investments in adaptation and mitigation technology transfer, through piloting innovative financial instruments with technical assistance. These regional hubs serve as collaborative platforms with the Technology Mechanism of the Convention, including the Climate Technology Centre and Network (CTCN)⁷. The Paris Agreement also established a technology framework to guide the work of the technology mechanism under Article 10.

Under the technology framework advanced in the Katowice COP24 decision⁸, innovation is the first of five pillars. The decision says:

*6. Actions and activities under this key theme should therefore **accelerate and scale up innovation at different stages of the technology cycle**, addressing both adaptation and mitigation in a balanced manner to help countries to build resilience and reduce their emissions, and be undertaken in a manner that enhances the effective participation of developing country Parties, fosters sustainable development and ensures gender responsiveness.*

⁴ Craft et al, 2018, Least Developed Countries' experiences with the UNFCCC technology mechanism, IIED Issue Paper, UK. <https://pubs.iied.org/10189IIED/>

⁵ Oxford Climate Policy/ECBI, 2020, Technology Pocket Guide, <https://ecbi.org/sites/default/files/Pocket%20Guide%20to%20Technology.pdf>

⁶ <https://pubs.iied.org/pdfs/17256IIED.pdf>

⁷ https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.LDCF_SCCF_24.03_Programming_Strategy_and_Operational_Policy_2.pdf

⁸ https://unfccc.int/sites/default/files/resource/cp24_auf_cop_4_TF.pdf

7. Fostering innovation could be done through new collaborative approaches to climate technology research, development and demonstration (RD&D); the creation and promotion of relevant enabling policy to incentivize and nurture a supportive environment for innovation; and the active engagement of the private sector and closer collaboration between the public and private sector.

8. Actions and activities in this area of work include:

(a) Supporting countries in incentivizing innovation by improving the policy environments, strategies, legal and regulatory frameworks, and institutional arrangements for establishing and/or strengthening their national systems of innovation;

(b) Providing information and facilitating the sharing of information on international technology RD&D partnerships and initiatives, good practices and lessons learned from countries' climate technology RD&D policies and activities;

(c) Promoting the development, deployment and dissemination of existing innovative technologies and accelerating the scale-up and diffusion of emerging climate technologies;

(d) Supporting countries in developing long-term technological transition pathways towards the widespread uptake of climate technologies in the context of climate resilience and low greenhouse gas emission development;

(e) Promoting collaboration with international technology RD&D partnerships and initiatives to stimulate climate technology RD&D;

(f) Supporting countries in initiating joint climate technology RD&D activities;

(g) Identifying ways to increase the effective participation of developing country Parties in collaborative approaches to RD&D;

(h) Promoting the engagement of the private sector in the development of new and innovative climate technologies, including through:

(i) Raising awareness of future market opportunities in climate technology innovation;

(ii) Identifying ways to incentivize their participation;

(iii) Promoting partnerships between the public and private sector in the development and transfer of climate technologies.

The AF innovation pillar builds on the Paris Agreement and the expected results are:

- ER1 - Successful innovations rolled out. Innovative adaptation practices, tools and technologies that have demonstrated success in one country spread to new countries/regions
- ER2 - Viable innovations scaled up. Innovative adaptation practices, tools and technologies that have demonstrated viability at a small scale piloted at larger scales
- ER3 - New innovations encouraged and accelerated. Development of innovative adaptation practices, tools and technologies encouraged and accelerated
- ER4 - Evidence base generated. Evidence of effective, efficient adaptation practices, products and technologies generated as a basis for implementing entities and other funds to assess scaling up

The planned delivery model within the MTS is to operate a dedicated Innovation Facility consisting of:

- A large grant mechanism to roll out proven solutions in new countries/regions or to scale up innovations already demonstrated to work at a small scale;
- A micro-grant mechanism to develop and/ or test innovative adaptation products (e.g. project management tools) and technologies;
- Partnerships, competitions and other approaches to stimulate innovative adaptation practices, tools and technologies.

Proposals are open to NIEs, RIEs, and MIEs with a preference for South-South collaboration and an emphasis on impact at an economical cost. NIEs, RIEs, and MIEs are encouraged to include NGOs and private sector entities in proposals to the Innovation Facility.

This report builds on the mandate of the MTS and the Paris Agreement to further refine a vision for AF innovation activities within the context of the UNFCCC and other funds.

Section 2: Innovation and adaptation: drawing on theory and practice

- There are many definitions of innovation but they all focus on the application of something new (be that a technology, tool or practice) which adds value. Innovation can be distinguished from an invention. It also includes diffusion and deployment to a new place or sector and is a systemic process.
- One way of defining innovation relative to adaptation and technology transfer is as follows:
 - Adaptation is often something new in a specific context but if the intervention has been used well-demonstrated in similar contexts, it is not innovation.
 - Technology transfer of an adaptive technology that has already been widely applied and understood, would not count as innovation.
- Innovation can play different roles in achieving a climate resilient future and understanding where AF seeks to position itself across these approaches would help refine the innovation funding windows.
- The Adaptation Fund will need to work across different models of innovation process if it wishes to support a wide range of adaptation innovations. It will need to ensure the funding windows and criteria allow for more systemic models as well as linear models based on technological development given the innovation context and capabilities of many recipient countries.

There are a wide range of definitions of innovation and models describing the innovation process from -linear models of product development to models of open innovation. Linear models of product development within firms start with research and development and progress to taking products to market. On the other end, models of open innovation involve bringing in new ideas into the

organizations and firms. More recently trends to systemic innovation and portfolios of experiments use innovation to address complex problems or societal challenges.⁹.

Some influential definitions of innovation are shown below. They highlight the importance of value from an innovation being applied, the processes of articulation, adaptation and customisation as innovations move into new contexts, and the systemic nature of the innovation process.

Table 1: Definitions of innovation

<i>“invention is the generation of newness or novelty, while innovation is the derivation of value from that novelty” (Szmytkowski 2005)</i>	<i>“An idea, or process whose novelty distinguishes it from prior ideas and processes and is taken up and utilised (including processes of articulation, adaptation, or customisation) by people other than the originator(s)” (Transformative Innovation Policy Consortium, 2019)</i>	<i>“A technology or practice can be considered innovative when it is introduced into a new market. Innovation is “context-specific” ... Innovation is also a systemic process in which a range of interacting actors and resources together underpin successful technology development and deployment” (UNFCCC TEC, undated).</i>
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Innovation can be¹⁰:

- Incremental – marginal improvements on existing approaches or technologies
- Breakthrough – significant improvement with potential for widespread change
- Adaptive – using and adapting existing approaches in new ways and new contexts

Stages of innovation

Frameworks focusing on technological innovation usually have the following stages and are presented in a linear model:

Research & development ---- Development ---- Deployment ---- Diffusion

A model focusing on technological development such as this one above can be seen for example in the UNEP Special Financing Window and the language around the technology framework in the Katowice Decision. Innovation has increasingly been applied outside firms and into social contexts, with a definition much broader than just new technologies and products models.

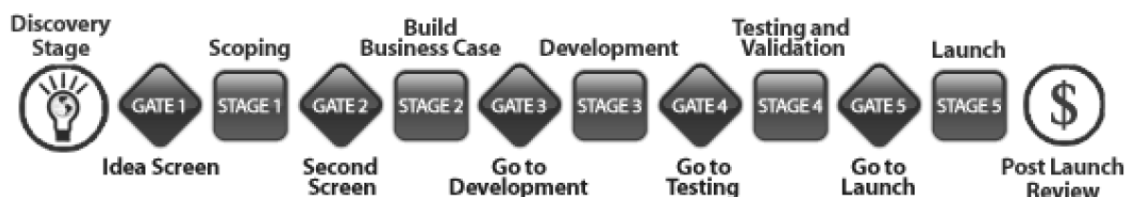
A well-established linear model is the Stage Gate model. This includes a series of checks at each stage to evaluate the effectiveness of the innovation and confirm the investment should be continued. This type of model has been operationalised in innovation programming where stage gates are required to move from one type of early stage innovation support to incubation and acceleration. Aspects of this model can be seen in the planned UNDP Aggregator where NGOs or CSOs would have a stage-

⁹ IPCC, 2018, <https://www.ipcc.ch/sr15/chapter/chapter-4/>; du Preez et al. 2009, An Innovation Process Model for Improving Innovation Capability, *Journal of High Technology Management Research* 17: 1-24; UNDP, 2019, <https://acceleratorlabs.undp.org/>; Climate-KIC, 2019, <https://www.climate-kic.org/programmes/deep-demonstrations/>

¹⁰ E3G and Chatham House, 2008, Innovation and Technology Transfer, https://www.e3g.org/docs/E3G_Innovation_and_Technology_Transfer_Full_Report.pdf

gating process to move from the first 2 years funding to the next 2 years, and in the pipeline between the small and large grants directly administered through the AF, where the application for a large grant could be seen as the stage gate to move from testing and validation to wider launch and application.

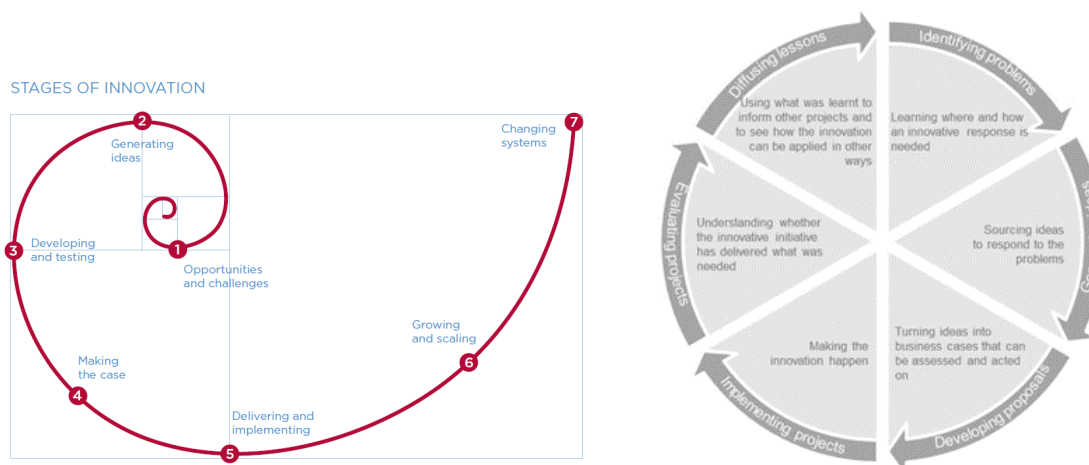
Figure 1: Stage gate model¹¹



This model works well for some innovations that follow a linear path (often incremental improvements to existing approaches) but may exclude “more radical innovations characterised by high uncertainty a flexible, learning-based approach is appropriate”¹².

There have been a series of models developed to showcase the non-linear process of innovation in uncertain and complex systems, that require feedback loops of learning and constant iteration. Two such models are shown below. These models are usually used to understand social innovation processes around societal challenges where the problem is unbounded and integrated into wider socio-economic systems.

Figure 2: Non-linear models of innovation¹³



¹¹ Cooper, RG (1990), Stage-Gate systems: a new tool for managing new products - conceptual and operational model, Business Horizons, May-June: pp 44-53

¹² du Preez et al. 2009, An Innovation Process Model for Improving Innovation Capability, Journal of High Technology Management Research 17: 1-24.

¹³ NESTA and The Young Foundation, 2010, <https://youngfoundation.org/wp-content/uploads/2012/10/The-Open-Book-of-Social-Innovation.pdf>; OECD Observatory of Public Sector Innovation, 2016, What's the problem? Learning to identify and understand the need for innovation, www.oecd.org/media/oecdorg/satellitesites/opsi/contents/files/OECD_OPSI_GeneratingIdeasStudy_Alpha.pdf

Innovation can be led by the push of new technologies, tools and practices from science or R&D, demand for new ways of working or new products and services from sectors (different public or private) or users¹⁴ (individuals or communities), or societal needs and complex problems which have defied solutions derived through existing means.

Systemic innovation

Systemic innovation is increasingly put forward as an approach to complex societal issues such as climate change¹⁵. There are many definitions of systemic innovation but the three common dimensions identified in a systematic review are:

- Innovation that requires complementary innovations to generate value;
- Innovation that requires significant changes in other sub-systems;
- Innovation in which coordination and cooperation are necessary.

Systemic innovation does not need to imply strengthening institutions or building systems but innovating on multiple points within or across a system to support uptake or resilience. For example, if a successful technological innovation has been developed or tested in a sector, a larger programme of work or a scaled-up setting, simultaneous innovations or interventions could address consumer behaviour, regulation, value chain resilience and innovative ways of engaging other industry actors to achieve a more systemic response.

Within systemic innovation, there is a need for **deep and critical learning**, also called double loop learning¹⁶. Single loop learning is when individuals find ways to improve an existing practice without fundamentally changing their assumptions or values of what the problem is. In contrast, double loop learning is when the learning is much more extensive and involves rethinking underlying assumptions. If whole new innovation systems are to be developed across organizational boundaries, then double loop learning is critically important to re-examine the values that underpin those systems¹⁷.

One method by which systemic innovation has been operationalized is through the use of a **portfolio approach**. A portfolio is series of interconnected experiments that seek to address barriers and opportunities around a particular complex challenge. As the economist Mariana Mazzucato argues that by “adopting a “portfolio” approach to public investments in innovation, success from a few projects can then help cover the losses from other projects. In this way, both risks and rewards are

¹⁴ Another type of innovation is user innovation, where individuals who first feel the need for a product or service create it for themselves. Supporting user innovation also called lead user innovation and has given rise to platforms that allow users to communicate about and share their innovations (see for example www.patientinnovation.com). This could be a relevant form of innovation in adaptation, where communities, farmers or urban slum dwellers are users of practices, tools and technologies that they may adapt to the changing climate. Collating and enabling these innovations could be an important source of wider diffusion. Von Hippel, E. (1986), "Lead Users: A Source of Novel Product Concepts", *Management Science*, 32 (7): 791–806, doi:10.1287/mnsc.32.7.791, JSTOR 2631761

¹⁵ OECD (2016), "System innovation", in *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris, https://doi.org/10.1787/sti_in_outlook-2016-9-en; Midgley & Lindhult (2017). What is Systemic Innovation? Centre for Systems Studies. 978-1-906422-36-3; Takey and Carvalho, (2016), Fuzzy front end of systemic innovations: A conceptual framework based on a systematic literature review, *Technological Forecasting and Social Change*.

¹⁶ Argyris, C., & Schon, D. (1978) *Organisational learning: A theory of action perspective*. Reading, Mass: Addison Wesley., Quist and Tukker, 2013, Knowledge collaboration and learning for sustainable innovation and consumption: introduction to the ERSCP portion of this special volume, *Journal of Cleaner Production*, 48, p167-175

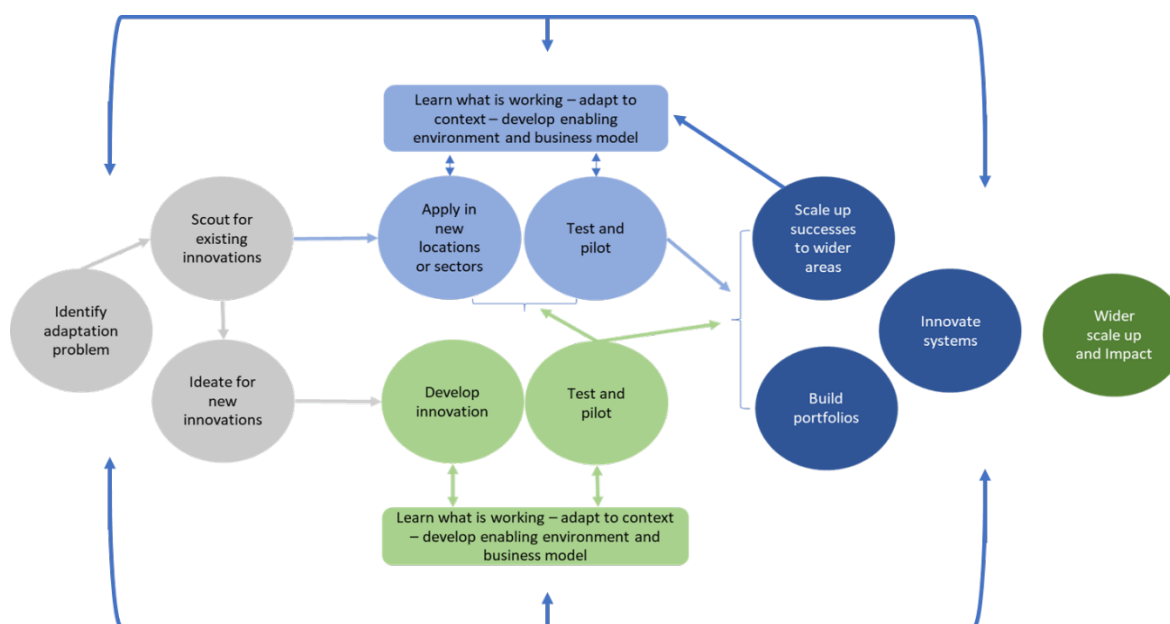
¹⁷ Quist and Tukker, 2013, op cit.

socialised¹⁸. Organisations such as EIT Climate-KIC and the UNDP Accelerator Labs have sought to operationalise innovation portfolios “with a full spectrum of regulatory, technological, behavioural, and participatory experiments to learn what combinations provide the right mix of solutions to systemic issues in development”¹⁹. This approach to innovation applies to complex issues where innovation is needed on a variety of levers to address a “wicked problem”.

Adaptation to climate change may need any of these types of innovation. In some cases a new or newly applied technology might have a significant impact on reducing vulnerability such as around water management or desalination, there might be an emerging and new market for products and services such as novel insurance products due to changing climate risks, or the resilience of urban informal settlements might need a new approach to state-citizen interactions and governance which implies more systemic innovation in a variety of areas.

The following simplified innovation cycle brings together key dimensions of innovation relevant to the breadth of the work of the Adaptation Fund. This can help situate activities and frame strategic directions. The diagram shows the two main pathways relevant to the work of the AF, supporting potential early stage innovation (light green) or supporting the diffusion and testing existing tools, technologies and practices (light blue) in new locations. The activities in grey are ideation and scoping phases of innovation where existing innovations are scouted, new perspectives sought, and the problem fully defined. The dark blue shows different pathways to larger impact either through scaling up an innovation, looking more systemically at the issue or testing a portfolio of innovations.

Figure 3: Simplified innovation cycle²⁰



¹⁸ Mazzucato, 2016, <https://www.thersa.org/globalassets/pdfs/reports/mission-oriented-policy-innovation-report.pdf>

¹⁹ https://acceleratorlabs.undp.org/content/dam/acceleratorlabs/publications/UNDP_ACC_LAB_BrochureA5_English.pdf

²⁰ Draws on NESTA, and The Young Foundation 2010; EIT-Climate-KIC, 2019; opcit; interviews and consultations undertaken by the author.

What is the role of innovation in supporting adaptation to climate change?

Innovation is an essential part of many adaptation responses especially autonomous, individual and community-based adaptation. But the scale and speed of recent changes means *business-as-usual* innovation in adaptation (e.g. incremental new ideas and ‘no regrets’ or ‘win-win’ adaptation interventions that satisfy current political timescales) will often not be enough²¹. There is therefore a role for specific innovation funds to support measures with higher risk and more uncertain outcomes where funding is needed to de-risk ideas, test and pilot new responses, build evidence on if the response is effective and develop the modifications needed to support wider uptake and impact.

Innovation can play a different role in addressing adaptation, depending on the perceived adaptation need. One way for the AF to define its vision for adaptation innovation would be to clarify what role does the AF see for innovation in achieving adaptation objectives of building resilience and reducing vulnerability.

The role of the private sector in adaptation has been a contested one, with many pointing out the adaptation funding gap between needs and public sources and others mentioning the lack of a business model or possibilities for revenue generation in many local adaptation schemes²². A Germanwatch report analysing this in the context of the AF argues that,

“Creating incentives for the private sector to engage in adaptation action also implies the need to improve national institutional and regulatory frameworks and could result in public–private partnerships. However, it is crucial that the role of public service provision is not undermined in such partnerships for adaptation”²³.

There are several ways to frame the role of innovation in achieving a climate resilient future and how the role of innovation and the need for adaptation is understood affects the type and stage of innovation that should be supported²⁴. The table below summarises three frames of innovation policy²⁵ which help situate some of the current understandings of innovation within the AF and differing expectations of stakeholders.

Table 2: 3 Frames of innovation and adaptation needs

Models	Adaptation Innovation Rationale	Application to AF
Frame 1: Supply, R&D, Regulation Increasing the supply of innovative adaptation ideas and projects.	We do not have enough good ideas for how to adapt to climate change. We need new technologies to help solve the problems we are facing.	<i>UNEP Special Financing Window</i> <i>Some NIE small grants and UNDP Aggregator grants</i>

²¹ Mitchell and Tonks, 2018, Adaptation and Innovation, EIT Climate-KIC. Unpublished insight.

²² Surminski, S. Private-sector adaptation to climate risk. *Nature Clim Change* 3, 943–945 (2013). <https://doi.org/10.1038/nclimate2040>; W. P. Pauw (2015) Not a panacea: private-sector engagement in adaptation and adaptation finance in developing countries, *Climate Policy*, 15:5, 583-603, DOI: 10.1080/14693062.2014.953906

²³ https://www.germanwatch.org/sites/germanwatch.org/files/The%20%20future%20role%20of%20the%20Adaptation%20fund%20in%20the%20international%20climate%20finance%20architecture_1.pdf

²⁴ Rodima-Taylor, M.F. Olwig, N. Chhetri (2012) Adaptation as innovation, innovation as adaptation: an institutional approach to climate change. *Applied Geography*, 33 (0) (2012), pp. 107-111

²⁵ Schot and Steinmuller (2018) Three frames for innovation policy: R&D, systems of innovation and transformative change, <https://doi.org/10.1016/j.respol.2018.08.011> and Mitchell and Tonks, 2019 op cit.

Frame 2: Demand-driven, Capability, and Entrepreneurship Shaping innovation through expressing needs, fixing systemic failures.	Many adaptation challenges are being faced by communities, cities, regions, governments and businesses. These cannot be solved with existing adaptation approaches alone or those available locally. Innovation is needed to help find new solutions.	<i>Possibly some NIE small grants</i> <i>Possibly some UNDP/UNEP grants</i>
Frame 3: Transformation, societal challenges, experimentation Innovation on multiple 'levers of change' simultaneously to generate choice and learning.	Adapting to climate change faces a series of structural barriers, and these are often connected in ways that are complex. Just changing one thing is unlikely to create clear positive impacts and the complexity means there are uncertainties about how we should act to promote adaptation.	<i>Possibly some of the large grants for innovation, however likely requires higher levels of resources invested that what AF alone typically funds.</i>

In the sections below, the technological frontier applies to an understanding of the adaptation need in frame 1, reverse/trickle up innovation and sectoral systems sit more within frame 2. An approach to innovation may incorporate all three frames depending on the nature of the adaptation need.

Technological frontier of adaptation

One aspect of innovation for climate change adaptation is the transfer of new innovations and patents (usually technologies) that build resilience²⁶. These could be for example dikes, dams or real-time flood forecasting for coastal risks, desalination methods for water management, floating houses and new resilient materials for resilient infrastructure or new crop varieties with greater tolerance for drought²⁷. In low and middle-income countries these frontier technologies are supplemented by a high level of low-tech solutions and organisational and social innovation.

A recent World Bank study shows that beyond China, low and middle-income countries access to patented knowledge and transfer of adaptation technologies is low. As innovation is occurring in high income countries with different hazard profiles, there is also limited technological availability in areas such as temperature increases which are not felt so acutely by the countries developing the technologies responding to domestic demand. The authors also note that “economic forces seem unable to transform local adaptation needs into demand for adaptation technology on the markets. Solving this problem requires a better understanding of the market failures that hinder demand, a precondition for designing demand-pull policies in the relevant sectors (with public investments, subsidies, and other policy tools)”²⁸.

Reverse innovation / trickle up innovation

In contrast to technological frontier innovations (usually high tech and developed outside low and middle-income countries), some innovations emerge from grassroots communities or “user communities” (similar to the lead user innovation in section 1). They are often adapted to work in the context of limited infrastructure or to fill the gaps that leaves.

²⁶ Christiansen, L., Olhoff, A., & Trærup, S. L. M. (2011). Technologies for Adaptation - Perspectives and Practical Experiences. Roskilde: Danmarks Tekniske Universitet, Risø Nationallaboratoriet for Bæredygtig Energi. (Technology Transfer Perspectives Series).

²⁷ <http://documents.worldbank.org/curated/en/648341591630145546/pdf/Invention-and-Global-Diffusion-of-Technologies-for-Climate-Change-Adaptation-A-Patent-Analysis.pdf>

²⁸ Op cit, p35

“Reverse innovation, or trickle-up innovation, is innovation that’s first used in the developing world and later spread to the developed world. Low-tech models designed for limited infrastructures, like battery-powered medical devices that do not require electricity or SMS-based mobile applications that do not require smartphones, might then be upgraded for use in industrialized countries”²⁹

This turns on its head the conventional wisdom of high-tech innovation moving from developed countries to developing, and puts people and communities at the heart of innovating for the context and problems they know well. An example is data mapping and enumeration techniques used in the informal settlement of Kibera in Kenya which allowed those living in informal settlements to develop data and maps (i.e. “participatory GIS”) about their local contexts and use these to advocate for their rights³⁰.

Whilst the role and potential of local communities to “innovate their own way out of poverty” shouldn’t be idolised or overstated, these user communities are important sources of ideas, experiments and knowledge about what works that can be vital sources of innovation.

The role of systems

Research demonstrates the importance of working within systems of innovation rather than purely through a single innovation particularly in the context of adaptation to climate change³¹. This supports the wider literature on innovation (in Section 2) which stressed the importance of the wider systemic factors within which an innovation or innovations is taken up. Two examples from Kenya, exemplify the different ways systemic innovation can achieve greater impact in some instances. In the Kenyan off-grid solar photovoltaics (PV) market, the hardware was mainly imported from overseas but the solar PV market in Kenya has various innovations have been driven by the activities of stakeholders such as the private sector, donors, and NGOs³². The introduction of technological innovations within the coffee sector in Kenya did not ultimately support adaptation to climate change whereas the dairy sector was able to use innovation to adapt and the authors argue these differences were due to,

“the structure and evolution of each sectoral system of innovation, i.e. the evolving institutional, knowledge and collaborative environment that can improve a set of innovations, including new varieties and breeds, good agronomic practices, better access to information, input and services, and efficient marketing systems Technological innovation is indeed important, but this is not the only requirement. Enabling a sectoral system of innovation

²⁹ <https://innovationsjournal.net/can-developing-countries-innovate-themselves-out-of-poverty-412f27b1c01a>

³⁰ Patel, S., et al (2012), Knowledge is power – informal communities assert their right to the city through SDI and community-led enumerations, *Environment and Urbanisation*, Vo: 24 issue: 1, p13-26

³¹ Rodima Taylor, D. (2012) Social innovation and climate adaptation: Local collective action in diversifying Tanzania, *Applied Geography* Vol 33, Pages 128-134; David Ockwell & Rob Byrne (2016) Improving technology transfer through national systems of innovation: climate relevant innovation-system builders (CRIBs), *Climate Policy*, 16:7, 836-854, DOI: 10.1080/14693062.2015.1052958

³² Byrne, R., Smith, A., Watson, J., & Ockwell, D. (2012). Energy pathways in low carbon development: The need to go beyond technology transfer. In D. Ockwell & A. Mallett (Eds.), *Low carbon technology transfer: From rhetoric to reality* (pp. 123–142). Abingdon: Routledge.

where some technological innovations contribute to adaptation to climate change should be a priority area for action”³³

Defining innovation as separate from standard adaptation

Within AF programmes, there are some complementary definitions and criteria that have been proposed around defining adaptation innovation (see Annex 1).

Members of the Board responding to a survey for this report³⁴, showed a variety of ways of understanding innovation and different priorities for adaptation innovation for the AF. Some illustrative statements of the views expressed can be seen in the tables below.

Table 3: Board responses to survey questions

What makes a good innovation project for the AF?

Engagement or focus on unusual beneficiaries such as young people, women or indigenous communities

New or unusual topics addressed

Sustainability – building capacity of communities as well as benefitting them directly

High potential for replication

Community engagement and buy in

Demonstration and adoption of innovative business models, technologies and practices with high impact

Something that has never been tested before, even in other places of the world

Adaptation impact on vulnerable groups

In what way do you think innovation projects should be different from the regular action pillar adaptation projects?

They should be more practical

Focus on use of local knowledge, better use of findings from same or similar community experiences which are compatible with local environment, culture and resources.

An innovative project is not necessarily more successful than one that uses practices that have already been implemented

Focusing on gaps/challenges from action pillar adaptation projects

An innovative project should bring solutions, where conventional ways failed, or bring additional benefits, values.

Test new approaches and business models

Higher risks of failure in innovation projects

Within the Board there are a variety of views as to whether innovation should be left very broadly defined to allow for different national circumstances or be more tightly defined to push for greater ambition. It is worth considering that not defining innovation further also shapes the proposals coming in and unless an effort is made through readiness support or workshops it is possible these proposals will continue to cluster around more incremental projects or technology diffusion.

³³ Asayehegn, Kinfe, et al. « The Role of Systems of Innovation in Adapting to Climate Change: The Case of the Kenyan Coffee and Dairy Sectors », Journal of Innovation Economics & Management, vol. 24, no. 3, 2017, pp. 127-149.

³⁴ An online survey was conducted in June 2020 and 10 Board members responded.

It would push innovation projects to be more innovative with higher potential impact if there was a unified understanding across elements of the programme as to what constitutes standard adaptation and what would qualify for specific innovation funding. The GEF IEO has used the following definition for innovation in evaluating SCCF and LDCF projects: *“Projects and approaches are regarded as innovative if they are deliberately applied to tackle an issue, and these approaches (1) have not been used before in the project area or (2) to tackle this specific issue, or both. An innovative approach needs to be (3) widely replicable, and this should be possible (4) at low economic cost”*³⁵.

The particular context of the Adaptation Fund is that innovation projects sit between the main adaptation action pillar within the AF and also complementary technology transfer activities under the UNFCCC, so defining what makes innovation different from those activities would help clarify objectives. One proposed distinction drawn from the author’s analysis above is:

Adaptation is often something new in a specific context but if the intervention has been well demonstrated and understood in similar contexts and is therefore a low or no regret measure, it is not innovation.

Technology transfer of an adaptive technology that has already been well applied and understood in similar contexts, would not count as innovation. For example, some agricultural technologies have been widely applied. Some countries or regions may not have access to them, but funding for this should be through the regular adaptation pillar.

Equally a social or organisational change that has been widely applied and tested would not count as an innovation when applied to a new institution. Climate risk management measures within national government for example (institutional coordination mechanisms, capacity in using climate information) have been widely applied through programmes such as the PPCR. Applying these institutional measures to another country in a region would not count as an innovation.

It is worth noting however that some of the interviewees in the consultations did not feel there should be a hard distinction between the action pillar and the innovation pillar, as they should all be innovative and ideally transformative. This approach would require a more flexible approach to risk and use of incentives to create more transformative projects across a wider range of the portfolio.

³⁵ https://www.gefio.org/sites/default/files/ieo/council-documents/files/EN_GEF_LDCF-SCCF_28_E_Inf_01_AER_2020.pdf

What has the experience of the AF been so far with innovation and adaptation?

The Adaptation Fund has experience of working innovatively in terms of its funding modalities and within its main adaptation action pillar. From this experience, it has developed the Innovation Facility and new innovation grants programme.

The Adaptation Fund has demonstrated competency in innovating valuable new products (e.g. Direct and Enhanced Direct Access), systems (e.g. fiduciary standards, accreditation standards and processes), and services (e.g. the Readiness Programme for Climate Finance and South-South Programme for Capacity Support). The Fund's first phase independent evaluation documented a range of ways in which these products, systems and services have benefitted Parties and advanced both the Nairobi Work Programme and Cancun Adaptation Framework. As a result, several major innovations have already been adopted by others including the GCF, which has built upon the Adaptation Fund's Direct Access and Enhanced Direct Access models, as well as its Readiness Programme.

Some innovative elements from previous projects funded by the AF can provide some lessons for the innovation facility. The report on Lessons Learned from Portfolio Monitoring Missions (PMM)³⁶ suggests several key lessons around innovation such as promoting the collection of weather data, which allows future proposals to have a scientific background to request further funding, and for local people to be better equipped to deal with climate change. Successful approaches have also captured the importance of transferring lessons learned across levels, sectors and countries, and capacity building with a special focus on the youth. Some of these lessons are already incorporated into the MIE Aggregators. The MIE Aggregator Programme Proposal³⁷ proposes a *Knowledge platform*, where information would be accessible to all communications channels, including social media. Similarly, the Special Financing Window in Support of Innovation for Adaptation³⁸ document further highlights the presence of barriers to finance mechanisms, and therefore suggests the need for examples such as weather index-based insurance schemes against natural disasters that protect the production of smallholder farmers. Finally, the Lessons Learned from PMMs presents the significance of collaboration at different levels, between institutions, experts, and locals, as a critical ingredient capable of producing and promoting innovation.

In the large projects reviewed under the main action pillar, the major innovation was the approach to adaptation itself, which for most of these countries was a first (see Annex D for some examples). Three key innovations common to many proposals were the introduction of insurance for small farmers to deal with natural disasters, collection of data through early warning systems and weather stations, and a focus on capacity building and learning. Some projects showed an innovative modality such as the South African small grant facility project, piloting a small granting mechanism known as enhanced direct access. This allowed civil society organisations to access climate finance directly with fewer restrictions and a failure rate was factored into the small grants. Others were the first to address a particular adaptation issue.

Initial experience with innovation small grant proposals shows that it has been challenging for NIEs to understand what is required and what innovation might be in the context of adaptation. Some projects proposed are more traditional forms of technology transfer or project design and few have been able

³⁶ <https://www.adaptation-fund.org/wp-content/uploads/2018/11/Lessons-Learned-from-PMM.pdf>

³⁷ <https://www.adaptation-fund.org/wp-content/uploads/2019/08/122426266AFProposal13Sep19resubmissionclean.pdf>

³⁸ <https://www.adaptation-fund.org/wp-content/uploads/2019/08/12241Proposaltechnologyaggregatorrevised130909final.pdf>

to include wider scouting of new approaches to the problem they are interested in addressing beyond a technical scoping review. See Annex C for a summary of the small grant proposals.

Many of the proposals are clustered around diffusing existing technology into new areas (see the innovation cycle diagram and the light green route). Without a sectoral or innovation expert reviewing the proposals it is hard to assess if some of these are innovation with some element of risk, or if they are largely no regret or low regret measures.

Section 3: Innovation and the Adaptation Fund: further defining the innovation space

- AF has not been deliberately targeting a particular part of the innovation cycle with activities so far, however small grant proposals have tended to cluster on a diffusion pathway of existing technologies, tools and practices. These innovations have largely been incremental or adaptive.
- Many dimensions of project design will tend towards the diffusion pathway and more incremental innovation projects unless the AF makes a set of deliberate choices to select and incentivise other pathways.
- There is a need to provide targeted support to some NIEs to apply for innovation funding, or to overcome the barriers of adoption. This would enable the efficient use of funds available under the dedicated funding window for innovation small grants.
- AF has strengths as a fund that supports concrete adaptation projects with a track record of good national relationships and projects in a range of contexts.
- Other funds also support some aspects of adaptation innovation, for example the LDCF & SCCF contribute to the Adaptation Challenge Fund. The role AF can play within innovation funding for adaptation needs to be either highly targeted or acting as a catalyst or demonstrator. In either of those roles there is a need to position the AF as part of a broader pipeline to other funds or forms of investment, whilst also building on and retaining the country-led nature of the funding.

How do AF's activities currently map onto the innovation cycle and types of innovation?

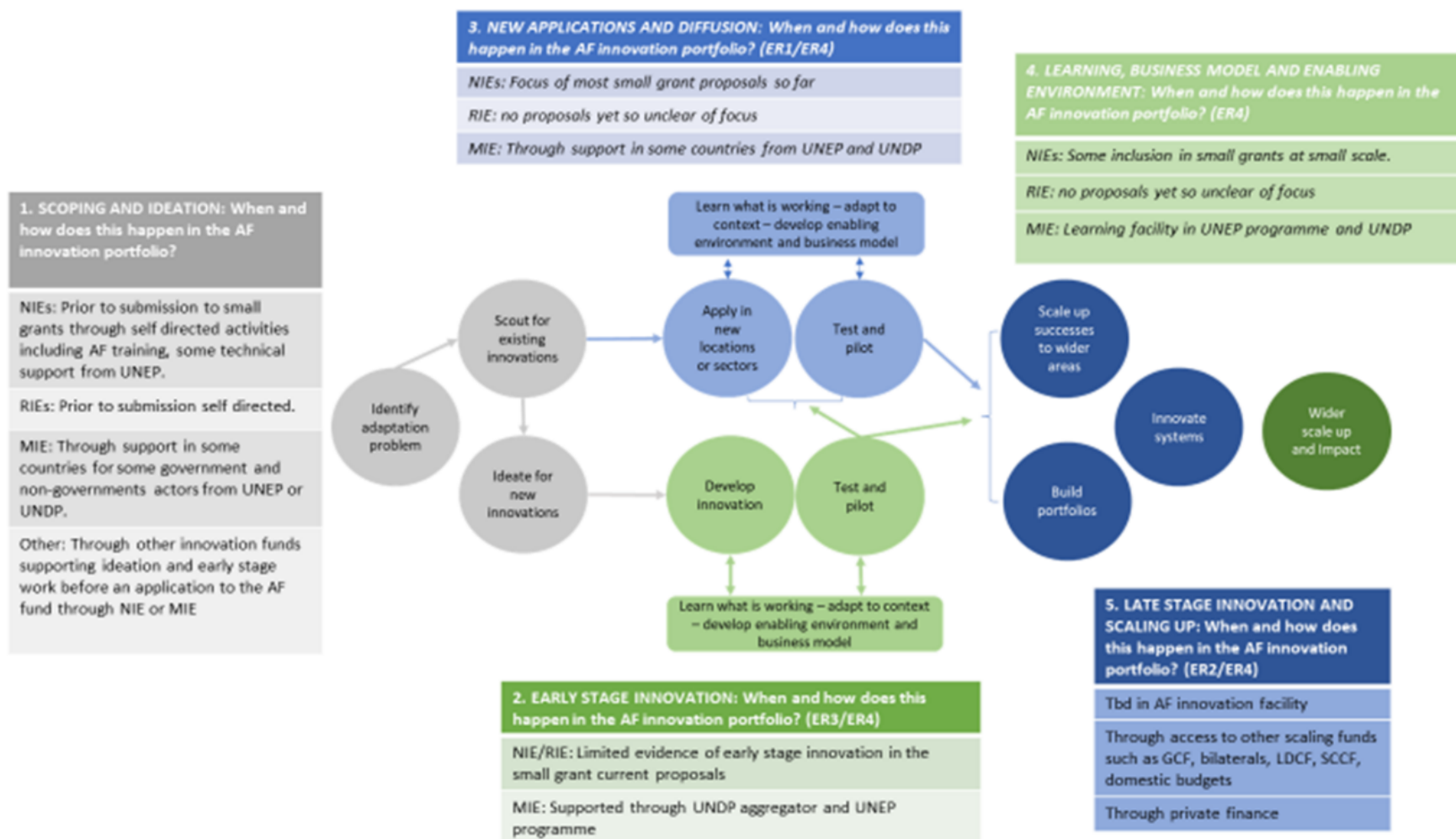
AF's activities on innovation fall mainly under the diffusion pathway shown in the diagram below. Some proposals work in ideation and scoping, and a few address early stage innovation and more may follow within the Aggregator programmes. In most cases the innovation can be identified as incremental or adaptive.

The type of proposals the AF will receive is influenced by:

- how the funding call is framed;
- the existing understandings and capabilities within the IEs around innovation;
- the existing relationship the IEs have to the AF;
- the IE's expectations of what a climate adaptation project looks like;
- and the modalities of project access and design.

Many of these will tend towards the diffusion pathway and more incremental innovation projects unless the AF makes a set of deliberate choices to select and incentivise other pathways.

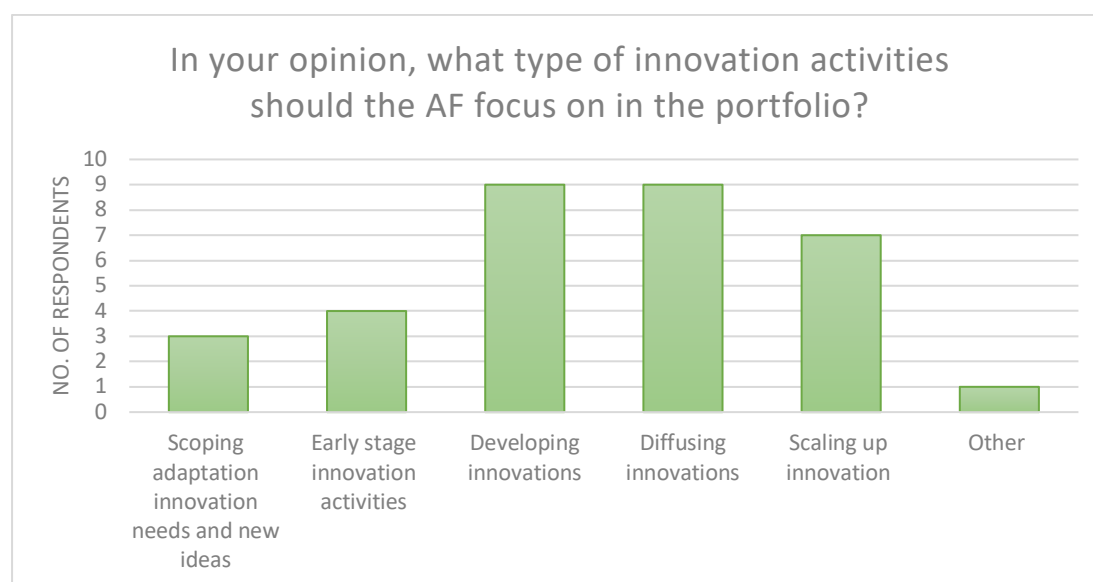
Figure 4: Mapping AFs activities onto a simplified innovation cycle



The AF Board largely anticipates the activity of the AF to be on the pale green, pale blue and dark blue sections of the diagram above. The difference here is how much the new innovations are encouraged versus the tendency towards diffusion in the current proposals.

Responses to the Board survey³⁹, showed a variety of views of where the Fund should focus although most respondents agreed on developing and diffusing innovations (the pale blue and green pathways).

Figure 5: Board responses to survey on type of innovation to be supported



The rationale for these choices, again shows a range of views with some Board members emphasising the early stages of innovation and others highlighting the role of the Fund at later stages in diffusion and scaling.

Rationale for choices above:

Help in the upscaling of new and existing technologies.

New environmentally sound technologies are key to fighting climate.

Support early stages is key. It is very important also to be able to replicate or scale projects.

In many contexts there is no need for R&D in terms of tools and technologies but a need for innovative project set-up which allow integrated and sustainable project implementation and outcomes.

Provide funding when the innovative solutions are already defined and when a pilot could be financed. Then fund mandate is to demonstrate results on the ground. Don't do the job of an incubator but arrive later.

AF should be cautious of financing technological prototypes.

It should capitalise on engagement of communities, optimal use of available resources, knowledge sharing, utilize the experiences and lessons learned from the past.

The Board survey also highlighted a number of areas where some members perceived risk to be acceptable in innovation projects and this showed a range of views between members, from accepting

³⁹ An online survey was conducted over June 2020, there were 10 responses.

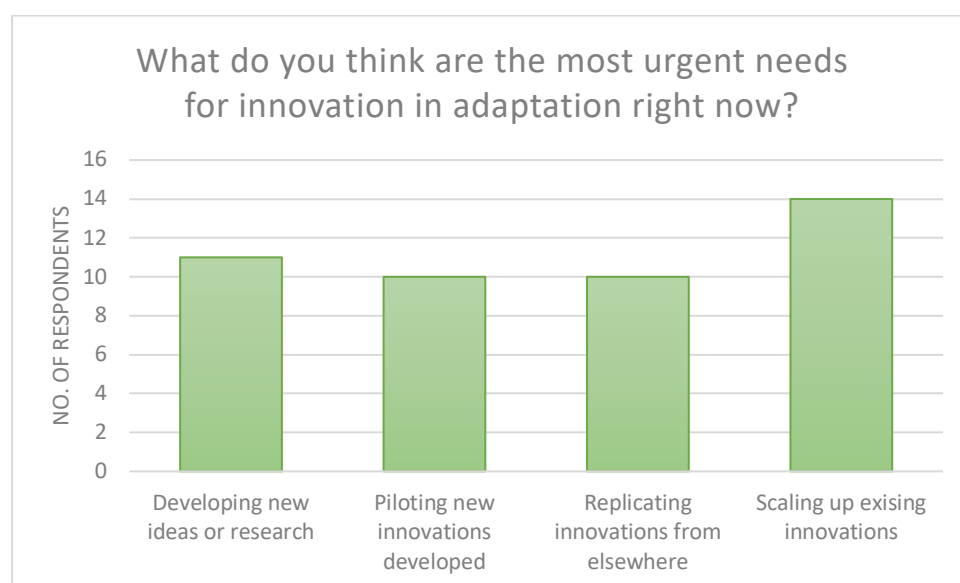
higher levels of risk to others suggesting innovation projects should be no regrets or have a very limited appetite for risk. Illustrative risks that were thought to be acceptable by some members were:

- Changes in implementation
- Acceptable to not deliver expected objectives

Other responses suggested the Fund should tolerate only limited risk or no regret and limit funds to more risky projects, and projects should still be sustainable.

A survey conducted amongst Implementing Entities in June 2020⁴⁰ showed a higher preference for scaling up existing innovations and developing new ideas.

Figure 6: Implementing Entities opinions on priorities for innovation in adaptation



What are the perceived needs for innovation and adaptation amongst countries?

Four NIE interviews undertaken for this exercise showed some illustrative views of the NIEs although further work would be needed to fully understand their perspectives. Interviews suggested that NIEs were willing to take more of a risk on the small grant and were using the small grant to test and pilot technologies or approaches they had been exposed to elsewhere. Some respondents who had not been successful talked more about their grant application as a standard project, and this being one source of funding they applied for amongst many to implement the adaptation actions they needed to. The NIEs also expressed a need for better understanding the AF is defining innovation and the risk appetite of the AF.

The Board survey highlighted the following areas for focus:

- Agriculture and land use
- Food and water security
- Disaster management

⁴⁰ This was a survey on responses to COVID19 sent to all implementing entities in June 2020, with some additional questions on innovation. There were 29 responses.

- Infrastructure
- Health and social insurance

What are the particular strengths of AF as a funder of innovation?

The Medium-Term Strategy defines the specialised niche of the AF within the evolving architecture of international climate finance, as⁴¹:

- Concrete action in developing country Parties
- Small-scale (“starter”) projects/programmes, typically under US\$10 million for a single-country project or US\$15 million for a regional programme
- Direct and Enhanced Direct Access modalities
- Building the capacities and track records that NIEs require to access significantly higher levels of adaptation finance
- Testing new practices, tools, and technologies for effective adaptation
- Pragmatic learning and sharing, especially through south-south collaboration

The table below summaries the strengths and weaknesses of the Fund in the area of innovation.

Table 4: Strengths and weaknesses of AF as a funder of innovation

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Country-driven ▪ NIE mechanism and relationships ▪ Relatively light touch application and approval ▪ Innovation funds outside the country cap ▪ Strong leadership by the Board ▪ Community of practice and learning focus ▪ Nimble in focus and strategy ▪ High level commitment to innovation ▪ Experience of on the ground projects ▪ Able to offer full cost grants 	<ul style="list-style-type: none"> ▪ Relatively small funds for task at hand ▪ Project management and processes more appropriate to regular projects than innovation ▪ IE mechanism might not open out to all innovative actors ▪ Lack of private sector engagement for scaling mechanisms ▪ Limited support for innovation ecosystems and pipeline development

Source: authors analysis building on consultations, the Board survey and documentary review.

The direct access model of the AF suggests in many cases it will be government departments or agencies applying to the fund for innovation ideas or scaling up. Whilst economists such as Mariana Mazzucato argue for the crucial role of governments in being entrepreneurial and supporting innovation⁴², there are particular challenges to public sector innovation that the AF may need to consider to enable some NIEs to access the fund for innovative projects and to fully realise the potential of the funding. NESTA outlines the five main factors stopping public sector innovation.⁴³

⁴¹ MTS, 2018, <https://www.adaptation-fund.org/wp-content/uploads/2018/03/Medium-Term-Strategy-2018-2022-final-03.01-1.pdf>

⁴² Mazzucato, M., (2018) The Entrepreneurial State: Debunking Public vs. Private Sector Myths, Penguin, London.

⁴³ NESTA, 2014, Innovation in the public sector: how can public organisations better create, improve and adapt? https://media.nesta.org.uk/documents/innovation_in_the_public_sector-how_can_public_organisations_better_create_improve_and_adapt_0.pdf

- No investment models for innovation in organisations
- Lack of dedicated budgets, teams, processes and skills
- Discouraging reward and incentive systems
- Departmental silos blocking the sharing of innovation
- Lack of mature risk management methods for experimentation

A survey with LDC government representatives to the UNFCCC showed that lack of capacity to engage with the finance and mechanisms around technology access and transfer are key issues, including through mechanisms such as CTCN⁴⁴.

There is a need to provide dedicated support to some NIEs to apply for innovation funding, or to overcome the barriers of adoption. Just providing the open funding window for NIEs may not allow them to access the innovation funds, without further ways to address these institutional constraints.

What is the broader funding landscape around innovation and adaptation?

The table below summarises the activities on adaptation innovation in the other climate funds. We see that LDCF, SCCF and GCF are funding technology transfer. LDCF funds early stage piloting of initiatives to de-risk them for wider scale up and the GCF aims to act as an amplifier and accelerator of activities funded by the other funds as well as take on early stage high risk high reward innovations with paradigm shifting potential. The Challenge Program funded by the LDCF and the SCCF as well as many of the GCF activities have a focus on catalysing private sector investment.

Table 5: Innovation funding of other funds

Funds	Innovation activities or strategy	Lessons
GEF Challenge Program for Adaptation Innovation (LDCF & SCCF)	Challenge Fund - US\$10 million to harness the potential of the private sector actors, open to any applicants. 9 projects selected.	Need to explore possibilities to increase support for systemic approaches to adaptation for greater impact, particularly on finance and insurance ⁴⁵ . Very high level of applications, only 2.3% were funded.
SCCF	The SCCF has two active windows (1) Adaptation and (2) Transfer of technologies for all eligible developing countries ⁴⁶ . The GEF 7 adaptation strategy emphasizes a strategic objective for the LDCF and SCCF on innovation ⁴⁷ : reduce vulnerability and increase resilience through innovation and	According to the 2017 IEO evaluation, the SCCF's openness to innovation is a comparatively distinct element, as it serves as an ideal incubator for countries to test and refine project concepts, prior to seeking large-scale financing through other means ⁴⁸ .

⁴⁴ Craft et al., (2018) <https://pubs.iied.org/pdfs/10189IIED.pdf>

⁴⁵ https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF_LDCF.SCCF_27_Inf.04_Progress%20Report%20on%20the%20Challenge%20Program%20for%20Adaptation%20on%20Innovation_0.pdf

⁴⁶ <https://climatefundsupdate.org/the-funds/special-climate-change-fund/>

⁴⁷ www.thegef.org/sites/default/files/documents/EN_GEF.LDCF.SCCF_24.03_Programming_Strategy_and_Operational_Policy_2.pdf

⁴⁸ www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.LDCF.SCCF_24.03_Programming_Strategy_and_Operational_Policy_1.pdf

	technology transfer for climate change adaptation.	
LDCF	<p>The GEF-7 strategy emphasizes this objective for the LDCF: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.</p> <p>LDCF investments will not focus on commercial level scaling-up and mass diffusion of adaptation options in isolation. Instead, targeted investments will build on its comparative advantages to pilot and vet emerging initiatives, and to reduce uncertainty and risk and create enabling conditions, with a view to facilitating partners to catalyze larger-scale deployment and replication through various means, domestic and international, as well as private and public. The engagement of local private actors and micro, small, and medium enterprises will be facilitated⁴⁹.</p>	
GCF	<p>Portfolio outcome 2 of the GCF 2020-2023 strategy: Climate innovation catalysed: increased number of innovative, high-potential business models, technologies or practices demonstrated or adopted⁵⁰.</p> <p>Project funding can take the form of grants, equity, loans or guarantees depending on developing countries' needs.</p> <p>Designing Climate Innovation Facility to include adaptation, focusing on incubation, acceleration and growth funds. Incubation phase will be run by GIZ.</p> <p>Supports readiness projects on technology through CTCN. Uses financial instruments in innovative ways. Paradigm shifting criteria, supports innovative approaches⁵¹.</p>	Still in early stages

Annex E shows some interesting approaches to funding innovation within international development, that showcase new methods and ways of instigating more transformative innovations. These examples could act as inspiration for IEs or be part of the network the AF could build as part of supporting a wider innovation pipeline. In consultations with other funders of innovation, an interviewee stressed the lessons from their own experience which were basically that a funder needs to decide what they were doing innovation for, what type of innovation they were doing, and with

⁴⁹ www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.LDCF_SCCF_24.03_Programming_Strategy_and_Operational_Policy_0.pdf

⁵⁰ GCF Strategy 2020-2023, <https://www.greenclimate.fund/document/gcf-b24-inf01>

⁵¹ Consultation with GCF team, 19.06.2020.

which target group of innovators, in order to be successful.⁵² The consultations and the review of other organisations also highlighted the intense input funders expect to put into their innovation programmes to develop some really high potential innovations, be that a five day bootcamp in the case of WFP, year-long mentoring and business support through EIT Climate-KIC or regional hubs in the case of the new initiative by the GCF. Experience from the GEF Challenge Program which is open to all organisations and companies to apply was that there was no shortage of high-quality ideas for adaptation innovation⁵³. The GEF experience also highlighted the need to be explicit on the breadth and possibilities in the proposal to encourage the widest range of innovations, whilst WFP only select proposals that would have the potential for global impact.

This emphasises the need for the AF to be very clear about (i) who it expects to be doing the innovating in this funding window, and (ii) how they will access the support they need to develop more transformative innovations for adaptation. There is a need to position the AF as part of a broader pipeline within an ecosystem of other funds or forms of investment, whilst also building on and retaining the nationally led nature of the funding.

⁵² Consultation with the WFP Accelerator Programme, 29.06.2020.

⁵³ Consultation with the GEF, June 2020.

Section 4: Strategic directions

“Innovation is complex, uncertain, somewhat disorderly, and subject to changes of many sorts. Innovation is also difficult to measure and demands close the coordination of adequate technical knowledge and excellent market judgment in order to satisfy economic, technological, and other types of constraints – all of them simultaneously” (Kotsemir et al. 2013).

- There are a number of quick wins the AF could implement to further the quality of their innovation pipeline and increase the likelihood of more transformative outcomes.
- Early stage of project design needs more support under the innovation window as an innovation project needs to operate within a different project mindset and early processes of ideation and scoping are essential to generating more breakthrough options.
- Defining innovation funded through the innovation window relative to ‘standard’ adaptation and technology transfer would clarify for stakeholders what is funded under the innovation window and what is good practice within adaptation.
- The AF should more explicitly define its risk appetite for different types of risk and take account of the risks of not being innovative enough for concrete adaptation action on the ground. This could involve pushing all projects to take higher risk for high potential innovations or defining an envelope of risk options and seeking to fund projects across the spectrum.
- Generating evidence is a critical dimension of an innovation project and needs to be practical but robust.
- COVID 19 presents a number of challenges and opportunities. The AF could still run innovation support virtually and including an emphasis on ideation and scoping would allow large grants to make a start under social distancing. Or the AF could be more proactive and seek to catalyse the natural innovations that have been occurring under COVID to launch a special window designed to rapidly build at scale those that also reduce vulnerability to climate change.
- There are a number of potential directions for the large grants depending on if the AF wants to position itself. Three options would be as a diffusion specialist, a catalyst of bottom-up innovation or a funder for demonstrations of systemic solutions.

Deliberate and supported innovation project design

There is little explicit support for ideation and scoping within the current AF innovation facility design, but this stage is critical to bringing in high quality innovation proposals and stretching the envelope to higher risk and higher potential proposals.

The IEs may not be the natural innovators in their country or region and so bringing in a wide range of actors (beyond the usual project consultations) is an essential component of innovation design, as is starting from a problem and scouting widely for the most effective and relevant solutions. Other elements of innovation project design include building in scaling strategies or business models and in some instances working creatively with the private sector.

The AF has a number of mechanisms to support IEs further in innovation design utilising the readiness programme and/or the community of practice. The forthcoming training on applying for the small grants for the NIEs is a good start but further support is needed to develop projects with higher potential under the innovation window. Another mechanism could be through developing a network

with other funders of innovation to ensure those supporting early stage work are connecting to NIEs and RIEs as sources of local innovation.

This need for support continues through the project cycle as an innovation project should by its nature be iterative and so might require innovation coaching, networks or wraparound support if the NIE or IE has limited experience with innovation, or national organisations with this expertise could be included in the proposal.

Defining innovation

There is a need to further define innovation within the AF relative to two related areas of funding if the AF wants to encourage a wider range of proposals. These two related areas are the standard adaptation action pillar and technology transfer activities within the UNFCCC and the other funds. However, as seen above in responses to the consultations there are a wide range of opinions on this issue amongst AF stakeholders and so refining this may take some time and further consultations.

As discussed in section 2, one way of doing this is the following:

- **Adaptation is often something new in a specific context but if the intervention has been well demonstrated and understood in similar contexts and is a low or no regret measure and is not innovation.**
- **Technology transfer of an adaption technology that has already been well applied and understood in similar contexts is not innovation.**

The framework below is a proposal for essential dimensions of an innovation process and innovation criteria for the AF. The idea of the criteria for the innovation process is also to emphasise that innovation project design is different from conventional project design and project design matters for how effective an innovation fund can be.

Table 6: Proposed framework for innovation process and innovation qualifying criteria

Initial review of innovation process. All of the below to qualify:	Y/N
<i>Has the proposal shown evidence of or plans for scouting widely for existing innovations with a wide range of stakeholders?</i>	
<i>Has an unmet adaptation need been identified that could be met through innovation?</i>	
<i>Is there a specific strategy and budget for learning and identified learning questions?</i>	
<i>Is there a potential route to scale up or wider impact?</i>	
<i>Does the innovation have the potential to make a significant improvement to adaptation? OR Does the innovation have the potential to have a transformative impact?</i>	
Innovation criteria. One of the below to qualify for the innovation window:	Y/N
Innovation has high potential but adaptation impact is unproven	
Innovation needs to be adapted and customised to a new context	
Innovation needs to be tested and piloted to generate evidence for potential scaling	

The AF does not currently define the type of innovation it wishes to support (i.e. incremental, adaptive or breakthrough). There would be a further option to include as an essential criteria that the innovation has a transformative impact to mitigate against more incremental proposals or for the AF

to seek to balance its portfolio across innovation types with some funds reserved for breakthrough proposals.

Defining a risk appetite

Regular project modalities and conventional risk appetites can lead to incremental innovation or a pressure towards less risky options such as diffusion or scaling up of known low regret technologies. Experience from the GEF for example shows that in their experience of funding innovation,

“an expectation of very high rates of success and an intolerance for failure results in conservative goal-setting (modest and achievable targets) and risk aversion (reliance on proven, established approaches), resulting in strong disincentives to innovate. The incentives, for both agencies and countries, are to fall back on trusted and true solutions that have been proven to work. The enemy of innovation is a solution that works (GEF, 2016 p16).

But innovation funding can play a specific role, pushing the risk envelope to activities with higher risk as no regret and low regret measures do not require innovation funding. It also needs to take into account the risks of not being innovative enough, such as supporting innovations that are not the most effective or will need to be leapfrogged at a later date, or missing opportunities for systemic or transformative change possible with high potential innovations.

“It is precisely due to the short-term nature of private finance that the role of public finance is so important in nurturing the parts of the innovation chain subject to long lead times and high uncertainty”⁵⁴.

Table 7: Identified risks of funding innovation

Risks of innovating	Risks of not innovating enough
Lack of development impact or concrete action	Missing more effective innovations
Reputational risk	Spreading AF impact too thinly
Maladaptation	Missing systemic or disruptive opportunities

Source: Identified through consultations and authors analysis.

The default risk appetite of the AF innovation window is low. Aggregators expect most of their projects to be successful, and although NIEs are testing and piloting something new through the small grants these ideas are often still within conventional assumptions and models of incremental innovation.

The AF have a number of options here to diversify the risk profile of the innovation portfolio.

- To explicitly call for more transformative innovations (could be called breakthrough) which will carry a higher potential, but also high risk of failure
- To use an innovation sector specialist to review the proposals to assess the level of risk on the proposal and the level of innovation potential
- To deliberately select proposals across the risk envelope with a few higher risk very high potential proposals

⁵⁴ Mazzucato, M., 2017, p26, <https://www.thersa.org/globalassets/pdfs/reports/mission-oriented-policy-innovation-report.pdf>

- To develop a wraparound support programme that works with innovators to develop their proposals once submitted to increase potential and impact
- To work with the MIE aggregators to define levels of risk and ensure the normal risk tolerances of approach to standard project design are being challenged
- Develop collaborations with others funding early stage high risk early activities in countries and regions to support bringing the highest potential innovations into the AF pipeline

This is not only about a defined risk appetite but also a culture of working within the selection and management of these projects. As an interviewee said in a consultation, *'You need to be flexible to change. You need to be open to failure, and you need to be open to learn from failure. Failing should in itself not be seen as a problem, but as a learning opportunity'*⁵⁵.

Project selection

Selecting projects for innovation needs a different approach to regular projects to ensure the high potential innovations are selected. This needs a specific innovation review by a sectoral specialist to confirm if there is uncertainty or risk around the diffusion of the technology, or if the application is already well understood.

It can be very difficult to foresee the outcome of successful innovation projects or define the pathways to success. "Picking winners" can be very difficult to do, so picking a wide range of options and pathways can help increase the likelihood of something having a transformative impact.

Developing innovation networks

AF is unlikely to support very early stage innovation with a very high failure rate given the focus on tangible outcomes but could usefully work with those who are to ensure there is pathways for developing those that pass a proof of concept. This could include philanthropic funds as well as programmes of international organisations. The LDCF & SCCF Challenge Fund could be one source for the pipeline as well as the GCF incubator and accelerator (not yet operational). One mechanism for this could be through the secretariat, another through the community of practice. See Annex E for a summary of some of the organisations working on the innovation and international development space.

Importance of evidence and effective evaluation of innovations

Generating evidence is an essential part of the small and large grants as they are testing and developing unproven innovations. Whilst this is an expected results area within the MTS, there needs to be a greater focus on effective evidence through research and evaluation on the innovation grants with specific budget and strategies for research and evaluation to be undertaken iteratively within the programme to feed back into project design and scaling. Some existing learning strategies within the small grants for example are focused on output measurements or will only capture if the project has been successful in delivering what it promised, rather than the actual potential for adaptation impact of the innovation. This may require collaborations within the large grants with local research or evaluation organisations to provide high quality, actionable intelligence.

Innovation in the time of COVID 19

COVID 19 presents particular challenges for the next steps of the innovation grants but also opportunities. A survey of Implementing Entities in June 2020 showed that demand may actually have increased for the innovation grants with almost half of all respondents saying they were more likely

⁵⁵ Consultation, 12.06.2020.

to apply for the grant⁵⁶. One respondent however made the point that with COVID19 and another existing AF project they would not have the capacity to apply for the innovation grant.

The potential opportunities from COVID29 for the innovation window are as follows:

- The needs identified for further innovation project design support could be addressed in a COVID context which would also keep costs lower and allow greater participation.
- Bringing a greater focus to ideation and scoping within both grants would both support higher quality concrete action on the ground but also allow innovation activities to go ahead under COVID-19 which much of this ideation, scouting and scoping being done virtually or through socially distanced approaches.
- Leverage the natural experimentation that has happened around COVID19 and has adaptation benefits to fund development and scale up through a specific call or a challenge fund launched in 2020. This would create incentives to apply and build on a transformative window and period of innovation within national systems.
- COVID could also give the opportunity to focus on calls that innovate with digital tools or systems such as finance and insurance that might be more feasible to work through with social distancing.

Scoping options for the large grants

The following are some initial scoping options for the large grant facility exemplifying the potential roles the AF could play as a catalyst, a demonstrator and/or diffusion specialist within innovation funding. These should be considered in the light of the recommendations above which all apply to the large and small grants.

Ideation and scoping could still be essential stages of the large grants. Unless there is a single point technology that has been well demonstrated with high quality evidence through a small grant or other mechanism, there is likely to be a need to further scope the adaptation challenge and scope wider for more effective solutions with transformative potential. This will increase the quality and the effectiveness of the large grants.

The role of the private sector is an important question across the grants – with this being encouraged in the Medium-Term Strategy. The other funds have more of a focus on the private sector⁵⁷, and so the AF could either work to develop further capacity in this area through for example demonstrating new forms of public-private partnerships (in direction 3), or also make a virtue of being able to fund innovations that are unlikely to have a commercial angle and so are less likely to be picked and scaled through other mechanisms.

Direction 1 Diffusion and roll out

The first option is to support fast diffusion with a focus on learning fast which innovations work best in different contexts, generating evidence for wider scale up and private sector engagement. This option builds on the current trajectory of the Innovation Facility but builds in the improvements suggested above and seeks to select for innovations with very high potential despite potential risks. Several programmes focus on engaging SMEs and the ideas or innovations of these could be part of the pipeline into the large grants. This direction could aim for more of a regional focus, seeking to

⁵⁶ The innovation questions were part of a survey sent to all Implementing Entities about their response to COVID19. There were 29 responses.

⁵⁷ See the experience of the GEF with PPP - <https://www.thegef.org/content/public-private-partnership-program>

share lessons on a particular innovation and scale it up regionally in similar contexts, and could include regional innovation labs prior to submission and ongoing learning events to share potential innovations and lessons.

The table below summarises some strengths and weaknesses of this option.

Table 8: Diffusion pathway

Objective	Notes
<ul style="list-style-type: none"> Provides support for higher risk innovations to be rolled out Connects to small grants and wider ecosystem or the pipeline Generate evidence for south-south learning 	Single point solutions – could have significant impact if very high potential
	Can be strengthened through further process and design support, emphasis on evidence generation and ongoing connections to the broader innovation ecosystem and pipeline.
	Likely to support direct access and countries with more limited innovation capabilities
	<i>Risk of innovation:</i> relatively low risk of not achieving development impact but could be pushed towards higher risk through selection and support for ideation/scoping for more transformative potential. Regional angle could add higher potential.
	<i>Risk of not innovating enough:</i> Will tend towards incremental and adaptive solutions which will either need to be managed as suggested above or accepted to support countries with lower innovation capabilities.

Direction 2 Innovative modalities for funding innovation

The AF has a track record of innovation around funding modalities. One direction for the large grants would be to develop a new modality itself the focus of the innovation. The new modality should be more likely to support greater innovation with a concrete impact than the traditional project pathway through the IEs. For example, one approach would be for IE proposals to focus on a particular adaptation problem and aim to catalyse a wide range of local actors and solutions through innovation labs to receive funds to pilot innovations and then select some for scale up. Perhaps using modalities such as those tested in South Africa through enhanced direct access, the NIEs or other IEs would support a wide range of unusual grassroots actors to gain a much wider base of innovations to select from and scale up. This would also create significant knowledge and innovation on a specific adaptation challenge which could have significant impact on adaptation within the region through mechanisms such as the community of practice. This has some similarities to the aggregator mechanism under the small grants but focuses on a specific adaptation challenge and would be more accessible to local actors if run at national, regional or city level. It also has the potential to be run as a portfolio. Some of the gaps identified in the wider landscape are around the engagement of bottom-up innovations through community groups, young people or informal settlement federations for example.

Table 9: Innovative modality pathway

Objective	Notes
<ul style="list-style-type: none"> ▪ Catalyses bottom-up innovations from wide range of unusual actors on specific adaptation challenge ▪ Runs pilots and then selects limited number for small scaling ▪ Solutions may interact on the problem and address different dimensions ▪ Could have national or regional focus 	Single point solutions but could interact as a portfolio – could have significant impact if very high potential
	Would need process and design support and emphasis on evidence generation
	Would generate substantive impact on focus area
	<i>Risk of innovation:</i> high risk of not achieving development impact in all initial pilots but possibility of selecting transformative solutions in initial scaling. Successful modality ensuring national ownership could have significant impact in wider innovation and technology transfer funding.
	<i>Risk of not innovating enough:</i> likelihood of more breakthrough innovations emerging if wide range of actors engaged and high-quality process and support is offered.

Direction 3 Demonstrate new approaches such as systemic innovation

This last option is about demonstrating to other funds what is possible through innovation supporting disruptive, transformative or systemic proposals with higher risk to demonstrate where further funds can be effectively applied. Systems level approaches are a gap within the wider landscape which focus on single point technologies and the AF could play an important role in demonstrating the effectiveness of working on multiple points within a specific innovation system within a defined context. Criteria for selection here could be around if the approach has already been tried or if other funds would fund this under current criteria. This could also be a space to explore public-private partnerships and how AF could use this modality.

Table 10: demonstrating new approaches pathway

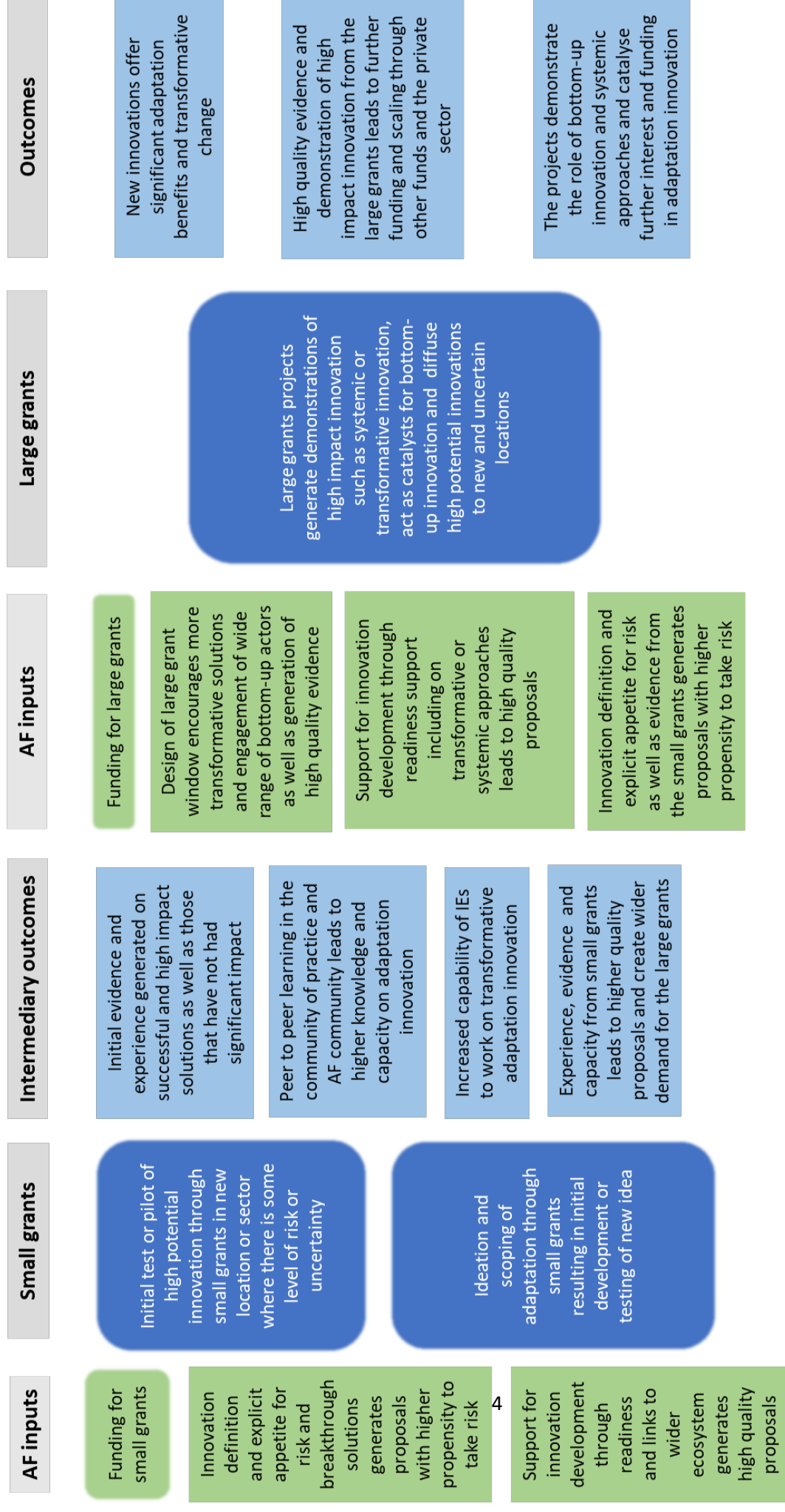
Objective	Notes
<ul style="list-style-type: none"> ▪ Demonstrates high potential approaches not captured well elsewhere for wider scaling ▪ Systemic focus ▪ Public-private partnerships where applicable 	System-level focus – could have significant impact and address multiple levels needed for adaptation impact simultaneously.
	Systems innovations can be chosen to intervene in current system at strategic points rather than building systems or institutional strengthening activities, to ensure concrete impact is felt within project timeframe.
	Would need process and design support and emphasis on evidence generation
	<i>Risk of innovation:</i> medium risk of not achieving development impact but possibility of demonstrating something transformative.

Risk of not innovating enough: systemic solutions may not be disruptive or breakthrough but have higher likelihood to be if high quality process and support is offered.

Risk of longer-term approaches if focus moves to building systems but can be mitigated through focus on strategic change points within existing adaptation systems.

Theory of change

The theory of change below outlines how the proposed refinements to the AF innovation approach would support higher quality, more transformative innovation for adaptation.



Annexes

Annex A: List of consultations

Name	Organisation
Jason Spensley	GEF
Ania Grobicki	GCF
Emersen Resende	GCF
Joseph Instiful	GCF
Joshua Amponsen	YOUNGO
Arturo Salazar Toledo	YOUNGO
Julia Grimm	Germanwatch
Dennis Bours	AF IEU
Mahamat Assouyouti	AF Secretariat
Farayi Madziwa	AF Secretariat
Cristina Dengel	AF Secretariat
Alyssa Gomes	AF Secretariat
Bianka Kretschmer	AF Secretariat
Saliha Dobardzic	AF Secretariat
Brianna Craft	International institute for Environment and Development (technology transfer specialist)
Dr Julie Calkins	EIT Climate-KIC (adaptation innovation specialist)
Neil Walmsley	EIT Climate-KIC (adaptation innovation specialist)
Chongguang Yu	UNDP (MIE Aggregator)
Jessica Troni	UNEP (MIE Special Funding Window)
Ho-Sik Chon	CTCN
Marc-Antoine Martin	AF Board Member
Claudia Keller	AF Board Member
Ibila Djibril	AF Board Chair
Carried out by consultancy team with an NIE representative	NIE Antigua & Barbuda
Carried out by consultancy team with an NIE representative	NIE Tanzania
Carried out by consultancy team with an NIE representative	NIE Uganda
Carried out by consultancy team with an NIE representative	NIE Chile
Lorenzo Boli	WFP Accelerator
Hila Cohen	WFP Accelerator
Micol Mulon	WFP Accelerator

Annex B: Definitions and criteria used within the Adaptation Fund

Adaptation Fund	UNEP Special Financing Window	UNDP Innovation Small Grant Aggregator Programme
<p>The Paris Agreement does not define innovation.</p> <p>In the absence of further guidance from Parties, the Adaptation Fund understands innovation to be the process of translating an idea or invention into a valuable good or service at an economical cost⁵⁸.</p>	<p>The “application of physical tools, processes, knowledge and skills with the aim of building resilience and adapting to climate change”. They use three main elements to identify and assess innovation in adaptation technology:</p> <ul style="list-style-type: none"> ➤ It can a new, existing or improved technology; ➤ It can be of 2 types: a hard or soft technology – i.e. the hard- and soft- ware; and ➤ It should be scalable (e.g. supported by suppliers by private entrepreneurs by financially viable and scalable business models). 	<p>Adaptation innovation criteria:</p> <ul style="list-style-type: none"> ➤ <i>Different or Better.</i> The proposed idea must be an improvement over existing solution or new solution that is different than the existing adaptation solutions. ➤ <i>Delivers Value/Solves an Adaptation Problem.</i> The proposed idea must address a specific and sizable adaptation problem that is incurring a cost (either in cash or in kind) to the target beneficiaries. ➤ <i>Cross-scale policy and acceleration potential.</i> All proposed projects will identify and engage tested solutions for potential replication, up-scaling, or integrating of the innovations to be supported, and describe a process to support such processes. ➤ <i>Doable/Practical.</i>

⁵⁸ MTS, 2018, <https://www.adaptation-fund.org/wp-content/uploads/2018/03/Medium-Term-Strategy-2018-2022-final-03.01-1.pdf>

Annex C: Examples of innovative elements of projects under the main adaptation pillar

	<u>Honduras</u>	<u>South Africa</u>	<u>Pakistan</u>	<u>Georgia</u>
Date	2010	2015	2010	2011
Grant Amount	5,620,300 USD	2,442,682 USD	3,906,000 USD	5,316,500 USD
Sector	Water Management	Multisector	Disaster risk reduction	Water management
Problem	Droughts and water scarcity	Vulnerability to dry and wet spells, along with increasing temperatures	Climate-related hazards	Floods and flash floods: soil erosion
Objectives	To develop and improve water resources management and capacity building and outreach	To implement a small grant finance mechanism to address financial, capacity and adaptation needs.	To reduce risks and vulnerabilities from glacial lake outburst floods and snow-melt flash floods through capacity building	To increase awareness in the community on river basins adaptive measures: introducing a floodplain development policy
Innovative elements	The Government of Honduras understands this project as a pilot experience that will generate foundational capacities and develop basic tools and information to ensure that climate risks are incorporated into planning and investment processes. The project will serve to capture and systematize lessons learned and practices.	The project is an innovative approach to respond to local climate adaptation needs. The small grant facility was a pilot in South Africa, with 3 investments in mind: 1. Climate-Smart Agriculture; 2. Climate-Resilient Livelihoods; or 3. Climate-Proof Infrastructure. The initial technical review by the AF recognized the innovative nature of the proposal of piloting enhanced direct access to adaptation finance.	The project itself was deemed innovative as non-governmental organizations and other institutions were not well established within the valley to respond effectively to such disasters. Similarly, it was a first on its kind: a two-year pilot project to help local communities adapt to the growing pressures of climatic change (downstream mitigation structures to reduce the vulnerability of exposed mountain communities to GLOF hazard). For instance, one of the innovations was the establishment of the first ever community-based Disaster Risk Management Committee (DRMC) in the area. In the process, the Project demonstrated a number of innovative approaches particularly involvement of community members in EWS establishment and management that could be expanded within the region or be replicated elsewhere in the country.	The project has been described as quite innovative and 'pioneer' for its design, as it provides a good approach for climate change adaptive management of the river basins in Georgia. Moreover, its components such as the flood insurance model is also deemed innovative. It helps to calculate losses to be insured within each flood insurance zone (based risk model and flood zoning) and the associated pay-outs that should be made in each event to each flood receptor. The insurance scheme that has been developed is weather index-based. The residents themselves considered that the practices they learned to prevent flood were innovative: use vegetative covers to improve water saturation and transmission and how trenching, terracing and re-plantation can protect villages from incoming water.

	Costa Rica	Chile	Morocco	Argentina
Date	2014	2015	2015	2013
Grant Amount	9,970,000 USD	9,960,000 USD	9,120,350 USD	5,640,000 USD
Sector	Agriculture	Agriculture	Agriculture	Agriculture
Problem	High vulnerability + low human development index.	Precipitation decreases: water scarcity and soil degradation	Productivity of oases: Drought and irrational exploitation (people have to migrate)	Droughts, water deficit and more frequent and intense floods: Effect on small-scale farmers
Objectives	To reduce vulnerability by focusing on critical sectors (agriculture, water resources & coastlines) and capacity building	To develop and improve capacity building and technology implementation	To improve adaptability of the oases population by improving the water sector, diversifying income generation, and developing capacity building	To increase the adaptive capacity and to build resilience of small-scale family agricultural producers, strengthening hydro-meteorological and agro-production monitoring systems, and enhancing institutional capacity.
Innovative elements	The programme proposal aims at addressing climate change with a national approach that requires a strong action, participation, and ownership of the different participants and sectors of the country, with an intervention that is focused on communities (bottom-up approach). Within their innovative ideas, they discussed: water safety pilot plans (requires some improvement or even new water storage technology); extended and improved metering infrastructures; systematisation of lessons learned and good practices; scaling up into new geographical areas through exchanges of initiatives among communities from areas where successful interventions have taken place; a proposal of an agriculture insurance system; use of innovative cost-effective technologies, zoning and the monitoring of the effects of climate change and its variations; an online platform with updated information on adaptation technologies; and an online training course	Among the innovations deployed are a fog-catcher, which utilizes a large screen to convert night mist into usable water; subsoil plows to perform minor tillage, improving soil fertility, retaining water and preventing erosion; and various rainwater capture systems and storage cisterns. Other elements used are: greenhouses, drip irrigation systems, greenhouses, and diversified crops. The project further provides agrometeorological information in user-friendly formats to local farmers, who meet regularly to review it with experts and apply it in practical ways. The most progressive aspect in their project was the built-in capacity it left.	Its innovation is based on the indigenous practices it brings back, they turned to a traditional system of underground water canals first developed by the indigenous Berber people of the region some 2,000 years ago. They also included activities such as alternative livelihoods through farming cooperatives and women's associations that teach weaving and cooking, while producing clothing, cooking oils, spices, olives, cereals, honey, alfalfa and other products, and help to strengthen the community. Finally, their training modules are considered innovative as they focused on adaptative measures.	There are 3 main elements deemed innovative: 1. Early Warning System and Decision-making System to assess and manage climate risks, including extreme events 2. A pilot project on insurance to cover agricultural production of small family producers 3. Tile-roof cisterns All of which have reached other regions of the country, through the work of national public agencies.

Annex D: Examples of new ways of funding innovation in international development

Organization	Funders	Founded and reach	Focus	How they approach innovation	Finance
UNDP Innovation Facility	Government of Denmark	2014. 140 experiments. 87 countries.	Technical support and funding to test frontier technologies and new approaches to: eradicate poverty, protect the planet, prevent violent conflict, manage climate change risk and advance gender equality, among other development challenges.	Initiatives are asked to incorporate clear scaling pathways from the inception (initiatives show an uptake to greater scale in almost 65% of the cases). Principles of innovation: design with the user, understand the existing ecosystem, design for scale, build for sustainability, be data driven, use open standards, open data, open source and open innovation; reuse and improve, do no harm, be collaborative.	Grants have been deliberately small and combined a mix of initiatives linked to ongoing projects as well as new endeavours.
UNDP Accelerator Labs	Joint venture with German Cooperation & Qatar Fund for Development. Powered by UNDP core partners + Ministero dell'ambiente (Italy), GIZ, NESTA, MIT innovation, UKRI (UK Research & Innovation), Qatar Computing Research Institute	2019. 60 labs. 78 countries.	A world network to tackle sustainable development challenges: each lab chooses what their focus will be. Focus on local solutions that can be scale.	Scoping: Create & develop ideas. Testing and Experimenting. How the approach 'types of innovation' is different to how AF has defined them. For them types of innovation, included but are not limited to: Citizen Science, Behavioural insights, Data innovation, Gamification. Their approach has a different mindset to the common UN style, it allows more freedom and creation. The Labs are working with grassroots communities to identify innovators, entrepreneurs and makers who are actively addressing social and environmental challenges for themselves. These types of innovations are often home-grown	

				solutions that have never been codified, applied elsewhere, nor taken to scale.	
International Development Innovation Alliance	Multiple	2015	To exchange innovation-related knowledge and learning across organisational, sectoral and geographic boundaries. Training on innovation management.	Principles to facilitate innovation: invest in locally driven solutions, take intelligent risks, use evidence to drive decision-making, fail fast and iterate, facilitate collaboration & co-creation across sectors, identify scalable solutions	
Global Innovation Fund	Multiple	35 projects (2019).	To invest in the development, rigorous testing, and scaling of innovations targeted at improving the lives of the world's poorest people.	Focus on innovations with the potential for social impact at a large scale, whether they are new technologies, business models, policy practices, technologies or behavioural insights. Supports innovators at all stages of their life cycle, from start-up and pilot-testing through to larger scale implementation. The innovations they fund can be located in any developing country and can focus on any sector relevant to international development, provided they improve the lives of those living on less than \$5 a day.	Grants, loans (including convertible debt) and equity investments ranging from \$50,000 to \$15 million.
Global Resilience Partnership	Funded by USAID, Sweden, Zurich Foundation, UKaid. There are about 20 more private & organisations called 'partners', including the CDKN that AF used to be part of.	2014. 30 million USD (2019). 16 countries	Dedicates to building resilience among the most vulnerable. One of their focus is innovation: Helping surface and test resilience innovations and incubate new ideas by designing and running undertakings with, or on behalf of, partners, and acting as a broker to scale up public	They channel resources to support the process of incubation, acceleration and scaling of effective solutions. They also dedicate space to developing new ideas.	Challenges each winning around 1 million USD or mentorship depending on the focus.

			and private investment in these innovations.		
International Rescue Committee (Airbel Center)	Elma relief foundation, START Network, UKaid, ubongo, Citi Foundation, Qatar foundation, CIFF, Twilio, Intel, GIZ, IPA, IPL, Open Society FOundations, Kingdom of the Netherlands, Vox Media, World Vision	191 field offices. 30 countries. (Airbel Center 2018)	The Innovation Lab aims to generate a broad range of innovative financing solutions, with the most feasible to then be developed further. The organization as a whole, responds to humanitarian crises with a focus on health, safety, education, economic wellbeing and power to people devastated by conflict and disaster.	Due to the need of innovation to finance crisis, the IRC created the Innovation Lab together with the the Centre for Disaster Protection: called Airbel Center. The lab designs, tests, and scales life-changing solutions for people affected by conflict and disaster.	Grants different levels
START Network	DFID, Irish Aid. More than 7000 partners	2010. 200 countries.	41 aid agencies with the goal to transform humanitarian action through innovation, fast funding, early action, and localisation (with an emphasis on crises situations)	They feel that people facing the problems are better placed to solve what's in front of them. So, they aim to foster innovation and support people to develop innovation at a local level. Their approach to innovation involves forging partnerships across the private sector and civil society too, as they can bring ideas well-tested in other situations.	
EIT Climate-KIC	European Institute of Innovation & Technology	2010. 12 countries. Some innovations in developing countries.	To accelerate the transition to a zero-carbon economy by funding innovative projects.	They bring together partners in the worlds of business, academia, and the public and non-profit sectors to create networks of expertise, through which innovative products, services and systems can be developed, brought to market and scaled-up for impact. They encourage new thinking from beyond the mainstream through initiatives like: 24-hour hackathon Climathon,	Grants (there are small ones as 20,000 Euros up to several millions)

				cleantech ideas platform Climate Launchpad. Additionally, they have an incubator programme, "Accelerator", which gives seed funding, structure and assistance to start-ups and SMEs. They also seek to build demand-driven systemic portfolios.	
Elrha (Humanitarian Innovation Fund)	UK Department for International Development (DFID), the Netherlands Ministry of Foreign Affairs (MFA), the Swedish International Development Cooperation Agency (Sida), and the Norwegian Ministry of Foreign Affairs.	2011. >150 projects	To improve outcomes for people affected by humanitarian crises by identifying, nurturing and sharing more effective and scalable solutions	They have established three thematic funding initiatives on innovation in humanitarian Water, Sanitation and Hygiene (WASH), Gender based Violence (GBV) and Accelerating the Journey to Scale. It approaches innovation across the entire lifecycle: from framing the problem, exploring and developing solutions and enabling adoption and scale.	Grants & runs a variety of themed Innovation Challenges. For research projects there are grants as small as 10,000 pounds
UNICEF Innovation Fund	Disney, Ministry of Foreign Affairs of Denmark, Ministry of Foreign Affairs of Finland.	85 investments. 55 countries.	To assess, fund and grow open-source solutions that can improve children's lives	It was specifically designed to finance early stage, open-source technology that can benefit children. They are interested in open-source projects that have already been started - running it for a while - it shows some positive indicators - but need funding to take it to a level where it can really attract additional investment and funding by generating real data.	Investments up to \$90,000 to support the acceleration of a company's work.
The Bill & Melinda Gates Foundation	Bill & Melinda Gates Foundation	2003 (relaunched in 2014 as	It focuses on 14 major scientific challenges that, if solved, could lead to key	They support innovation by setting challenges.	They offer first a \$100K seed award. After approximately a year of work facilitated by this seed award, GCE

Grand Challenges Programme	& others (when it expanded)	Grand Challenges)	advances in preventing, treating, and curing diseases of the developing world. It covers technology innovations, as well as social and business innovations.		projects are eligible to request a follow-on award for up to \$1 million.
Development Innovation Ventures (DIV)	USAID	2010. +200 innovation. 45 countries.	To test and scale creative solutions to any global development challenge.	It looks for bold development ideas, pilots them in small increments and tests their effects, and scales those that demonstrate widespread impact and cost-efficiency. It is committed to a “start-up” style of iteration and improvement, which means they provide the flexibility to test and adapt as the innovators learn and grow.	Grant investments, ranging from less than \$100,000 up to \$1.5 million. Stage 1: Proof of Concept (Up to \$200,000) Stage 2: Testing and Positioning for Scale (Up to \$1,500,000) Stage 3: Scaling (Up to \$5,000,000) Evidence Grants (Up to \$1,500,000)