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A RAPID REVIEW OF

EFFECTIVE FINANCING FOR POLICY, IMPLEMENTATION AND PARTNERSHIPS ADDRESSING DROUGHT RISKS



A RAPID REVIEW OF EFFECTIVE FINANCING FOR POLICY, IMPLEMENTATION AND PARTNERSHIPS ADDRESSING DROUGHT RISKS

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Foreword

Global challenges occurring at all latitudes are adding pressure on land and water systems and efforts towards the achievement of the 2030 Agenda for Sustainable Development are seriously at risk. The growing unpredictability of climate and the rising water scarcity and land degradation, associated to the increasing frequency and intensity of natural extremes like drought, demand adequate decisions to actualize policy commitments and produce on-the-ground evidence.

Shifting paradigm in drought management, from reactive to proactive approaches, is urgently needed to move away from emergency actions and strengthen adaptation capacity. Investing in drought risk preparedness and response is crucial to promote transformational frameworks that enhance the resilience of human and natural ecosystems and mitigate the vulnerability of the most exposed.

The current report is a contribution of the Food and Agriculture Organization of the United Nations (FAO) to build effective financing systems and contribute to unlock impactful investments for drought risk preparedness and response, ensuring integration with planning for Land Degradation Neutrality (LDN) as well as with other Sustainable Development and Rio Conventions' objectives.

Produced within the framework of an Enabling Activity project funded by the Global Environment Facility (GEF) for implementation of the UNCCD Conference of the Parties (COP) Drought Decisions, the report reflects on previous commentaries concerning the observed or anticipated effectiveness of investments in preparedness, adaptation and transformation of drought risks. Following the identification of financing and implementation at different levels, the present work also considers the necessary learning processes to ensure that anticipated effectiveness and measurable effects are achieved. Finally, it draws out and reviews understanding of the effectiveness of current economic instruments, financing mechanisms and partnerships implementing them.

Taking stock of global knowledge on effective investment decisions to address drought risks, the report outlines the need for innovative and flexible mechanisms, based on the experiences of many climate financing solutions already in place. It is thus a timely and valuable contribution to the debate on the effectiveness and monitoring of financing to transform drought risks and foster the adoption of holistic and integrated drought management approaches.



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The report follows up on a series of insights provided to the UNCCDs Global Mechanism by John Ikeda, consultant, and its content was guided by insights and information provided by Paul Desanker of the United Nations Framework Convention on Climate Change Secretariat and Caridad Canales of the United Nations Convention on Biological Diversity Secretariat, as well as Miriam Medel, Louise Baker, and other colleagues at the UNCCD Secretariat and Global Mechanism.

Essential information and discussion of the report was provided by Bob Stefanski (IDMP), Hansol Park (GCF), Juan Pablo Hoffmaister (GCF), Martina Dorigo (AF), Ulrich Apel (GEF), Nathan Engle (WB), Natalia Limones (WB), Anna Cestari (WB). Additional inputs to the discussion were provided by Stephen Muwaya (MAAF, Uganda), Luca Perez (EC), Michael Bruentrup (DIE), German Kust (IGSCCCDD), Ted Horbulyk (U. Calgary), Roger Pulwarty (NOAA), Thizisondo Srambau (DEEFF), Ahmed Alkadir Mohammed (FAO), Camilla Nordheim-Larsen (GM). Information from Kenya was reviewed by Obadiah Mungai (NEMA).

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Abbreviations and acronyms

AC	Adaptation Committee
AF	Adaptation fund
ARA	Adaptation result areas
CBD	Convention on Biological Diversity
CDP	Centre for Disaster Protection
CIF	Climate Investment Funds
COP	Conference of the Parties
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DRR	Disaster risk reduction
FAO	Food and Agriculture Organization of the United Nations
GCA	Global Commission on Adaptation
GCF	Green Climate Fund
GEF	Global Environment Facility
GEF-IEO	Global Environment Facility - Independent Evaluation Office
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse gas
IDMP	Integrated Drought Management Programme
IFRC	International Federation of Red Cross and Red Crescent Societies
INTA	National Institute of Agricultural Technology
IPCC	Intergovernmental Panel on Climate Change
IRMF	Integrated Result Management Framework
IWG	Intergovernmental Working Group
LDCF	Least Developed Countries Fund
LDFA	Land degradation focal area

LDN	Land Degradation Neutrality
MRA	Mitigation result areas
NAP	National Adaptation Plan
NEF	New Economics Foundation
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PES	Payments for ecosystem services
PMF	Performance measurement framework
PPCR	Pilot Programme for Climate Resilience
PPF	Project preparation facility
SCCF	Special Climate Change Funds
SDG	Sustainable Development Goal
SO	Strategic objective
TNC	The Nature Conservancy
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children’s Fund
UNU-INWEH	United Nations University Institute on Water, Environment and Health
USD	United States dollar
WFP	World Food Programme

Executive summary

Effective investments in drought risk preparedness and response can stimulate inclusive green growth and prevent periodic disasters from reversing development gains. There are sound business cases for concerted national and international actions to invest more effectively in transformational approaches to overcome drought risks and to prepare well ahead of time to reduce any residual risks remaining. However, drought risks and impacts are still deepening under ongoing climatic changes and terrestrial management decisions. This is making the world as a whole less secure, and causing negative effects on economies, ecosystems and the health and well-being of communities. It is not just that more investment is needed, but also that there is a need to marshal evidence to learn how investments are effective, and make progressive improvements where needed to transform the risks faced by the most vulnerable.

The international community is targeting more climate finance to adapting to drought and addressing loss and damage and reviewing ways to be more responsive to the needs of affected people. In May 2022, the 197 Parties to the United Nations Convention to Combat Desertification (UNCCD) will take stock of effective policy, implementation and partnerships for addressing drought under the UNCCD and decide what more the global policy and financing community could do about them. Alongside this, the Post 2020 Framework for Biodiversity will be concluded, and the United Nations Framework Convention on Climate Change (UNFCCC) will put the finishing touches to preparations for its Global Stock-take for the Paris Agreement to begin in 2023. In July 2022, a High-Level Political Forum of the United Nations (UN) will review Sustainable Development Goal (SDG) 15 on land (including land affected by drought), and SDG 17 on Partnerships, amongst others.

Global-national partnerships are crucial to unlock drought financing for risk preparedness and response and strengthened interlinkages are required to continue building their effective financing systems to reduce drought impacts on vulnerable communities and ecosystems. Where these are aligned and working together, the most vulnerable should not be hit the hardest when droughts strike, nor should they be alone faced with the hardest decisions what costs and risks to bear (whether for actions or inactions).

The present report, commissioned by FAO and UNCCD Secretariat, was informed by the work of the Intergovernmental Working Group (IWG) on Drought under the UNCCD, and its holistic approach with the other Rio Conventions, as well as the international sustainable development and disaster risk reduction communities. The publication builds on a recent review of drought risk mitigation, preparedness and response measures commissioned by FAO with partners in the

Integrated Drought Management Programme (IDMP), alongside a range of other recent global reviews, and the work of the Intergovernmental Working Group of the UNCCD on drought.

The report presents an overview of current knowledge and thinking concerning the effectiveness of three distinct layers of financing that set out to address drought risks in different ways. For each of these, results are conceptualized and measured in different ways for disaster risk reduction, adaptation to climate change, and transformative green finance. There is not yet any coherent global system to generate an overview of progress and gaps at the global level, nor to orient public policies and learning processes within the affected countries. This initial review explores how these gaps could be filled. It also takes a first step toward doing so by bringing together insights from the current available systems for targeting and tracking financing to address drought risks through the three layers of actions, target indicators and evidence systems.

Overall, there is already a consensus that more and better-targeted investment is needed to enable vulnerable people to adapt to drought risks; a general agreement that proactive investments are the more effective and sustainable (than reactive approaches); and a remaining need to define, measure and continue to maximize this effectiveness while taking a holistic approach to build collaboration amongst all relevant conventions, agencies, processes, actors and economic sectors of the world economies at all levels, including the informal economies. Building in improved impact tracking systems to capture effects at the level of communities and ecosystems is necessary to verify the anticipated effectiveness of international cooperation across all levels. This would also enable timely action triggers at earlier stages before drought onset and course-correction if any results are off-track. Tracking positive effects from investments in adapting and transforming drought risks should accelerate reinvestment and unlock virtuous cycles at all levels. Validating the intended inclusive and sustainable green economic recovery on the ground should further accelerate the positive dynamic.



1. Introduction

Effective transformation of drought risks is critical to counterbalance the increasing impacts of droughts and their interactions with other economic, environmental, and social problems, including poverty and ongoing threats to the health of populations and ecosystems. The United Nations Office for Disaster Risk Reduction (UNDRR) Special Report on Drought and the Intergovernmental Panel on Climate Change (IPCC) Special Report on Climate Change and Land and the Sixth Assessment Reports (Working Group I and II) have each reiterated the point that land-based interventions can mitigate drought risks and impacts on vulnerable communities, sectors, and ecosystems as an essential element of the global green recovery. However, none of these has yet focused fully on understanding and increasing the effectiveness of financing to accelerate it.

A global review on effective financing of drought risk preparedness and response could provide the global development community with a clear direction in terms of monitoring, evaluation, emerging lessons and any remaining issues to be addressed. This should also provide the countries with a clear orientation as to the different funding streams already accessible to them and engage them in the review of how they are performing. This could be informed by ongoing global evaluation by the UNCCD in countries experiencing serious drought of the ways in which systemic drought risks can be increased or decreased depending on human land use and other resource management decisions (not only by climate change). It should also consider the results obtained from investments made to mitigate the effects of drought through sustainable land and water management and the returns on these investments.

An Intergovernmental Working Group (IWG) on effective policy and implementation measures for addressing drought under the UNCCD has recommended a global assessment process to examine and identify the financing needs and opportunities for further transformative drought risk mitigation activities in relation to those already in place. This would explore integrated financing mechanisms through an inclusive process engaging national treasuries and national and international financing communities, both private and public, to recognize the returns on investments, while also identifying and reducing perverse incentives that exacerbate land degradation and drought risks. This should offer an important complement to the ongoing work of the Global Forum for Disaster Risk Reduction and the Global Stocktake of progress under the Paris Agreement on Climate Change.

The three-layered approach to transforming drought risks that is explored in this report enables increasing focus on self-sustaining solutions that enable human populations to work with nature and ecosystems to maximise mutually beneficial feedbacks between life on land and climate processes. Taking a more rounded stock of these should enable further investment in positive incentives, and further action to reverse the economic drivers of harmful practices. This approach both embraces and looks beyond and beneath the climate change conundrum.

In February 2021, the Global Environment Facility (GEF) approved an enabling activity to support the implementation of UNCCD Decisions on Drought, with FAO as implementing Agency. This arrived shortly after the completion of the IWG first Interim Report on the scope of the global assessment required. FAO was then able to begin to reach out to the other multilateral financing partners, Rio Convention Secretariats, Agencies and UNCCD IWG synthesis team and Chairs to discuss the scope of a brief on effective financing for policy, implementation and partnerships addressing drought risks. This report explores initial findings concerning the current thinking regarding effective financing for policy, implementation and partnerships addressing drought risks in anticipation of further discussion of the synthesis of recommendations put forward by the IWG. Concerning next steps, these are to be decided by the Parties at the Conferences of the Parties (COPs) that will take place in 2022 and at the High-Level Political Forum on the Sustainable Development Goals (SDGs).



Photo credit: © FAO/Patrick Meinhardt

2. What is effective financing to address drought risks?

2.1 A proactive and transformative integrated drought management approach

Investing in sustainable land and water management is a proactive way to reduce and transform drought risks and impacts. It costs less than disaster impacts and relief responses, reduces the bill for rebuilding assets after a drought has hit and prevents further spiralling of losses. The proactive approach advocated through the Hyogo and Sendai disaster risk reduction processes is clearly better than waiting for loss and damage to occur, as the extent of loss and damages usually tend to exceed any compensatory funds available – resulting in a net loss to society. The importance of the proactive approach has been further underlined by the Global Commission on Adaptation (GCA) and others (GCA, 2019, 2021; Venton, 2018) who have estimated an overall rate of return from 2:1 to 10:1 for successful proactive resilience building to manage the risks of drought (amongst other climate extremes) rather than their impacts. In some cases, the returns may be even higher.¹

1. GCA 2019 figures were based on a technical paper by World Resources Institute, 2019 “Estimating the Economic Benefits of Climate Adaptation Investments”.

A range of studies have been devoted to assessing the returns on the proactive approach to drought risk management (NEF, 2012a, 2012b; UNICEF and WFP, 2015; Siedenburg, 2016; Bond *et al.*, 2017a, 2017b; King-Okumu, 2017a, 2017b, 2017c, King-Okumu *et al.*, 2017, 2018; Venton, 2018; FAO, 2018a; Dujanovic, 2018; IFRC, 2019a, 2019b; Venton *et al.*, 2019; Weingärtner *et al.*, 2020). Various of these (e.g. Tanner *et al.*, 2015a, 2015b) focused not only on avoiding loss and damage, but also highlighted the scope for building investor confidence and economic growth, as well as achieving other development co-benefits.

These studies are helpful in laying out a rationale as to why proactive investments to reduce drought risks may make sense for the economy as a whole and for the general public interest. However, in many areas systems for collective decision-making are too weak to drive action on them, and diverging private interests prevail.

FAO (2018b) has worked together with the UNCCD and other international partners to advocate, demonstrate and reemphasize the pathways to scale-up integrated water and soil management, from the policy-making sphere down to the ground level, and the complementary processes that can be enhanced by bringing together: (1) policy and legislative incentives; (2) knowledge management systems; and (3) investments – both private and public. It also called for forging parentships to work holistically and integrate across sectors by, firstly, engaging in participatory drought planning processes, and secondly, by harnessing the legacy of periods of stresses of resources, which often serve to change entrenched mind-sets and allow the introduction of new ways of working.

This integrated approach has been progressively strengthened through the collaborative work of the UNCCD, FAO, IDMP and others (UNCCD, 2019a; King-Okumu, 2019; King-Okumu, 2021; King-Okumu *et al.*, 2021a). The UNCCD, for example, advocates investment in Article 2:

...long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level (UNCCD, 2022a).

Sustainable land management is usually a long-term process requiring continuous investment. A range of financing approaches are available, including innovative green financing for nature to sustain a healthy environment and ensure the well-being of dependent populations. COP14 Decision 17 invites Parties and international organizations and cooperating partners to enable implementation and scaling-up of drought-smart land management including by (amongst others):

...mobilizing as appropriate, inter alia, both conventional and innovative finance, including from public and private investors, such as ecosystem service payments, carbon emission offsetting, insurance coverage and responsible investment in inclusive, drought resilient and sustainable value chains and food systems to support and promote drought-smart land management, ideally concurrent with local and national programming (UNCCD, 2019b).

In developed country contexts, a considerable portion of effective financing for drought risk reduction in general, and through sustainable land and water management in particular, usually tends to come first and foremost from the private sector. This may be for urban development, agricultural production or other landscape management and recreational uses. Private individuals who know that they are exposed to periodic dry spells and occasional drought risks do most often already systematically invest their intelligence, energies, labour, cash and whatever other resources they may have access to in order to secure themselves and their productive activities from loss and damage that can be anticipated to occur at these times. They perceive risk of drought factors into any investment decisions that they make. Where necessary, they also advocate companies and collective decision-making institutions to invest in increasing security from drought risks – for example, by improving shared water supply and storage infrastructure.

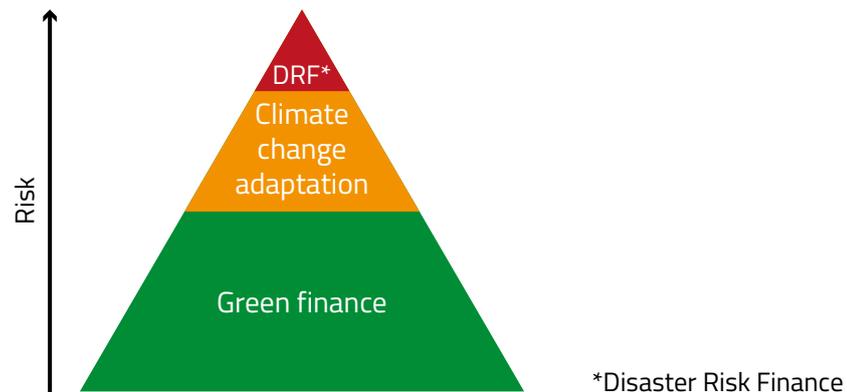
In cases where individuals, companies and local collective institutions cannot support all necessary investments, national governments or other external partners may become involved. This is especially important where there are vulnerable populations and ecosystems in need of immediate protection. Depending on the country context, additional financial support for governments and civil society to supplement the available domestic resources that are invested in drought risk reduction may come through external bilateral partnerships, regional communities (either inside the region or beyond), international organizations, or from multilateral funds, such as those of the GEF, Green Climate Fund (GCF) and Adaptation Fund (AF) in addition to multi-donor trust funds administered by the World Bank or other multilateral development banks.

In light of the different actions needed to enable diverse actors and processes to move at different speeds to reduce drought risks, a layering of solutions can be foreseen, where investments in land and water management supported by green finance could be made in contexts of relatively low risk, whereas more conventional disaster risk reduction (involving preparedness and response) would be to address remaining residual risks. A shorter list of instruments more frequently associated with financing for disaster risk reduction were listed in COP14 Decision 23, which:

...requests the Global Mechanism to identify potential and innovative financing instruments, based on clearly identified added value, for addressing drought, such as, but not limited to, insurance products, bonds and microfinance, and to make available related information and guidance for facilitating the access of Parties to these instruments (UNCCD, 2019c).

Alongside these two tracks of financing to address drought risks at different speeds, a third layer of global investment and action types involves adaptation to climate change where this may be altering and exacerbating drought risks (Figure 1). In practice, there may be many different layers and permutations of drought risks, possible actions and flows of finance to address them.

Figure 1. Three layers of financing types and actions addressing different levels of drought risks



Source: J. Ikeda, personal communication, 2021.

As a simplification, three quite broad and overlapping groupings of these that are considered in this report can be summarized as follows:

- **Disaster risk finance**, defined by the Centre for Disaster Protection as the system of budgetary and financial mechanisms to credibly pay for a specific risk,² arranged before shocks occur.
- **Climate finance**, as an approach to financing the reduction of greenhouse gas emissions or adaptation to climate change impacts (such as the increased risk of drought). This can involve an array of grant funds and other financial instruments. For drought management, adaptation is the more relevant of two aspects of climate finance, which can help in addressing the additional costs associated with climate-induced drought.
- **Green or environmental finance and finance for nature**, offering an alternative to traditional patterns of development expenditure and/or infrastructure investments. The goal of environmental finance is to identify “double bottom line” investments that support both financial and ecological returns.

2.2 How much financing policy, implementation and partnerships addressing drought?

The Organization for Economic Cooperation and Development (OECD)-Development Assistance Committee (DAC) - Creditor Reporting System (CRS) encourages providers of Overseas Development Assistance to classify financial support that they provide for various purposes, including disaster risk reduction (DRR) finance,³ climate change mitigation, adaptation, biodiversity conservation and

2. An initiative of the United Kingdom’s Foreign, Commonwealth and Development Office.

3. DRR financing is funding directed to activities which promote “the goal and global targets of the Sendai Framework to achieve substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries”.

combatting desertification. Each of these established classifications of different types of activity and associated financing flows includes actions to reduce and transform drought risks, amongst others.

A new international statistical framework, called the Total Official Support for Sustainable Development aims to introduce a more consistent, standardized measurement of all types of flows, monitoring and reporting on the contribution of the public actors through the Official Development Assistance (ODA) and of all finance, including private finance, mobilized by public interventions and triangular cooperation.⁴ This would have a broader scope than ODA: all international public finance, concessional and non-concessional official finance as well as private finance mobilised from official interventions aligned with internationally agreed standards and principles (e.g. World Trade Organization, Equator Principles, Human Rights).⁵

A set of specific markers to identify flows of financing (including both grants and credit) to support the Rio Conventions is provided in the OECD-DAC-CRS (OECD, 2011). These markers indicate financing for Biodiversity, Desertification, Climate Mitigation, Climate Adaptation.⁶

Although drought is a cross-cutting issue addressed through different UN Conventions and processes, there is no specific OECD-DAC-CRS purpose code marker to identify what proportion of each of the classified flows of financing is devoted to addressing drought specifically, as distinct from the range other phenomena falling under the same classifications. Also, interventions that reduce the effects of droughts can fall under several different Rio markers, depending on the viewpoint of the donor that designs and classifies them (OECD, 2020a). Some financing institutions, such as the World Bank, have their own separate additional classification systems, which do identify projects addressing drought and provide searchable databases on their websites. Whereas many do not so, it would be necessary to check through the project information for each project in more details.

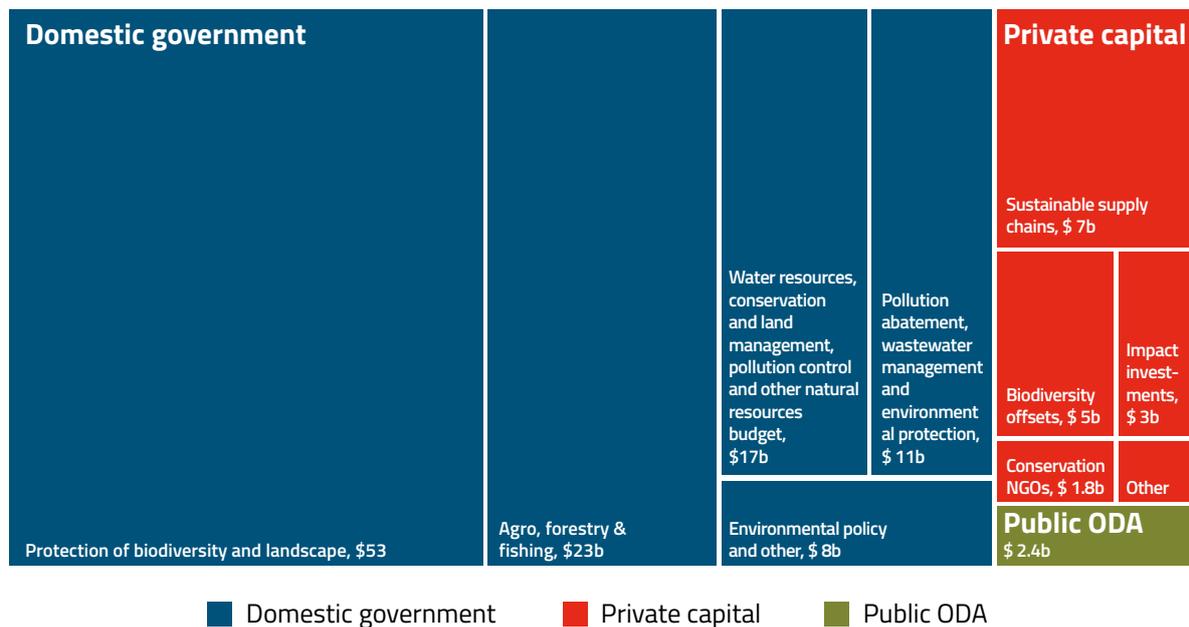
The OECD-DAC-CRS has proved useful in enabling analyses of global flows of financing to different coded types of activities which would include actions addressing drought, amongst others. For example, the 2020 World Disasters Report (IFRC, 2020) compared the international flows of DRR funding to Adaptation Finance for 2018. Adaptation finance was larger than DRR, but both combined were still far smaller than the estimated requirements for adaptation financing. Also, rather than focusing simply on how much funding there was, the report emphasized questions about where and how the flows of existing funds were spent. The CRS enables the wealth of such reports that have provided a basis for debate amongst the global climate change community (EBRD, 2020). It is used in the preparation of the Adaptation Gap Reports (UNEP, 2021a), the Global Commission on Adaptation (GCA, 2019, 2021), and financing nature discussions (Deutz *et al.*, 2020; UNEP, 2021c), amongst others alongside the World Disasters report (IFRC, 2020).

4. For more information see the official website at: <https://www.tossd.org>

5. For more information consult the compendium at: https://www.oecd.org/dac/financing-sustainable-development/IATF%20Presentation_TOSSD%20Compendium.pdf

6. Information concerning Rio markers is available at <http://www.oecd.org/dac/stats/rioconventions>. Additional information concerning Rio markers for Climate Change Mitigation and Adaptation is available in OECD (2011), for Biodiversity in OECD (2021) and Environment in OECD (2020a). The coded data provided by donor governments is available at: <https://stats.oecd.org/Index.aspx?datasetcode=CRS1>

Figure 2. Assessment of financing types and amounts for nature and the environment



Source: reproduced from UNEP. 2021c. *State of Finance for Nature 2021*. Nairobi, UNEP. <https://www.unep.org/resources/state-finance-nature>

In the preparation of the new strategic framework for Biodiversity, the CRS has been used to support several reviews of the existing relevant financing streams (Deutz *et al.*, 2020; OECD, 2020b, 2021; UNEP, 2021c) (Figure 2). Also, other exploration of the required tripling investments to meet objectives for land degradation, biodiversity and climate (UNEP, 2021c).

The international Conventions addressing drought (UNFCCC, UNCCD) and United Nations Convention on Biological Diversity (CBD), each convenes their own review and learning processes and discuss the needs for financing and further action at different levels, as is also done for DRR under the Sendai framework. The UNFCCC maintains a Standing Committee on Financing, and a dedicated process addressing loss and damage due to climate change under the Warsaw International Mechanism. At present, the UNCCD does not have a dedicated process to consider the wider financing landscape enabling drought policies, implementation and partnerships in the affected countries, other than its Global Mechanism.

Concerning the flows of financing for UNCCD, the CRS is the main source of default data used (alongside reporting from the country Parties) to track progress indicators for its Strategic objective (SO) 05 on international bilateral and multilateral official development assistance and also international private sector financial flows including philanthropies, related to desertification.⁷ The methodological approach includes activities marked with the desertification Rio Marker 2 as “principal” or “significant”.⁸ Data on other official flows are not included as

7. Data can be accessed at: <https://stats.oecd.org>. All bilateral ODA and non-export credit OOF are identified with Rio Markers, while Rio markers on OOF is not systematically available.

8. Additional information is available in the “Accounting Framework to Report on UNCCD SO 5 on Financial and non-financial Resources to Support the Implementation of the Convention” at: https://www.unccd.int/sites/default/files/inline-files/Methodological_Note_Strategic%20Objective%205_clean%20-%20Final.pdf.

default, due to discontinuities in the availability of the Rio Marker on desertification for these flows. However, reporting Parties can provide this information. For the sake of this accounting framework, officially supported export credits can be reported as other official flows.

Alongside the trends in international bilateral and multilateral official development assistance (Bilateral and multilateral public resources) (SO 5-1), the UNCCD's Global Mechanism monitors qualitative and quantitative progress indicators including trends in domestic public resources (Domestic public resources) (SO 5-2);⁹ trends in number of co-financing partners (International and domestic private resources) (SO 5-3); resources mobilized from innovative sources of finance, including from the private sector (Technology Transfer) (SO 5-4);¹⁰ and future resources for activities related to the implementation of the Convention (SO 5-5).¹¹ However, these also are not specific to drought, but rather holistically address desertification, land degradation and drought altogether.

In addition to the flows of resources, the UNCCD methodology includes a sub-indicator that focuses on assessment of financing needs. This is based on estimates of the financial and non-financial needs to implement the Convention at country level, including needs in terms of technology transfer. Methodological information on estimates, as well as on the identification of needs anchored in national strategies and plans, are key to provide clarity to this indicator. Alongside the OECD-DAC-CRS, the UNCCD methodology involves use of data from the International Monetary Fund and from the periodic reporting by the countries that is taking place this year (2022).

Alongside consideration of the extent of financing to sustain nature, the need to consider the extent of flows of financing that have a harmful effect on the environment is highly recognized (UNEP, 2021c; Dasgupta, 2021). The international financing community (GEF, 2022a) has considered that the total amount of public subsidies resulting in harmful effects on the environment may be as high as USD 800 billion (see also Figure 2).

2.3 More financing and partnerships or more effective financing and partnerships?

According to OECD-DAC, effectiveness is the extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance. In general, effective financing would be expected to achieve more impact per unit of investment than other comparable investments.

9. For default data, the main source is expenditure on agriculture and Environmental Protection in: <https://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>.

10. The default relies on use of the CRS to identify flows through research-oriented organizations.

11. The default relies on the CRS using the DES marker and also flows to sectors such as agriculture. Future projections made at the country level for required resources in medium and long-term planning documents could also be used as one of several sources of information and data.

This means that the effectiveness of financing requires clarity on:

- What are the intended objectives and impacts?
- What are methods and systems that can be used to measure these?

In case that the intended impacts of a request for financing could not be identified before the expenditure, this raises questions about why public funds would be used. Multilateral financing initiatives using public funds provided by donor governments are accompanied by clear and stringent requirements for the intended impacts of the financing to be clarified in advance. This is provided in all proposals that are submitted for approval. If the intended impacts cannot be measured as anticipated during or after the expenditure, this raises constructive questions about whether or not the financing was effective (and/or what may be the reasons for this?).

These questions are constructive and useful because they help the individuals and institutions involved to learn how to improve their programming and financing. This relies on clear statements of objectives and intended impacts even if these are only partially measurable and some of them may prove difficult to achieve. Where the intended impacts of financing are articulated, this can enable identification of an impact pathway, and tracking of progress during the lifetime of projects and programmes, as well as mapping approaches through which these impacts might be expected to continue to register in national statistics following completion of the project or programme (King, 2011; UNU-INWEH, 2011).

It is important to consider that expenditures may prove effective for one purpose, but not for another. For example, a project that is effective in increasing crop yields may not necessarily be effective for conserving biodiversity or reducing drought risks. Different groups of practitioners and stakeholders view effectiveness from different perspectives. Where the day to day monitoring of effects on drought-prone communities and ecosystems is not communicated systematically to external partners, it is difficult to assess how they are affected (Jeggle and Boggero, 2018) or to keep track objectively of how these effects are modified by effective policies and implementation.

On the whole, the task to establish a global monitoring system for monitoring effects on communities and ecosystems and the effectiveness of financing in mitigating these types of effects could be more feasible to complete if conceived initially for the effects of droughts alone, rather than simultaneously for all climate and disaster risks combined (including droughts, floods, sea level rise and all others as well). With a workable system in place in the more affected areas for tracking drought effects (and response to these), it may then be more feasible also to track the effects of other climate risks and disasters – including those that interact with and multiply the effects of drought risks.

Many countries already have well-established systems for monitoring the effects of drought on their ecosystems and populations. In some regions (e.g. East Asia), a regional approach to drought risk monitoring already exists (UNESCAP, 2020). Other relevant forums assessing effectiveness also available at the regional level include Regional Economic Commissions and sub-regional groupings (e.g. Regional Economic Communities, sub-regional Climate Outlook Forums, etc.). Wider exchanges of knowledge also take place through interagency coordination processes (such as UN-Water, Global Water Partnership, Environment Management Group and IDMP). The remaining needs are in the hardest to reach and most drought-affected countries.

The UNCCD is working to develop a global approach to the assessment of land degradation and drought hazards, exposures and vulnerability.¹² This will begin by identifying the lands and populations that are directly affected by droughts (Sims *et al.*, 2021; Barker *et al.*, 2021). In line with this, the UNCCD has established a Science-Policy Interface promoting dialogue between scientists and policy makers on desertification, land degradation and drought.¹³ The Science-Policy Interface will help the assessment and monitoring of the vulnerable populations and ecosystems resilience to drought by preparing a review of information on existing drought vulnerability/resilience assessment methodologies and indicators which are used at national, subnational level. These include the SDG 6.4.2 on water stress and land productivity, which is monitored globally under the custodianship of FAO, alongside relevant economic indicators.

The most notable economic indicator that is globally agreed and reported as part of the SDGs and the Sendai Framework concerns the economic losses due to disasters (of all kinds – including droughts). These are reported under SDG indicator 1.5.2. The SDG indicator and the systematic global reporting that are underway focuses on the direct economic loss attributed to the disaster in relation to the gross domestic product. According to the agreed approach and metadata (UNSTATS, 2022), economic loss is the total economic impact that consists of both direct economic loss and indirect economic loss. Direct economic loss is the monetary value of the total or partial destruction of physical assets existing in the affected area. This is nearly equivalent to physical damage. On the other hand, indirect economic loss is the decline in economic value added that occurs as a consequence of direct economic loss and/or human and environmental impacts.

Additional guidance for further assessment of both direct and indirect economic losses due to disasters including droughts is available in the Global Facility for Disaster Reduction and Recovery (GFDRR). Post Disaster Needs Assessments. Where economies are understood to depend on products from land use and management, the direct effects of a drought on these can often be modelled and assessed relatively easily using bio-economic models. These can demonstrate the effects that an exceptionally extended dry period can have on the productivity of crops and the carrying capacity of grazing land. These can then be translated into economic values in terms of marketed commodities, including grains, horticultural products, meat and milk, land or others.

Where changes in policy and implementation of different land and water management practices will change the bio-economic productive model, the resulting change in terms of direct losses of economic output should be possible to estimate under different levels of drought conditions.¹⁴ In this way, it can be possible to model the direct effects of drought on the economy with- and without the change in policy or implementation practices. In some cases, it may be possible to make use of the estimated direct losses as a starting point for the estimation also of indirect losses. This would reveal effectiveness in terms of direct effects on the economy, and possibly also indirect effects. This level of information would be meaningful and powerful for communicating to decision-makers and the public as a whole, what are the overall effects of different policies and implementation actions.

12. See documents for the 20th meeting of UNCCD's Committee for Review of the Implementation of the Convention available online at: www.unccd.int/official-documents/cric-20-abidjan-cote-divoire-2022.

13. See the latest documents on UNCCD Scientific processes at: www.unccd.int/official-documents/cst-15-abidjan-cote-divoire-2022.

14. For additional information see: www.recoveryplatform.org/pdna

Global vulnerability indices tend to include a range of whichever development indicators are available. Generic global indices for assessing government effectiveness are often included within the broader indices of vulnerability which are used in discussion of climate change adaptation and development assistance more broadly.¹⁵ Where governments can achieve high scores for government effectiveness, this might be expected to translate into effectiveness in reducing drought risks.¹⁶ However, it could be interesting to further assess the extent to which increasing government effectiveness scores in those countries experiencing extreme droughts does or does not correlate with reduced effects of droughts on ecosystems and communities or increased investments to more effectively reduce drought risks.

15. For more information see: govdata360.worldbank.org/indicators/h580f9aa5?country=BRA&indicator=388&viz=line_chart&years=1996,2019.

16. This assumption does not hold everywhere. For example, it is notable that some governments – e.g. Egypt, report increasingly high scores on Government Effectiveness indicators (as scored domestically), while concerns over drought risks are also increasing (due mostly to the transboundary nature of drought risk which nationally focused measures of effective government do not necessarily address).



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3. Funding and financing partnerships' objectives and effectiveness

3.1 Reactive drought response and recovery finance

Disaster risk finance is defined by the Centre for Disaster Protection as the system of budgetary and financial mechanisms to credibly pay for a specific risk, arranged before shocks occur.¹⁷ At the national level, disaster risk finance supports the use of ex-ante financial instruments such as contingent financing and insurance to fund the response that will be needed in case of a drought. A significant body of experience and evidence concerning drought impacts and risk mitigation is available from UNDRR (UNDRR, 2022a) and GFDRR at the World Bank. A collaborative knowledge sharing platform is managed by UNDRR (UNDRR, 2022b).

17. An initiative of the United Kingdom's Foreign, Commonwealth and Development Office

Countries, businesses and individuals, as well as groups such as farmer associations and water user groups, can self-insure against smaller, more localized drought events through the use of savings, dedicated reserves or budget reallocations. But in the case of larger scale disasters, it can be harder for them to cope. In the OECD-DAC-CRS a Purpose Code 74010 is included for disaster prevention and preparedness. This can overlap with the Rio Markers for Climate Change Adaptation and others (OECD, 2011).

On the whole, disaster risk finance is intended only for use in the case of extreme events that occur infrequently. In the worst cases, it is needed to compensate for losses and damages that may not be fully reparable. However, in less extreme cases, governments can provide assistance to populations, enabling them to cope and recover. Often, the private sector can play a role in this by providing insurance and other risk-sharing solutions on a commercial basis. However, these are more common in situations, where the population is already relatively affluent, and the risks of drought are lower. Users themselves also invest in risk management on their own land, especially where the risks are low, and they can gain a regular return. This includes even the most vulnerable communities. Often, they invest large amounts of time, labour and in many cases also cash or other inputs in improving their land.

A recent taxonomy of disaster risk financing instruments (Meenan *et al.*, 2019) demonstrates that they primarily involve reactive or responsive measures putting in place contingency funds, designing social safety net programmes, or enabling vulnerable people to access different forms of collectively owned or commercial savings, insurance and lending programmes that will respond to the onset of a drought and the needs of people to recover afterwards. These can be tailored to different groups (or “risk-holders”) with different needs for varying timing, purpose, scales and levels of support. However, sometimes these can be combined with more proactive investments.

Governments can sometimes provide incentives to encourage proactive investments in risk management to keep drought risks in the low to medium layers and prevent them from escalating during dry spells. Where these proactive investments help to make sustainable land and water uses more profitable, this creates wealth that societies can then use to create and support public assistance or compensation programmes, in the event that these would be needed. It may be also reasonable to expect to see more of proactive investments under the Green Finance and Climate Adaptation Finance agendas. However, in fact there are overlaps between these categories of external assistance – and sustainable land and water management measures can be effective under all of them.

A number of countries already have established approaches to budgeting and financing as part of their national strategies to address drought risks. Examples include a sovereign drought contingency fund in Kenya that operates alongside a national equalization fund to redress the imbalanced development status and long-term effects of underinvestment in the more drought-prone counties. Another example in Australia includes a national drought Fund. These funds work on the understanding that the disaster is going to happen, and compensation will be needed. This is, therefore, a way of dealing with residual risk that cannot be reduced and of preventing the impacts from spiralling further out of control. In some cases, such funds can also build in incentives for clients also to reduce risks – for example, by using drought-smart practices. This is similar to home insurance policies requiring homeowners to systematically secure their properties when they go out so to reduce the likelihood that a damage would occur.

The Global Mechanism is exploring a range of innovative models for the establishment of capital funds that can be established within drought-affected countries to generate annual revenues that can be spent to enhance national drought preparedness. This is an innovative approach to the design of drought funds that could offer an alternative to financing solutions requiring countries to obtain loans to finance drought preparedness (World Bank, 2018).

The rationale for the international humanitarian and development communities to invest alongside and in partnership with national governments or private individuals and companies is to enable them to prevent and minimize avoidable loss and damage and development setbacks. It is not to replace capabilities to manage in future or to create a situation of long-term dependency. Operating relief funds fairly confers gratitude for largesse and responsible actions – for being the “live-saver”. It is a high-impact, low regret, form of international assistance. Increasingly, international disaster responses are coordinated amongst international and national agencies, and to some extent also local actors and institutions. Some of the oldest forms of local drought relief systems involve storing and redistributing grain reserves. They simultaneously create social organization, moral authority and power for those who are trusted as custodians of them. Cash and sharing of other assets may also be involved.

Effective risk reduction is measured by reduced impacts in case of a disaster, or reduced fear and uncertainty in case that it does not (see Box 1). There can also be development co-benefits (Bond *et al.*, 2017a, 2017b; Tanner *et al.*, 2015a, 2015b). Disaster risk finance is usually considered effective if assistance reaches the affected people quickly enough to prevent avoidable loss of life, nutritional status and physical assets (see Box 2). The timeliness of delivery is often seen as one of the most significant factors in effectiveness (GFDRR, 2020). Forecast-based financing speeds up payouts before a drought happens. The German Red Cross and World Food Programme have tested this approach in seven high risk countries, including Bangladesh, the Dominican Republic, Haiti, Mozambique, Nepal, Peru, and the Philippines.¹⁸

Box 1. Effective financing for building resilience to drought in Kenya

A strong case has been made for proactive investments in drought preparedness and resilience-building as a more cost-effective alternative to post-disaster needs and costs of drought impacts in Kenya.^a This case has been based on available assessments of the costs and benefits of investing in resilience-building as compared to the post-disaster costs as assessed in 2011.^b Conceptually, the case is coherent. However, there is still a shortage of evidence to verify it by comparing the costs of drought effects (actual or avoided), versus the investments made.^c A recent review of the available systems for environment and social assessment observed that this challenge is due to shortcomings in the available systems and capacities for assessing environmental and social conditions and outcomes, both at the national level, and the local government level.^d

18. For more information on the Red Cross's programmes see: www.climatecentre.org/programmes-engagement/forecast-based-financing

Box 1. Effective financing for building resilience to drought in Kenya (continued)

Due to the lack of quantitative systems for tracking results from resilience-building observed by the World Bank,^e it is difficult to compare the effectiveness of different approaches and types of investments in resilience-building, and to identify which may be the most effective in reducing the effects of droughts on the economy, vulnerable populations and the environmental conditions needed to sustain them in future.

The information gaps limit assessments both of the direct effects (damages) of droughts and also of the indirect effects on the economy. A Post Disaster Needs Assessment following the 2008-11 drought assessed loss and damage in key sectors and multiplier effects on economic growth using a framework that is still considered the best available approach to estimation of economic effects of droughts in Kenya.^{f, g} The destruction of physical and durable assets was estimated to cost USD 805.6 million, while losses in the flows of the economy across all sectors amounted to USD 11.3 billion. This assessment provides a key reference in subsequent drought risk assessments, including a 2018 study of the economics of resilience which used the calculation of lost flows as the basis for a multiplier to capture the lost flows to the economy and proposals to the GCF, amongst others.^h



Photo credit: © FAO/Patrick Meinhardt

The National Disaster Risk Financing Strategy provides a comprehensive framework for using multiple instruments and programs to strengthen financial capacity for improved planning and response to disasters. Alongside this, Parliament has adopted the Kenya National Policy on Climate Finance which aims to enhance the national financial systems and institutional capacity to effectively access, disburse, absorb, manage, monitor and report on climate finance in a transparent and accountable manner. Major investments in drought management in Kenya, including both preparedness and response are coordinated tracked by the Kenyan National Drought Management Authority. The Kenyan National Drought Management Authority maintains a public web-based investment tracker summarising the scale and sectoral focus of the larger investments that are made by development partners and the Government of Kenya.

Between 2002 and 2012, international donors have provided on average USD 276 million per year to Kenya in humanitarian assistance. The overall collective effects achieved by the full portfolio of investments made are captured in the national reporting of Sustainable Development, which includes reporting on the direct costs of disasters, access to water (including during droughts), and the level of disaster preparedness planning.



Box 1. Effective financing for building resilience to drought in Kenya (continued)

In addition to these, each investment programme conducts its own evaluations of effectiveness. This includes the national programme for Ending Drought Emergencies, which is evaluated periodically.ⁱ

Sources:

- ^{a,g} Venton, C.,C. 2018. *Economics of resilience to drought*. Washington DC, USAID.
- ^{b,f} Post-Disaster Needs Assessment. 2012. *Kenya Post-Disaster Needs Assessment (PDNA) for the 2008–2011 Drought*. Republic of Kenya with technical support from the European Union, United Nations, and World Bank and financial support from the European Union and the Grand Duchy of Luxembourg.
- ^c Venton, P., Venton, C.,C., Limones, N., Ward, C., Pischke, F., Engle, N., Wijnen, M. & Talbi, A. 2019. *Framework for the Assessment of Benefits of Action/Cost of Inaction (BACI) for Drought Preparedness*. Washington DC, World Bank.
- ^{d,e} International Bank for Reconstruction and Development. 2020. *Environmental and Social Systems Assessment (ESSA) – Financing Locally-Led Climate Action Program (FLLCA)*. Washington DC, the World Bank.
- ^h Breuer, A., Janetschek, H. & Malerba, D. 2019. *Translating Sustainable Development Goal (SDG) interdependencies into policy advice*. Sustainability (Switzerland), 11.
- ⁱ King-Okumu, C., Orindi, V. A. & Lekalkuli, L. 2019. Drought management in the Drylands of Kenya: What have we learned? . In: Mapedza, E., Tsegai, D., Bruentrup, M. & Mcleman, R. (eds.) *Drought preparedness and livelihood implications in developing countries: What are the options?* Elsevier.

Box 2. Generic global guidance for assessing the costs of droughts

The effect of disasters is determined through the assessment of four main elements:^a

1. Damage to infrastructure and physical assets: the quantification of public and private sector infrastructure and assets destroyed in the disaster.
2. Disruption of access to goods and services: assessment of the disaster effects on service delivery, including the availability and quality of services, and on the population's access to goods and services that are required to support lives and livelihoods.
3. Governance and decision-making processes: assessment of the disaster effects on social and decision-making processes including people's ability to exercise their citizenship and priority development policy objectives.
4. Increased risks and vulnerabilities: assessment of what risks increase as a result of the disaster and how, and what additional threats or deteriorating conditions increase the vulnerabilities of people.

These effects are expressed both in quantitative and qualitative terms by geographical divisions and sociological characteristics of the population such as gender, age, ethnicity, disability, etc.

Box 2. Generic global guidance for assessing the costs of droughts *(continued)*

Following the description of effects, the economic/ monetary value of the effects is estimated for damage to infrastructure and assets as well as economic loss due to changes in financial flows as linked to changes in the outputs of the productive sector, on the operating costs for delivery of goods and services, on governance processes and for management of risks.

The economic value of the effects of the disaster is calculated for the four key effects:

1. value of total and partial destruction of infrastructure and assets;
2. value of changes on service delivery, production of goods and services and access to goods and services;
3. value of changes to governance processes; and
4. value of changes to risks.

Whereas the destruction of physical assets (“damage”) is relatively straightforward to quantify, the changes of production flows may include decline in production and/or increase in production costs, which are defined as “production flow changes”. In order to have an overarching framework for analysis to estimate damage and flow changes in a post-disaster assessment, the available guidance for assessing macro-economic impacts of disasters advises use of the world-wide System of National Accounts that all countries have in place to measure overall production and growth, and for which a standard set of institutional sectors of economic activity is considered.^b

The post-disaster costs of drought are assessed and reported under SDG 1.5 according to the globally agreed approach and metadata which defines economic loss as the total economic impact that consists of both direct economic loss and indirect economic loss:

- Direct economic loss is the monetary value of total or partial destruction of physical assets existing in the affected area. Direct economic loss is nearly equivalent to physical damage.
- Indirect economic loss is a decline in economic value added as a consequence of direct economic loss and/or human and environmental impacts.

Note: Additional guidance for further assessment of needs in different sectors following disasters, including droughts, is available from the Global Facility for Disaster Reduction and Recovery at www.recoveryplatform.org/pdna

Sources:

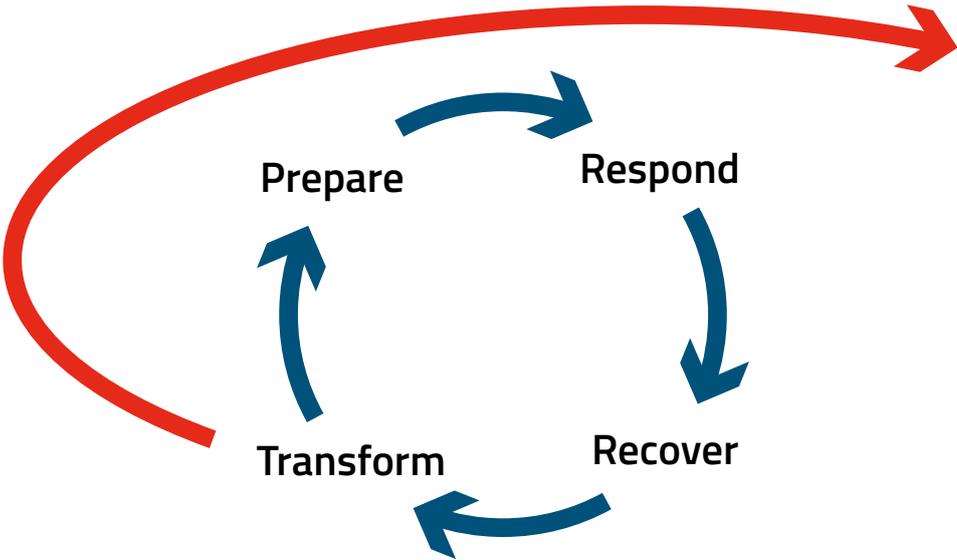
^a Global Facility for Disaster Reduction and Recovery. 2013. Post Disaster Needs Assessment Guidelines Volume A. PDNA Guidelines Volume A.

^b Global Facility for Disaster Reduction and Recovery. 2014. Macroeconomic Impact of Disasters. PDNA Guidelines Volume B.

A cost–benefit analysis of the African Risk Capacity (Clarke and Hill, 2013) estimates late response losses at USD 1 294 per household, whereas early response losses cut this to USD 49 per household. Fully evaluating effectiveness is challenging due to the complexity of “what if...” questions, and the lack of counter-factual scenarios with- and without the perfect identical pair of drought events before and after response to test the answers (Levine and Gray, 2017). It is also difficult because during disaster events, information is often not easy to access. Generally, during humanitarian emergencies, speed in delivery of assistance will take precedence over the establishment of monitoring and accounting systems. This leads to a situation where there may be relatively large sums disbursed with relatively low levels of accountability and learning processes.

Ex-post evaluation of emergency response programming is rare and to some extent also controversial. However, it is often integrated into forward planning of sustainable development planning, especially at the national and local levels. Retrospective assessment of experiences from previous drought emergency response and disaster risk reduction investments are also often an important part of climate change adaptation planning. Either or both of these can help to prevent or break and transform continuous cycles of disaster risks and responses (Figure 3).

Figure 3. Learning and transforming a way out from disaster risk reduction and preparedness



Source: author’s own elaboration.

3.2 Climate change finance

Climate finance is a term applied to the financial resources devoted to addressing climate change by all public and private actors from global to local scales, including international financial flows to developing countries to assist them in addressing climate change. Climate finance aims to reduce net greenhouse gas emissions and/or to enhance adaptation and increase resilience to the impacts of current and projected climate change.

Finance can come from private and public sources, channelled by various intermediaries, and is delivered by a range of instruments, including grants, concessional and non-concessional debt, and internal budget reallocations (IPCC, 2021).

For drought management, adaptation is the more relevant of two aspects of climate finance, which can help in addressing the additional costs associated with climate-induced drought. Defining, achieving and measuring this “additionality” introduces a series of conceptual and technical challenges that must be addressed in the preparation of proposals to access funds that are designed to support climate change adaptation. For example, Case Studies 1, 2 and 3 in Annex 1 from the Comoros, Argentina and the Dominican Republic show projects supporting adaptation to climate change to meeting the additional needs for access to water that are due to climate change influence on the occurrence of drought.

To access available funds for climate adaptation, drought planning should be closely linked to National Adaptation Plans (NAPs) and Nationally Determined Contributions (UNFCCC, 2019), addressing priorities identified in them. In 2011, the UNFCCC COP 17 adopted initial guidelines to formulate and implement national adaptation plans, which were further developed by the Least Developed Countries Expert Group’s into full technical guidelines for the formulation of adaptation plans.¹⁹ Supplementary materials were added.²⁰ These supplementary materials offer in-depth coverage of particular steps, sectors, or dimensions of the process to formulate and implement NAPs, addressing topics such as biodiversity, health, water, finance, and more. The NAPs that have been prepared by developing countries and submitted to the UNFCCC are available from the UNFCCC website.

An Adaptation Committee (AC) was established by UNFCCC COP 16 to spearhead defragmentation and coherence in Adaptation (UNFCCC, 2019). The AC has considered a document on methodologies for reviewing the adequacy and effectiveness of adaptation and support in preparation for the Global Stocktake of the Paris Agreement (UNFCCC, 2021). Article 7, paragraph 14c of the Paris Agreement provides the basis for the review of the adequacy and effectiveness of adaptation to climate change and support provided for adaptation. The AC and the Least Developed Countries Expert Group in collaboration with the UNFCCC Standing Committee on Finance are continuing to compile methodologies as part of the Adaptation Knowledge Platform and Adaptation Knowledge Portal.

Learning is central to adaptation. However, it is more conceptually challenging to measure and evaluate than mitigation of climate change which is measured in terms of changes in greenhouse gases (GHG) fluxes (Dilling *et al.*, 2019, Berrang-Ford *et al.*, 2019, Morecroft *et al.*, 2019) Some of the conceptual challenges for measuring the effectiveness of adaptation include (Morecroft *et al.*, 2019):

- It may not be possible to fully assess the effectiveness of an adaptation strategy in preventing adverse impacts (on some outcomes for ecosystems and biodiversity) until decades later.²¹

19. The technical guidelines are available in Arabic, English, French, Portuguese and Spanish along with other informational material at: www4.unfccc.int/sites/NAPC/Guidelines/Pages/Technical-guidelines.aspx

20. They are available at: www4.unfccc.int/sites/NAPC/Guidelines/Pages/Supplements.aspx

21. Relatively few studies have assessed the adaptation effectiveness of biodiversity conservation measures experimentally. See Prober *et al.*, 2019.

- No single metric or even a small range of metrics will adequately sum up progress across the many and varied aspects of adaptation.
- There are risks that reducing vulnerability in one sector may increase vulnerability in another.
- Objectives may need to change over time, because what constitutes good adaptation at a global temperature rise of 1.5° C to 2° C does not necessarily constitute good adaptation at 3° C to 4° C.
- There may not be agreement among different actors about the goals of adaptation.

The United Nations Environment Programme’s (UNEP) Adaptation Gap Reports (UNEP, 2021a) offer a periodic assessment of adaptation to droughts and other climate-related hazards. The most striking findings underline gaps in the implementability, monitoring and evaluation of the current adaptation plans and programmes (including those addressing drought risks, amongst others).

The AC review of the effectiveness of adaptation is considered to require the assessment of whether the adaptation action is successful in addressing identified adaptation needs, in other words, assessing “what works in delivering long-term resilience” (LDCGroup, 2019). This definition of effectiveness in adaptation draws on a recent review that aimed to deepen understanding of “what works” in delivering long-term resilience to climate change alongside the SDGs, Paris Agreement, Aichi Biodiversity Targets and the Sendai Framework for Disaster Risk Reduction in Least Developed Countries (LDCs). The review considered initiatives including agricultural and pastoral, coastal, urban, watershed, forest and mountainous landscapes that are vulnerable to different hazards, including drought, flooding and storm surges, cyclones and typhoons, extreme temperatures and earthquakes.

The definition of effectiveness in climate change adaptation (UNFCCC, 2021) as under consideration by the AC is considerably more complex and process-oriented than a simple consideration of effectiveness in terms of mitigating any particular one(s) of the measurable effects of droughts on populations and ecosystems. This additional complexity may be partly due to the multiplicity of different climate change-related risks and effects that must all be considered and the impossibility of identifying a single coherent set of effects. The drought effects alleviated therefore risk becoming lost amongst a range of other climate change-related processes:

- The focus of such a review lies on identifying whether the measures that are being implemented achieve, over time, the intended outcomes and do not lead to unintended and negative side effects (i.e. maladaptation), e.g. on certain social groups or geographical regions. Thereby, the review may assess the more immediate outputs, such as the number of beneficiaries; the outcomes, such as the increase in institutional capacity or the availability and use of climate data or the impacts of adaptation efforts in terms of for example an increase in societal wellbeing or the maintenance thereof despite the effects of climate change. It might as well review a combination or all of these aspects and thereby focus either on the adaptation process (policies, institutions, capacities, plans) or its ultimate outcomes on development or on both (Craft and Fisher, 2016).

- Reviewing the effectiveness of adaptation support requires the assessment of an additional dimension which relates to, the pre-conditions for and the process of the delivery and receipt of support. This may include on the one hand aspects related to the delivery of support in accordance with the guidance provided by the COP to the operating entities of the financial mechanism (e.g. request to the GCF to expedite support to the developing countries for NAPs – decision 1/CP.21, para. 46), constituted bodies and other entities; and on the other hand, aspects such as country ownership, alignment, harmonization, results and mutual accountability, which are covered by the Paris Declaration on Aid Effectiveness (OECD, 2005). It may also include features of the support process such as enabling environments, transparency, reaching the most vulnerable and an intervention’s ability to leverage finance or to be scaled-up and sustainable (Ellis *et al.*, 2013; UNFCCC, 2021).

The Appendix to the AC methodologies document (UNFCCC, 2021) reflects on assessments of the effectiveness of the Financial Mechanism for adaptation, including the Least Developed Countries Fund (LDCF), the Special Climate Change Funds (SCCF), AF, GCF, and Pilot Programme for Climate Resilience (PPCR) (CIF, 2018). It then also considers effectiveness of technology transfer and capacity building. All of these portfolios include projects that address drought risks (see Box 3 on AF, and Box 4 on GCF).

Box 3. Tracking effective financing of drought risk reduction at the Adaptation Fund

The AF has a Results-based Management Framework that enables monitoring of its efficiency and effectiveness using indicators and targets.^a The AF Fund-level results framework includes eight key outcomes and associated outputs. Outcomes are “the intended or achieved short-term and medium-term effects of an intervention’s outputs, usually requiring the collective effort of partners” while impacts are defined as “positive and negative long-term effects on identifiable population groups produced by a development intervention”.^a

Indicators of Fund level processes are tracked and reported annually. At the project/programme-level, monitoring is carried out by project executing entities, supervised by national implementing entities, regional implementing entities and multilateral implementing entities. The project/programme-level objectives should align with at least one outcome and one output indicator of the AF Strategic Results Framework and two core impact indicators.

The AF reports both quantitative and qualitative information on activities and achievements under the pillars and the crosscutting themes of the respective medium-term strategy in the Annual Performance Report. Advances under these themes also shed light on the effectiveness of the Fund to reach its objectives. According to the Results-based Management Framework, to increase transparency and demonstrate value, the AF has approved two impact-level results and five associated indicators to track under these impacts (Table 1).



Box 3. Tracking effective financing of drought risk reduction at the Adaptation Fund (continued)

Table 1. Adaptation Fund impact-level results and five associated indicators

Impact-level results	Core indicators
Increased adaptive capacity of communities to respond to the impacts of climate change	Number of beneficiaries (direct and indirect)
	Number of Early Warning Systems
	Assets produced, developed, improved, or strengthened
	Increased income, or avoided decrease in income
Increased ecosystem resilience in response to climate change-induced stresses	Natural assets protected or rehabilitated

The core indicators relating to these impacts are included in the Fund level results tracker (Table 2), which is part of the document titled “Project Performance Report” and is completed by the Implementing Entities during project implementation, with information of estimated performance at completion, at mid-term and actual results at completion.^a Similar to the UNCCDs SO3 good practice guidance, the focus of the tracker is on counting numbers of beneficiaries and identifying the extent of hectares of ecosystems reached. Effects on the beneficiaries are captured in terms of effects on incomes, livelihoods and assets. Furthermore, within individual projects, additional relevant effects are tracked and reported, for example, involving volumes of water conserved.

Table 2. Example of Adaptation Fund Results Tracker for a project in Kenya

Project ID: KEN/NIE/Multi/2013/1 Implementing entity: National Environment Management Authority Type of implementing entity: National implementing entities Country: Kenya Region: Africa Sector: Multi-sector	
Impact: Increased resiliency at the community, national, and regional levels to climate variability and change	Core Indicator: Number of beneficiaries
Outcome 1 Reduced exposure to climate-related hazards and threats	Indicator 1 Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis
Output 1.1: Risk and vulnerability assessments conducted and updated	Indicator 1.1: No. of projects/programmes that conduct and update risk and vulnerability assessments
Output 1.2: Targeted population groups covered by adequate risk reduction systems	Core Indicator 1.2: No. of Early Warning Systems

Box 3. Tracking effective financing of drought risk reduction at the Adaptation Fund (continued)

Table 2. Example of Adaptation Fund Results Tracker for a project in Kenya (continued)

Outcome 2 Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	Indicator 2.1 Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased
Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	Indicator 2.1.1: No. of staff trained to respond to, and mitigate impacts of, climate-related events
	Indicator 2.1.2: No. of targeted institutions with increased capacity to minimize exposure to climate variability risks
Outcome 3 Strengthened awareness and ownership of adaptation and climate risk reduction processes	Indicator 3.1: Increase in application of appropriate adaptation responses
Output 3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	Indicator 3.1.1: Percentage of targeted population awareness of predicted adverse impacts of climate change, and of appropriate responses
Outcome 4 Increased adaptive capacity within relevant development sector services and infrastructure assets	Indicator 4.1: Increased responsiveness of development sector services to evolving needs from changing and variable climate
	Core Indicator 4.2: Assets produced, developed, improved or strengthened
Output 4 : Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	Indicator 4.1.1: No. and type of development sector services to respond to new conditions resulting from climate variability and change
Outcome 5 Increased ecosystem resilience in response to climate change and variability-induced stress	Indicator 5 Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress
Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	Core Indicator 5.1: Natural Assets protected or rehabilitated
Outcome 6 Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Indicator 6.1: Increase in households and communities having more secure access to livelihood assets
	Indicator 6.2: Increase in targeted population's sustained climate-resilient alternative livelihoods



Box 3. Tracking effective financing of drought risk reduction at the Adaptation Fund (continued)

Table 2. Example of Adaptation Fund Results Tracker for a project in Kenya (continued)

Output 6 Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	Indicator 6.1.1: No. and type of adaptation assets created or strengthened in support of individual or community livelihood strategies
	<i>Core Indicator</i> 6.1.2: Increased income, or avoided decrease in income
Outcome 7 Improved policies and regulations that promote and enforce resilience measures	Indicator 7 Climate change priorities are integrated into national development strategy
Output 7: Improved integration of climate-resilience strategies into country development plans	Indicator 7.1: No. of policies introduced or adjusted to address climate change risks
	Indicator 7.2: No. of targeted development strategies with incorporated climate change priorities enforced

Source:

^a Adaptation Fund. 2019. *Strategic results framework*. Adaptation Fund. Available at: <https://www.adaptation-fund.org/wp-content/uploads/2019/10/Adaptation-Fund-Strategic-Results-Framework-Amended-in-March-2019-2.pdf>.

Box 4. Tracking effective financing of drought risk reduction at the Green Climate Fund

The GCF has developed a Simplified Approval Process (SAP) for integrated water security projects, including elements devoted to drought management.^a This emphasizes multi-stakeholder collaborative approaches. A mix of a hard infrastructure (such as water supply augmentations) and soft solutions (such as capacity building, green infrastructure and nature-based solutions) is usually recommended for absorbing and recovering from the effects of drought.^{b, c} The GCF “SAP-able” types of projects include land use regulation (e.g. protection of aquifer recharge zones), on-farm water harvesting and household level grey-water recycling. Non-SAP-able drought projects consist in those that involve the construction of large infrastructure likely to pose potentially adverse environmental and/or social risks.

The GCFs Integrated Result Management Framework (IRMF) is the key point of reference concerning the intended effects and effectiveness of the portfolio. It clarifies how investments deliver climate results and contribute to the overall objectives of GCF to promote paradigm shift towards low-emission and climate-resilient development pathways in the context of sustainable development^d.



Box 4. Tracking effective financing of drought risk reduction at the Green Climate Fund *(continued)*

The GCF IRMF includes eight results areas, four of which focus on adaptation. These target the increased resilience of:

- i. most vulnerable people and communities;
- ii. health and well-being, and food and water security;
- iii. infrastructure and built environment; and
- iv. ecosystems and ecosystem services.

Each project/programme outcome within a project/programme logframe is linked to one of the eight results areas, and this facilitates systematic results reporting against the IRMF. In light of this, not all GCF-funded adaptation projects would necessarily report effects on the resilience of vulnerable people and ecosystems, but a proportion of them may set out to report effectiveness in terms of at least one or other of these.

The IRMF also provides a set of 4 Core Indicators for reduced emissions:

- Core Indicator 1: Increased resilience.
- Core Indicator 2: Beneficiaries reached.
- Core Indicator 3: Value of physical assets made more resilient to the effects of climate change and/or more able to reduce GHG emissions.
- Core Indicator 4: Hectares of natural resource areas brought under improved low-emission and/or climate-resilient management practices.

Relatively similar to the AF, the GCF Core Indicators focus primarily on population numbers and hectares of land (pending identification of additional indicators needed to measure effects on the populations and ecosystems). Neither one explicitly includes water availability during drought, although the AF does mention natural assets, while the GCF focuses on physical assets that can be valued.

The GCF provides guidance for impact measurement in its projects involving water security and Integrated drought management (Table 3). The Core Indicators are tracked in the annual project performance reports, which also track impact indicators.

Since the formulation of projects for GCF is technically demanding, the GCF Readiness Programme provides grants and technical assistance to National Designated Authorities and/or focal points to enhance the capacity of national institutions to efficiently engage with GCF.



Box 4. Tracking effective financing of drought risk reduction at the Green Climate Fund
(continued)

The Programme provides resources for strengthening institutional capacities, governance mechanisms, and planning and programming frameworks to identify and implement a transformational long-term climate action agenda for developing countries.

Table 3. Guidance for Impact Measurement in GCF Projects Involving Water Security and Integrated Drought Management

Expected result	Indicators	Notes
Fund-level impact		
2.0 Increased resilience of health and well-being and food and water security	2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses	Aggregate summation of tonnes of CO ₂ -eq reduction indicators. Intended to be estimated <i>ex ante</i> and reported annually and <i>ex post</i>
3.0 Increased resilience of infrastructure and the built environment to climate change threats	3.1 Number and value of infrastructure of physical assets made more resilient to climate variability and change	Replacement cost of infrastructure estimated to have been saved from weather events (weather intensity factored in)
Project/Programme outcomes		
5.0 Strengthened institutional and regulatory systems for climate responsive planning and development	5.1 Degree of integration/mainstreaming of climate change in national and sector planning and coordination in information sharing and project implementation	The evidence may be a qualitative assessment (e.g. through a standardized scorecard of the various strategic plans and documents, conducted at regular intervals to monitor changes in terms of climate change integration/mainstreaming)
6.0 Increased generation and use of climate information in decision-making	6.2 Evidence showing that climate information products/services are used in decision-making in climate sensitive sectors	Disaggregated stakeholder (government, private sector, and general population). This indicator is qualitative in nature and country-specific. It will require an in-depth analysis and/or a scorecard approach to capture the understanding of the political economy determining decisions
7.0 Strengthened adaptive capacity and reduced exposure to climate risks	7.2 Number of structural measures established/strengthened	Disaggregated by category and hazard



Box 4. Tracking effective financing of drought risk reduction at the Green Climate Fund
(continued)

Table 3. Guidance for Impact Measurement in GCF Projects Involving Water Security and Integrated Drought Management (continued)

Expected result	Indicators	Notes
8.0 Strengthened awareness of climate threats and risk reduction processes	8.1 Number of women and men made aware of climate threats and related appropriate responses	Disaggregated by women and men

Sources:

- ^a GCF. 2020. *SAP Technical Guidelines: water security*. <https://www.greenclimate.fund/sites/default/files/document/sap-technical-guidelines-water.pdf>
- ^b Coates, D. & Smith, M. 2012. Natural infrastructure solutions for water security. In: Ardakanian, R. & Jaeger, D. (eds.) *Water and the Green Economy - Capacity Development Aspects*. Bonn, Germany: UN-Water Decade Programme on Capacity Development.
- ^c UNCCD. 2019a. *Drought resilience, adaptation and management policy framework: supporting technical guidelines*. In: Tsegai, D. (ed.). Bonn, Germany, UNCCD.
- ^d GCF. 2021. *GCF/B.29/14: Decisions of the Board – twenty-ninth meeting of the Board, 28 June – 1 July 2021. Annex I: Integrated results management framework*. <https://www.greenclimate.fund/sites/default/files/decision/b29/decision-b29-01-b01-a01.pdf>

As of March 2022, the AF portfolio counts with 127 approved projects amounting to a total financing of USD 879.5 million of which 76 project include investments in adaptation to drought worth a total of USD 563.4 million.²² All approved projects and programmes and related documents can be found on the AF website, together with their, annual project performance reports, and evaluation reports at mid-term and end-term tracking the achievement of intended results in line with the AF Strategic Results Framework (see Box 2). In 36 projects, the investments relate mainly to measures against drought, whereas others have a smaller percentage of investments related to these kind of adaptation measures.

The sample of AF projects identified as addressing drought are distributed in countries across Africa, Latin America and the Caribbean and Asia and the Pacific regions, and also include some regional projects. They include projects that are already completed and for which Terminal Evaluations are done, projects that have passed the Mid Term Evaluation stage, and some that are still at early stages of implementation. They are implemented by a range of different agencies, including those that also regularly implement projects funded through the GEF (United Nations Development Programme (UNDP), UNEP, International Fund for Agricultural Development, International Bank for Reconstruction and Development, regional development banks, etc), and also other agencies – both international (e.g. World Meteorological Organization and Educational, Scientific and Cultural Organization), regional (e.g. West African Development Bank and Sahara and Sahel Observatory),

22. Updated from: www.adaptation-fund.org/projects-programmes by M. Dorigo, personal communication, 2022.

and national (e.g. Desert Research Foundation of Namibia).²³ They are also classified using sectoral markers, although many are multi-sectoral. See case studies 2, 3, and 4 from Argentina, the Dominican Republic and Uzbekistan (Appendix 1).

The GCF portfolio also includes projects addressing drought. The Project Preparation Facility (PPF) grants provide financial and technical assistance for the preparation of GCF project and programme funding proposals.²⁴ These are used to support countries in addressing their drought problems. For instance, in the United Republic of Tanzania, the PPF support has been provided to an agriculture climate adaptation technology deployment programme. The grant is used to undertake relevant (pre-)feasibility studies and project design to support the design of the climate rationale. These studies focus on analysing the effects of the duration, frequency and intensity of key climate stressors, including drought.

In South Africa, the GCF is deploying a PPF grant to support the project preparation activities for an Africa Water Reuse Programme. This PPF grant is financing feasibility studies, programme design, identification of indicators, and environmental, social and gender studies to develop a GCF Funding Proposal that finances water reuse planning and development that helps optimize scarce water resources, especially in times of drought, among others.

The GCF projects began more recently – therefore none is yet completed. It is notable that both the AF and GCF results frameworks use a similar set of core indicators focusing on numbers of beneficiaries reached that are relatively similar to the newly introduced indicator for the UNCCD SO 3. Hectares of land under different management systems also feature, as well as effects on water resources, assets and income of target beneficiaries during the project periods. Impacts on the broader effects of drought within national and transnational economies do not feature in the targets and tracking systems, and nor do other effects involving migration and interactions with other social hazards and risks, such as fragility and conflict. However, to some extent, these may be considered in the project designs, alongside interactions with other environmental and climate-related hazards such as floods, heat stress and health threats, which are included in many of the project designs.

The PPCR is one of three targeted programs that make up the Strategic Climate Fund of the Climate Investment Funds (CIFs) administrated by the World Bank. It supports national governments in integrating climate resilience into development planning across sectors and stakeholder groups. It also provides funding to put these plans into action and pilot innovative public and private sector solutions to pressing climate-related risks. It has four main objectives:

1. Pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning.
2. Strengthen capacities at the national levels to integrate climate resilience into development planning.
3. Scale-up and leverage climate resilient investment, building on other on-going initiatives.
4. Enable learning-by-doing and sharing of lessons at country, regional and global levels.

23. A complete list of the AF implementing entities can be found: www.adaptation-fund.org/apply-funding/implementing-entities

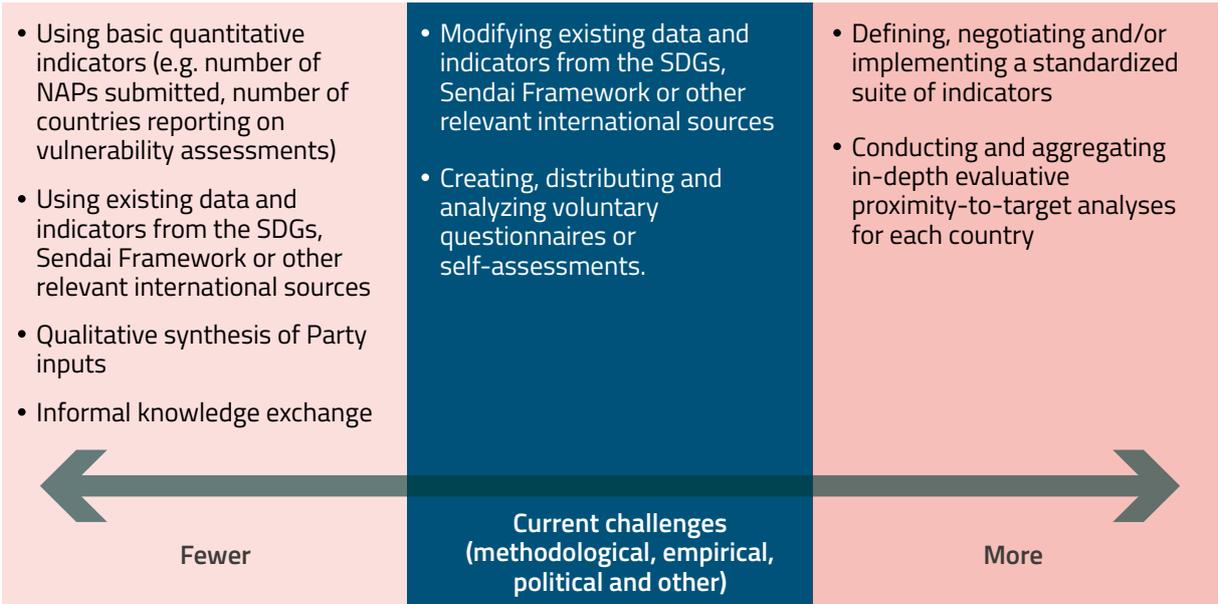
24. For more information see: www.greenclimate.fund/projects/ppf

The monitoring and reporting system established by the PPCR is a national-level system, applicable to several countries, combines quantitative and qualitative methods and follows a country-driven participatory approach. It also includes core and optional indicators and two tracks of data collection and reporting. The core indicators are:

1. degree of integration of climate change in national, including sector, planning;
2. evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience;
3. quality and extent to which climate responsive instruments/ investment models are developed and tested (optional);
4. extent to which vulnerable households, communities, businesses, and public-sector services use improved PPCR-supported tools, instruments, strategies, and activities to respond to climate variability or climate change; and
5. number of people supported by PPCR to cope with the effects of climate change.

Thanks to the ongoing work of the AC and the Strategic Climate Fund, the effectiveness of the climate funds remains under continuous review (Figure 4). A Climate Funds Collaborative Platform on Results was set up in 2020 (GEF, 2021a). Synergies between Climate Finance Mechanisms as well as remaining gaps (e.g. relating to the loss and damage associated with climate change) are increasingly considered (CIF and GCF, 2020). However, the complementarities and possible synergies with other funds addressing the land-water-climate interface are not addressed through these processes. Lately, the GEF Council has begun consideration of the complementarity, coherence and collaboration between the GEF and GCF (GEF, 2021d). There is also ongoing discussion between the AF and GEF.

Figure 4. Spectrum of approaches to assessing adaptation progress and challenges



Source: AC, 2021. *Approaches to reviewing the overall progress made in achieving the global goal on adaptation. Technical paper by the Adaptation Committee.* Bonn, UNFCCC. https://unfccc.int/sites/default/files/resource/ac2021_tp_gga.pdf

According to the GEF strategic positioning framework (GEF, 2022b), the recently agreed GEF/GCF Long Term Vision will further define specific areas of cooperation where complementarity of action may be more efficient and effective, as well as possible modalities to generate long-lasting outcomes and outputs (GEF, 2021d). Such collaboration has become increasingly relevant for a wide range of themes and entry points: the GCF results areas, such as forests and land use, and ecosystems and ecosystem services, health, food, and water security, encompass themes that are addressed across the GEF portfolio beyond climate change.

3.3 Setting a gold standard for transforming risks and regenerating sustainability

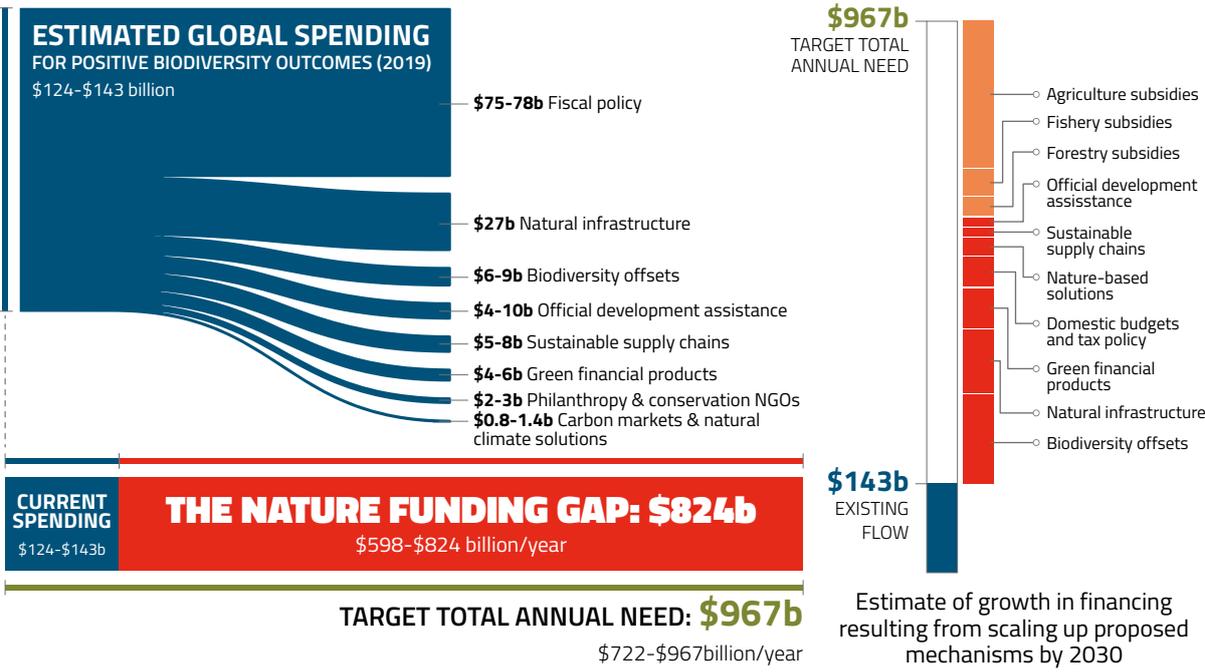
Green or environmental finance offers an alternative to traditional patterns of development expenditure and/or infrastructure investments. The goal of environmental finance is to identify “double bottom line” investments that support both financial and ecological returns. Therefore, effectiveness is in terms of environmental benefits and/or reduced environmental externalities including land degradation, desertification and drought risk. However, all too often “green” finance does not reach the more drought-prone areas where it is needed most (King-Okumu, 2015). The least-developed countries and more marginal drier areas still tend not to benefit from green finance. This is particularly the case in Africa and also in other parts of the world where fragility renders people and systems more vulnerable. This periodically results in negative effects that reverberate through the rest of the global economy – no matter how “greened” it may have appeared to have been.

A recent document produced for the OECD outlines four priority action areas for governments to sustain the environment and natural capital:

1. First, adapting measures of national performance to better reflect natural capital, and mainstreaming nature conservation into strategies, plans, policies and projects.
2. Second, better leveraging fiscal policy and economic instruments to support the conservation and sustainable use of biodiversity, including in COVID-19 recovery packages.
3. Third, embedding nature-related dependencies, risks, and impacts into the financial sector.
4. Fourth, reforming environmentally harmful and market or trade distorting government support, which stands at more than USD 800 billion per year (OECD, 2021).

It could be possible to avoid spending such a large amount in ways that do harm to the environment, and to instead devote more to sustainable development.

Figure 5. Assessing financing flows and gaps for nature and the environment



Source: TNC, 2020. Closing the Nature Funding Gap: A Finance Plan for the Planet. In: *The Nature Conservancy*. <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/closing-nature-funding-gap-global-biodiversity-finance>

By some estimates, the financing needs for protection of the natural world could be around USD 824 billion (Tobin-de la Puente and Mitchell, 2021) – therefore redirecting the harmful subsidies might be expected to cover most of the deficit (Figure 5). However, this would require strong leadership, and very careful evaluation and monitoring of both the social and environmental sustainability of any shifts in public subsidy programmes.

The UNCCD Global Mechanism was requested to identify potential and innovative financing instruments for addressing drought, based on clearly identified added value (UNCCD, 2019c). Findings from a Global Mechanism commissioned report were provided to the Intergovernmental Working Group on Drought for its consideration (UNCCD, 2022b). The report explores how countries can fund a proactive approach to drought management and reorient existing funding source management while tapping into new resources. It outlines key barriers to financing drought and offers recommendations on the building blocks of drought finance (infrastructure, disaster risk, climate, environmental and agricultural finance) while outlining key instruments (credit, loans, bonds, microcredit, funds and blended finance). Furthermore, it proposes key steps in preparing national drought finance strategies and how to incorporate these into country NDPs.

The Global Mechanism has carried out two additional informal assessments on: (1) the feasibility and options for establishing a Global Drought Resilience Fund, including options for scoping out a potential fund structure and operating and financing model; (2) the potential for issuing Sustainable Land Bonds in alignment with LDN as a potential source of financing for both Sustainable Land Management and drought. The results of these assessments will be available by COP 15.

An outstanding report has already been presented by the Global Mechanism on the innovative financing that it has mobilized to support Parties to the UNCCD in their ongoing work to combat desertification, land degradation and drought.²⁵ This includes examples of innovations engaging the private sector and exploring the use of results-based management, including in the most challenging environments of the Sahel. Highlights include work undertaken by the Global Mechanism together with International Union for Conservation of Nature and FAO using remote sensing (satellite and drone) data to allow the automated monitoring of endemic tree populations in the Great Green Wall region, as well as an assessment of the economic potential of existing tree populations. With financial support from the Italian Ministry of Ecological Transition, the Global Mechanism, in partnership with the International Union for Conservation of Nature, is supporting countries (e.g. Burkina Faso, Ghana and the Niger) through the implementation of “The Sahel Opportunity Project”.

For the continuation of its ground-breaking work on innovative financing, the Global Mechanism has worked to explore innovative instruments for financing land restoration which could be further tested. In this context, the Global Mechanism has commissioned a report, expected to be available by COP 15, which explores instruments for greening debt relief by investing in land, such as debt-for-land-restoration swaps, sustainability-linked bonds and other tools that could link debt relief to land restoration. These and other innovations under exploration by the Global Mechanism will be discussed during the forthcoming UNCCD Committee for the Review of the Implementation of the Convention 20 in Abidjan (UNCCD, 2022b).

In line with the emerging thinking on green finance, the GEF has observed (GEF, 2022b) that increasing the flow of funds to the environment whilst simultaneously reducing the need for these funds can be achieved through the creation of regulatory and policy environments at the national scale that both discourage/eliminate harmful practices and encourage large-scale finance for nature. Policy coherence,²⁶ is therefore key to reducing the funds needed for nature-financing. Additionally, through these domestic enabling environments, countries can help to further catalyse the impact of the nature funding flows; alternatively, misaligned domestic policies can also serve to lessen the impact of the very funds to the environment that are being increasingly required from ODA and other sources.

The GEF Trust fund provides support to mitigate the effects of drought in light of the role of the GEF as the designated financing mechanism for the UNCCD. This works alongside the LDCF and the SCCF, which are managed and replenished separately from the GEF Trust fund and are reviewed on a biannual basis in a separate LDCF/SCCF Council Meeting.²⁷ These are framed as projects addressing climate change, providing support to countries to mitigate drought risks, where these are additional risks due to the effects of climate change (see preceding section and core indicators in Appendix 3). Furthermore, the GEF also supports multi-focal area projects which can combine across its Focal Areas, integrating objectives for climate change mitigation or adaptation, with its work in the land degradation focal area and others - depending on the needs of the countries.

25. An unofficial copy of the “Report by the Global Mechanism on progress made in the mobilization of resources for the implementation of the Convention” is available at: www.unccd.int/sites/default/files/sessions/documents/2022-02/cric5-GM%20report%20advance%20copy.pdf

26. Traditionally defined as “the systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives” in Breuer *et al.*, 2019

27. Information on the meetings is available at: www.thegef.org/council-meetings/ldcf-sccf

The goal of the GEF Land Degradation Focal Area is to avoid, reduce, and reverse land degradation, desertification and mitigate the effects of drought (GEF, 2021b). This is in line with the role of the GEF as financing mechanism of the UNCCD and with the UNCCD Strategic Framework 2018–2030 which has the vision:

for a future that avoids, minimizes, and reverses desertification/land degradation and mitigates the effects of drought in affected areas at all levels and strive to achieve a land degradation-neutral world consistent with the 2030 Agenda for Sustainable Development, within the scope of the Convention (UNCCD, 2017).

Following its mandate in support of the UNCCD Strategy, the GEF provides support to countries in dryland geographies to build resilience to mitigate the effects of droughts and to prevent the aggravating effects of land degradation through:

- i. comprehensive land-use planning taking drought risks into account;
- ii. the use of drought databases and tools such as the UNCCD drought toolbox; and
- iii. the implementation of drought-smart land management, including croplands, rangelands, dryland forests, and mixed land-uses.

GEF investments in these landscapes aim at creating Global Environmental Benefits and building resilience.

The report (GEF, 2022c) observes that good land and water governance should be promoted through the LDFA as an important enabling environment for drought mitigation and the adoption and scaling up of drought-smart land management and associated technologies. Such an environment requires, inter alia, effective institutions combined with the empowerment of women (one of the majority groups among rural land and water users) and legal security (land tenure, water rights).

The GEF Secretariat is able to tag projects and programs in its internal GEF project portal that are intended to mitigate the effects of drought (GEF, 2022c). Out of the total 118 LDFA stand-alone and multi-focal area projects, 33 projects include components intended to mitigate the effects of drought. Several of these are child projects of the Drylands Sustainable Landscape Impact Program (GEF ID 10206) which was launched in July 2021 and already includes 12 child projects in 11 countries amounting a total GEF project financing of USD 95.84 million. This impact programme is expected to further expand drought-smart land management activities and to exchange knowledge and experience on mitigating the effects of drought.

Amongst Drylands Sustainable Landscape Impact Programme projects addressing the effects of droughts, the projects in Namibia, Angola, and Botswana do this through integrated sustainable and adaptive land management of Miombo-Mopane landscapes. Support is provided in specific contexts such as in drought prone areas to address drivers of land and water insecurity, to reverse resource pressures, enhance or restore governance and rebuild natural resource-based livelihoods and jobs.

The GEF report to the UNCCD (GEF, 2022c) identifies a project entitled the “Development of an integrated system to promote the natural capital in the drylands of Mauritania” project (GEF ID 10444) as another example of GEF support to mitigating the effects of drought. This project aims to improve rural communities’ livelihoods in the wilayas of Adrar, Inchiri and Dakhlet Nouadhibou in Mauritania through sustainable land restoration and management. The project activities include support for an Arid Land Observatory, training on dryland assessment and communities’ vulnerability, and drought-smart land management interventions.

Payments for ecosystem services (PES) schemes (Box 5) are based on the assumption that sustainably managing the land in the upper part of a catchment cannot be profitable without an additional incentive for the land users to be provided by populations downstream who will benefit from improved water supplies during drought. However, this assumption can be changed by establishing market access and value chains for other high value commodities and services that are produced sustainably alongside the hydrological regulating functions by habitat conservation, harvesting of non-timber tree products and extensive livestock raising systems that spread seasonal grazing patterns lightly across wide landscapes can also generate income for land-users.

Box 5. GEF support for assessment of Payments for Ecosystem Services to supply water during droughts

The GEF has supported and evaluated the effectiveness of numerous schemes for PES enabling water supply, storage, purification, regulation, etc. GEF Secretariat, 2015, for example, via a global project on ecosystem services in Chile, Lesotho, South Africa, Trinidad and Tobago, and Viet Nam, as well as national level implementation of the Environmental Services Payment Programme in Costa Rica and the Hydrological Environmental Services Programme in Mexico (involving fuel and forestry taxes). Also, the GEF’s Earth Fund helped establish five water funds in Latin America and the Caribbean to pay for the conservation of watersheds that provide water and support globally important biodiversity. In the Fynbos and grasslands of South Africa, GEF has supported agreements between buyers and sellers of important ecosystem services, including water, fiber, and medicines.

PES schemes and water markets often ask the beneficiaries of a water supply to pay the upstream land users for conserving and enabling nature to continue “providing” it. Several countries, including Australia, South Africa and Chile use markets for trading water rights. Water markets entail the voluntary trading of water in some measurable form or the right to use water from one user to another. The purpose of water markets is to increase the allocative efficiency of water usage, managing demand more effectively and increasing drought resilience. Where they cannot pay (or are already paying a water utility as much as they can reasonably afford), either the government or a third party (e.g. a carbon tax-payer) must pay for the water-fund (as occurs in several of the Latin American cases). The effectiveness of PES schemes can be assessed in terms of avoided infrastructure costs for water treatment plants, including their financing, construction, operating costs and externalities caused through energy use and emissions.

Source:

GEF Secretariat. 2015. *GEF 2020 Strategy for the GEF*. Washington DC, GEF.

Several GEF projects and programmes are more explicitly taking into consideration the challenges of private sector engagement to address inter-related drought, land degradation and desertification issues, for example, to guide future investment in Sustainable Land Management in the Great Green Wall countries (Burkina Faso, Ethiopia, the Niger, Senegal); and work with private sector stakeholders on the introduction of drought resistant species in the Sudan Sustainable Natural Resources Management Project and aquifer replenishment for Sustainable Management of Water Resources, Rangelands, and Agro-Pastoral Perimeters in the Cheikhetti Wadi Watershed of Djibouti (King-Okumu, 2021).

The GEFs report to the UNCCD COP 15 (GEF, 2022c) on lessons learned from an internal review of its LDFA portfolio identified valuable lessons learned on new and emerging issues in the regions affected by land degradation. In particular, these concerned mitigation of the effects of drought, private sector engagement, and gender. Lesson #1 was stated as follows:

Within GEF's mandate, the implementation of relevant aspects of national drought plans can be supported through its inclusion in land use planning and drought-smart land management, and should be coordinated with initiatives of other donors supporting climate change adaptation, including the LDCF (GEF, 2022c).

The design for the LDFA under GEF-8 includes increased references to drought throughout its rationale and objectives (as presented in the Programming Directions: GEF, 2021b). It also for the first time specifically mentions drought in its title: Objective 3. Address desertification, land degradation and drought issues, particularly in drylands. Under this objective, GEF-8 interventions/investments will:

- Build resilience to mitigate the effects of droughts and to prevent the aggravating effects of land degradation through: (i) comprehensive land-use planning taking drought risks into account; (ii) the use of drought databases and tools such as the UNCCD drought toolbox; and (iii) the implementation of drought-smart land management, including croplands, rangelands, dryland forests, and mixed land-uses.
- Address the entire range of land uses in the production landscape aimed at creating Global Environmental Benefits and building resilience. Based on the specific context, interventions may focus on cropland management, dryland forest management, and rangeland restoration and management.
- Support comprehensive land-use planning at all levels to influence land-use patterns at the appropriate scale (jurisdiction or landscape). In dryland areas, drought should be addressed as a priority in land-use plans. Proactive drought risk management is a more efficient way to reduce drought impacts on communities, economies and the environment (UNDRR, 2021). Data and information and participatory approaches will involve all stakeholders to develop land use plans, identify and assess droughts risks, and define mitigation measure in land and water use plans, including monitoring systems.
- Support the implementation of relevant aspects of national drought plans, within GEF's mandate, and coordinate with initiatives of other donors supporting climate change adaptation, including the LDCF.

The rationale for the international environmental communities to invest alongside and in partnership with national governments or private individuals and companies in support of sustainable land management is to conserve nature and the planet. The GEF strategic framework (GEF, 2022b) notes many international commitments (some mandated by the Conventions served by the GEF and others more voluntary) that have arisen or are in the process of being negotiated.

Among these are: the proposed post-2020 CBD Global Biodiversity Framework; commitments by 50 countries to protect at least 30 percent of the world's land and ocean by 2030 (UNEP, 2021b); the Bonn Challenge to bring 350 million hectares of degraded and deforested landscapes into restoration by 2030 (Sewell *et al.*, 2020); the post-2020 Global Apex Goal for nature and people; commitments for the UN Decade on Ecosystem Restoration; and Our Ocean commitments for significant and meaningful actions towards a clean, healthy, and productive ocean. Under the CBD, the sixth national communications included questions on the general effectiveness of policies for biodiversity conservation.

The GEF defines effectiveness as:

...the extent to which the intervention achieved, or expects to achieve, results (outputs, outcomes and impacts, including global environmental benefits) taking into account the key factors influencing the results (GEF-IEO, 2019).

In light of its focus on the environment, the GEF sets out to achieve global environmental benefits. These are expected to be different from the economic development benefits that are sought through national development projects and/or private investments. Nevertheless, there is well-accepted recognition that if projects do not also generate benefits for local livelihoods, they are very unlikely to succeed, nor to be sustainable (GEF-IEO, 2018). Also, there is growing recognition of the immense economic value of the environment to national economies and society.

The GEF has developed its tools, practices and systems to measure its effectiveness by assessing how well it supports countries in achieving global environmental benefits (GEF, 2022a). Over the past four years, it has pivoted from an attempt at monitoring a larger number of indicators through focal area tracking tools up until GEF-6 to gauging progress against a leaner set of more relevant and integrated Core Indicators. 11 Core Indicators (listed in Appendix 4) have been established for the GEF. Moving to these 11 Core Indicators and 33 sub-indicators also allowed streamlined reporting on project and program-level results.

In the 4th year of the Core Indicators' use, GEF partners recognized the strength of this set of indicators in enhancing their ability to harness data and information on results for evidence-based decision-making and learning. This has translated into clearly articulated results at project and program level, grounded in consistent results measurement standards. These expected results provide the basis to report twice a year on aggregate progress in the Corporate Scorecard, also supporting the Secretariat in programming projects and programs to meet targets (GEF, 2021a).

Reporting on the core indicators of the GEF is continuously updated and made publicly available in the documents that are prepared for the GEF Council meetings (GEF, 2021c) and replenishment negotiations (GEF, 2022d). Evaluations of the effectiveness of GEF-funded projects can focus on these and make use of the available and evolving systems and information.

For the LDCF and SCCFA recent report on the performance of Monitoring and Evaluation systems in LDCF and SCCF projects that have so far been completed in LDCs and other developing countries indicates challenges for the monitoring and evaluation during the implementation period (and also for the sustainability of systems post-completion) (GEF, 2021e). For these portfolios, an even shorter list of core indicators has been established (Appendix 4).

At the present time, the available indicators in use by Parties for tracking progress toward land degradation neutrality globally (SDG 15. to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss) are described in the SDG Indicators Metadata repository provided by the UN System and other international organizations (UNSTATS, 2022). The indicator 15.3.1 concerning the proportion of land that is degraded over total land area is also described by the UNCCD. It includes land cover, land productivity and carbon stock (temporarily limited only to soil organic carbon, with the intention that this would then expand to include total terrestrial system carbon stocks, once operational).

The indicators are not designed for monitoring the effects of drought, and at the present time, the methodological guidance gives instructions concerning how to average out any effects of variable rainfall so that any effects of droughts and/or drought management that might affect these indicators would not be in any way visible or apparent. Although in theory, countries could disregard this instruction and also take steps to introduce additional drought-sensitive hydrological indicators into their national monitoring frameworks, in practice to our knowledge as of the time of writing no support (neither technical nor financial) nor any purpose-designed and published training material has yet been provided to them to do so.²⁸ Therefore, very few are able to do this. A dedicated review would be required to identify relevant cases.

For the 2022 reporting to the UNCCD, a global good practice guideline describes default global datasets available to countries from the global level to facilitate their reporting to the UNCCD on Strategic objective 3 to mitigate the effects of drought. The UNCCDs Committee on Science and Technology is continuing to work on this challenge, drawing on the work of its Science-Policy Interface.

The GEF 8 policy directions (GEF, 2021a) gives particular consideration to the effectiveness and efficiency of the agencies implementing its projects. It observes that in the past, measures of agency effectiveness have relied on levels of co-financing to provide a proxy indicator for effectiveness in project/program delivery and achievement of GEF objectives.

However, for GEF 8, additional measures to capture both effectiveness and efficiency at a more results-based level are introduced to the analysis, that is the Development Outcome, Implementation Performance, and Disbursement Ratio indicators reported in the GEF's Annual Monitoring Report.

28. A methodological guideline for GEF project managers prepared by the GEF MSP on "Ensuring Impacts from SLM – Development of a Global Indicator System is available at: www.undp.org/content/dam/undp/library/Environment%20and%20Energy/sustainable%20land%20management/KM-Land_guidance%20materials_web.pdf. No follow-up or training activities have yet been financed by the GEF or any other donor except through the SDG 6 process which is not yet integrated methodologically with the SDG 15.3.1.

Three main areas are assessed by the Global Environment Facility - Independent Evaluation Office (GEF-IEO):

- The GEF's contributions in establishing and strengthening both the interventions that directly generate global environmental benefits and the enabling conditions that allow these interventions to be implemented and adopted by stakeholders.
- The GEF's additionality or catalytic role in the way that the GEF provides support within the context of other funding sources and partners.
- The environmental, social, and economic outcomes to which the GEF has contributed, and the behaviour and system changes that generate these outcomes during and beyond the period of GEF support (GEF-IEO, 2021).

According to the GEF-IEO (2021), achievement of results is determined by availability of resources, national capacity, and political will. A combination of factors affects the ability of enabling activities to achieve results. The availability of information at the national level can also be a determinant of report quality. The Conventions' quality assurance approaches are also having an impact; for example, after the Paris Agreement, there is now a verification process in place for national communications, so the quality of reports is improving.

Managing drought risks can involve aspects of public and private systems for budgeting and financing all of the recurrent and capital costs for the construction and maintenance of basic infrastructure including housing, water and energy supply and sanitation systems, such as treatment plants, storage reservoirs and distribution networks that supply water for domestic and other uses (Box 6). However, in countries where there are already significant development deficits, inequalities and/or other difficulties and disfunctions (e.g. as in fragile states and states in conflict situations) or problems due to deflating currencies and pre-existing debt-burdens, and others, this can be more difficult for governments and/or private actors to achieve.

In the more challenging cases where it is already difficult to manage public funds through the routine budgeting and disbursement of annual income and expenditures, it has been argued that direct cash transfers to vulnerable people can be of more use to help them cope with emergencies than traditional job-creation or development projects run from far-away centralized ministries or development programmes. Equally, for land and water management projects, it is often argued that increasing local control of funds and decision-making can improve the success of investments.

Often, a highly contested middle ground emerges where there is partial decentralization or devolution of public finances. On the one hand, greater shares of budgetary control may be assigned to local government and local development funds, agencies and actors in previously marginalized drought-prone areas. While on the other, building and strengthening the national institutions and strategic economic development planning. The tensions that this creates can play out in a range of different ways, depending on the mix of institutional and individual agendas involved, and the extent to which they are able to work together to achieve the best outcomes for vulnerable ecosystems and populations.

Box 6. Upper Tana Nairobi Water Fund in Kenya

The Upper Tana Nairobi Water Fund is the first sustainable financing mechanism established in Sub-Saharan Africa. Private sector contributions downstream pay farmers for protection of ecosystem services in upstream catchment areas. Multiple direct benefits include:

- payment for environmental services for more than 23 000 farmers on 17 000 hectares through promoting SLM and water conservation measures;
- restoring environmentally sensitive lands;
- linking farmers to alternative value chains, such as avocados; and
- adapting to climate change.

Many project outputs are close to targets, or exceed them, such as water pans/reservoirs (68 percent), biogas installations (115 percent), and successful planting of tree seedlings with high survival rates (372 percent). Less information is available, however, on how many farmers effectively adopted all three core SLM technologies, the project promoted for terracing, agroforestry, and grass strips. Still, the project is on track to achieve its global environmental benefit core indicators for landscapes under improved practices, area of land restored, and greenhouse gas emissions mitigated, as well as for number of direct beneficiaries. But planned interaction with a co-financed International Fund for Agricultural Development project has not yet materialized, partly because extension models and coverage areas are different. This limits GEF scale-up and sustainability.

Source:

GEF. 2016. *Food-IAP: Establishment of the Upper Tana Nairobi Water Fund (UTNWF)*. Washington DC, GEF.

Across the Horn of Africa region, peace-building and local conflict-resolution components are frequently built into programming for building resilience to drought. For example, significant investments have been made in supporting local institutions to manage droughts in the Tigray region of Ethiopia through programmes such as the Pastoral Safety Nets Programme. These have scored very highly in evaluations focusing on local level institution-building. A recent evaluation of the LDCF portfolio (GEF, 2021e) also highlighted success achieved in engagement of the private sector through work with a local brewery in Tigray. Evaluation work has also captured the effectiveness of investments in land and water management practices. However, on the whole, such evaluations tend to rely on relatively data-sparse modelling techniques and have not yet been integrated into the formal resource management and statistical systems of the local and national authorities.

Ambitious recommendations have been put forward by the UNCCDs IWG. These could drive the shift from green to gold in the global financing agenda. Guided through a global assessment process, national treasuries reviews could take note of drought risks and impacts on the national economies, require public and private companies to disclose relevant information (e.g. concerning water resource conditions and uses in their vicinity), restructure perverse subsidies and improve the use of fiscal measures – for example, green taxes and other available economic instruments such as tax breaks, preferential terms of trade and certification systems to encourage more sustainable and drought-smart land uses and value chains to benefit vulnerable communities and underwrite their access to ecosystem services.



Photo credit: © FAO/Michael Terwelde

4. Conclusions

Financing approaches for addressing drought risks range from short-term emergency funds that respond to a drought during the onset or recovery period (ideally then to transition to reduced risks following the recovery) to more proactive investments that do not wait for drought onset warnings before starting to reduce, avoid or buffer exposure and vulnerability (e.g. through investments in nature-based solutions and sustainable land management to recharge aquifers and restore rangeland and forest areas). Strategic investments that can be explored before crises emerge can include more support for systemic interventions to rethink and either adapt or transform patterns of settlement and resource use that will reduce emissions, enable more sustainable lifestyles and consumption and slow down the effects of the crisis.

Although there is a range of different funding windows available, the task for countries to identify which needs each of them can best address, and to formulate bankable proposals can be complex and takes time and careful consideration. In some cases, countries still face challenges to find the support that they need to be able to invest in proactive manner that will reduce the risks of drought in their contexts. There are challenges for some countries to identify the business cases for bankable proposals to be made to the relevant available funds.

Reviewing the different funding streams that are available from the global level can help to support countries in their national actions on drought, help to unlock national financing for drought risk mitigation, ensuring integration with planning for LDN as well as with other Sustainable Development

and Rio Conventions' objectives. This should further strengthen global-national partnerships and interlinkages, as well as enable countries to continue to build their effective national-local partnerships and financing systems to reduce the effects of drought on vulnerable communities and ecosystems, as defined by UNCCD SO3.

International dialogue tends to focus on the flows of international financing to address drought. However, the flows of effective financing that come from the local level for investment in drought risk reduction and/or adaptation to climate are not well-documented. This is hampering opportunities to align global and national efforts to better support these and the local private sector. Amongst the international climate and nature financing communities, the challenges to identify satisfactory answers to these questions, due to the timeframes needed for impacts to appear, and to a range of confounding factors, as well as lack of coherent systems in place to continuously track results.

Tracking positive effects from successful investments in adapting and transforming drought risks under the Rio Conventions, Sendai and SDGs should accelerate re-investment and unlock virtuous cycles at all levels. National policies and assessment frameworks have a critical role to play in assessing and managing drought risks and impacts. Global and regional coordination is also essential. Building in improved impact tracking systems to capture the effects at the level of communities and ecosystems would be desirable to verify the anticipated effectiveness. It would also enable timely course-correction if any results are off-track.

Overall, there is a consensus that more investment is needed to enable vulnerable people to adapt to drought risks, a general agreement that proactive investments are the more effective and sustainable (than reactive approaches), and a remaining need to define, measure and continue to maximize this effectiveness while taking a holistic approach to build collaboration amongst all relevant Conventions, agencies, processes, actors and sectors of the world economies at all levels.

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Glossary

CLIMATE FINANCE

There is no agreed definition of climate finance. The term “climate finance” is applied to the financial resources devoted to addressing climate change by all public and private actors from global to local scales, including international financial flows to developing countries to assist them in addressing climate change. Climate finance aims to reduce net greenhouse gas emissions and/or to enhance adaptation and increase resilience to the impacts of current and projected climate change. Finance can come from private and public sources, channelled by various intermediaries, and is delivered by a range of instruments, including grants, concessional and non-concessional debt, and internal budget reallocations (IPCC, 2021).

DISASTER RISK FINANCE

The Centre for Disaster Protection defines it as the system of budgetary and financial mechanisms to credibly pay for a specific risk, arranged before shocks occur (CDP, 2022).

DROUGHT

Situations involving an exceptional period of serious hydrological imbalances that adversely affect land resource production systems. These may be due to natural causes or to human actions, for example, concerning the management of land and water resources (UNCCD, 2022c).

Agricultural or ecological drought (depending on the affected biome) – A period with abnormal soil moisture deficit, which results from combined shortage of precipitation and excess evapotranspiration, and during the growing season impinges on crop production or ecosystem function in general (UNCCD, 2022c).

Hydrological drought – A period with large deficits of runoff and water in rivers, lakes and reservoirs (see definition of reservoir) (UNCCD, 2022c).

Meteorological drought – A period with an abnormal precipitation deficit (UNCCD, 2022c).

EFFECT

Intended or unintended change due directly or indirectly to an intervention. Related terms: results, outcome (OECD, 2002).

EFFECTIVENESS

The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance (OECD, 2002).

PRIVATE SECTOR

Organisations that engage in profit-seeking activities and have a majority private ownership (that refers to not owned or operated by a government). This term includes financial institutions and intermediaries, multinational companies, micro, small and medium-sized enterprises, co-operatives, individual entrepreneurs, and farmers who operate in the formal and informal sectors. It excludes actors with a non-profit focus, such as private foundations and civil society organisations (OECD, 2016; Crishna Morgado *et al.*, forthcoming; Di Bella *et al.*, 2013).

RESERVOIR

A component or components of the system where water is stored (UNEP-DHI Centre on Water and Environment, 2017).

Appendix 1. Case studies

A1.1 Ensuring climate resilient water supplies in the Comoros

Country: The Comoros	Total project value: USD 60 800 000
Donors: GCF (69 percent) Co-financing (31 percent)	Project duration: 2018–2027

About the project

The project supports the Comoros, one of only two African Least Developed Countries, Small Island Developing State, to adapt to increasing extreme climate risks (including droughts, flooding and water quality impacts from landslides or erosion) that impact the country’s drinking and irrigation water supply. Comoros has a very small national land area of only 2 612 km² consisting of steep volcanic terrain, with no land further than 7 km from the coast. It, therefore, has very small watersheds and aquifers which have little natural water storage capacity, and consequently are highly vulnerable to climate change magnified rainfall variability – as is the rural population reliant on only rainwater harvesting – resulting in predicted increases in water scarcity due to drought, flood and salinization impacts on the nations’ water supplies.



Photo credit: © UNDP-Climate change adaptation

In conjunction with national and state governments, water service providers, water user associations and communities, and their development partners (China, Arab Fund for Economic and Social Development and the UNDP) who provide the co-financing for this project, GCF resources are used to address critical technical, institutional, and financial barriers impeding the improvement of climate resilience of the country's water resources and water supplies. The project will achieve a national paradigm shift in strengthening the climate resilience of water supply by mainstreaming systematic climate risk reduction approaches into the governance and delivery of water resources, watersheds, water supply infrastructure and water user management, including in planning, investment, design, operation and maintenance.

Specifically, the project will invest in:

- Reinforcing the management of climate resilient water supply by strengthening the water sector enabling environments, for medium to long-term climate adaptation planning. This will be achieved by integration of climate information into the recently revised national water legislation reforms, training on risk-based water management practices, and upgrading tariff reforms to include the additional costs of climate risk reduction.
- Protecting water quality and moderating extreme high and low water resource flows using integrated watershed management improvements in 32 watersheds (informed by water resources monitoring); and using water resources monitoring to provide early warnings and forecasts of climate risks to improve water supply resilience.
- Increasing the climate resilience of water supply infrastructure through diversifying the water supply sources for 450 000 people (rainwater, surface water and groundwater); and designing and constructing climate-change risk informed infrastructure to protect from flood risks and sized to withstand drought periods.

Specifically, the GCF funds will be used to address the following climate change additionality:

1. Dry season water supply access to rural and peri-urban households in the island of Grand Comore (who currently rely on only rainwater harvesting), by expanding and constructing new groundwater fed water supply systems, which can supply water when the household rainwater tanks fail during drought periods.
2. Dry season water supply access to town and peri-urban households in Grand Comore, whose borehole water supplies currently become non-potable due to increasing salinity during dry periods, by improving borehole pumping regimes to reduce salinity, increasing water storage to enable pumping rates to be reduced (which requires improving water treatment to allow water to be stored and remain potable) and by drilling new boreholes to reduce individual borehole yields and target areas of fresher groundwater.

3. Protection of stream intakes (and boreholes) from storm flood damage, through flood protection upgrades (e.g. flood walls, overflows), addition of water supply network storage to allow intakes to be closed during flood events, and improvements to treatment plants to treat increasingly turbid stream waters.
4. Installation of flow meters to measure climate resilient improvements in drought water supply provision so as to inform correct setting of tariffs to sustain continued climate risk reduction practices, and for use to reduce water leakage to reduce water demand during drought periods.

These GCF infrastructure improvements all focus on protecting and improving drinking water supply during climatic extremes, to provide the same quantities and qualities of water per capita during climatic extremes as are currently provided during normal operating weather conditions. They are not designed to increase water supply during normal operational periods per capita or to larger populations, other than during periods of climatic extremes. The GCF is therefore solely funding climate risk reduction improvements which are required to overcome the climate change impact additionality that is above and beyond existing water supply provision during normal operating conditions.

The fund level impact indicator is number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses. This will increase from 0 to 450 000. The timely forecasting and prediction of flood events will reduce the economic damage to all sectors from flood water inundation, as well as improve event response and recovery performance. The April 2012 floods were estimated (by Centre for Relief and Civil Protection Operations) to cost USD 20 million, 5 percent of Comoros' gross domestic product. Water supply utilities will design, locate, construct and operate and maintain water supply schemes, which will be less exposed to drought and flood risks and therefore will have reduced event associated damage and repair costs. The provision of a more regular water supply during droughts and floods will reduce losses associated with business/trade/manufacturing operation disruption.

The 450 000 people receiving improved water supplies will have better health and therefore can be more productive in their household incoming earning activities – either informal or formal in nature. More Productive Agricultural Sector The agricultural sector has very little irrigation infrastructure with which to reduce exposure to the dry seasons. The project will increase irrigation water storage using impluvium and stream water intakes to increase dry season cash crop productivity.

At least two important benefits are included in the economic analysis. First, the Comoros imports large quantities of medicine directly associated with the treatment of gastro-intestinal diseases. According to the sole importer of such medicines in the country (Ministry of Health), the Comoros imported approximately USD 8 million of medicines for the treatment of gastro-intestinal diseases in the 15 target zones of the project representing an average cost of approximately USD 24.50 per capita. The mitigation of future treatment costs is a significant benefit of the project. A second important benefit is estimated by the economic willingness-to-pay for water. In the times of dry period, households have access to limited supply of water, including bottled water and truck water, with truck water being the least expensive of these sources.

The price of truck water varies across project zones but on average is estimated to be 11 000 CF (Comorian franc) or approximately USD 25 per cubic meter. The NPV of the project is estimated to reach USD 110 million, with an internal rate of return of 41.8 percent thus indicating the economic desirability of the proposed investment project.

Case study sources

GCF, 2020, 2022; UNDP, 2022a

A1.2 Family Agriculture Adaptation and Resilience in Northeast Argentina to Climate Change and Variability impact

Country: Argentina	Implementing entity: General Directorate of Sectoral and Special Programs and Projects (DIPROSE) of the Ministry of Agriculture, Livestock and Fisheries of Argentina (MAGyP) (formerly Entity of Unidad para el Cambio Rural (UCAR))
Donors: Adaptation Fund	
Project duration: 2013–2018	
Total project value: USD 5 640 000	

About the project

Argentina’s economy is favoured by important natural resources and well-trained human resources. Nevertheless, in consideration of the size and the productive, social and environmental diversity of Argentina, the scenario is not uniformly distributed. The northeast region of Argentina is the area with the greatest poverty indicators in the country, where poverty adds pressure on the environment in a vicious cycle: degraded natural resources, which are vital for the impoverished communities, lead to greater levels of poverty.



Photo credit: © Adaptation Fund

The objective of this AF-funded project was to enhance the adaptive capacity and develop resilience of small-scale family farming producers to impacts deriving from climate change and climate variability, particularly those impacts that may arise as a result of an increase in the intensity of hydro-meteorological events, including floods and droughts.

The area of intervention encompassed the provinces of Chaco, northern Santa Fe, north-eastern Santiago del Estero and western Corrientes. These areas have been strongly affected by intense and growing climate variability, ranging from long and intense droughts to severe flooding in quick succession.

The original design of the project included four different types of technology for water access: (a) boreholes/wells to obtain groundwater; (b) retrofitting of roofs and construction of associated cisterns or water wells as reservoirs for harvesting rain water; (c) dams for large and small livestock, and (d) a multi-purpose dam water system combining harvested rainwater with groundwater. Through the actions of this sub-component, a total of 1 283 producers' families were expected to be attained to improve their access to water through one of these methods.

Results

The project's effectiveness was highly satisfactory since most of the originally anticipated goals were achieved and surpassed. A total 3 591 families of family agriculture producers in the area of intervention benefitted from the project, out of the 4 000 originally anticipated. Furthermore, 2 488 additional beneficiaries not provided for in the original design were added through the execution of works in public institutions such as rural schools and childcare providers. These included 19 rural farming schools, one childcare provider, and one community centre.

Several adjustments were necessary from this original proposal. First, because it was evident that the demands of the population regarding water access greatly exceeded the initial diagnosis. The main explanation for this original underestimation has to do with the technical approach prevalent in the National Institute of Agricultural Technology (INTA) that had never considered water access as a need related to their chores. This appears in several interviews.

"Our view as farming extension technicians always focused on Best Agricultural Practices and on the provision of supplies. But for a long time in the region, we observed that our best practices were failing, slipped through our fingers: there were people who had to walk 1, 2 or 3 km just to have water to eat and bathe while we were asking of them to water their orchards. Obviously, that wasn't their priority. We were stuck, demoralized and we were not solving the underlying problem, access to water, which had to be solved first. This project allowed us to realize that. Today that issue is already taken care of (or at least we have the instruments to finish solving it) and now we can really move forward with best practices, in a more propitious context."

Interview with José Rafart, Director of Las Breñas Farming Experimental Station, Chaco.

Source: AF, 2019b.

The difficulty of access to groundwater made roof retrofitting technology for the harvesting of rainwater and construction of cement tile-roof cisterns and masonry water wells for storage the best technical solution. In this way, the project increased by near six times the number of families planned for this technology and trebled the amount of construction works (Moreiras and Deambroggio, 2019). This allowed, also, to opt for a modality of self-construction by the producers themselves, which was defining, afterwards, in terms of project sustainability and replication chances.

Table A1. Progress indicators of project's objectives under the project logical framework (Argentina)

Indicator: number of families vulnerable in view of adverse effects of climate variability and change				
Baseline	Measurement unit	Progress (30-09-2017)	Goal at the end of the project	Progress (%)
No measures of adaptation to climate change have been implemented to the date	Total numbers of beneficiary families, of which:	3 591	4 000	90%
	<i>represented by women</i>	618	800	77%
	<i>represented by young population</i>	398	600	66%
	<i>families of Indigenous population</i>	627	320	196%
	Total number of students, children, and teachers with access to adaptation measures in public schools or homes	2 488		

Source: Moreiras, M. S. & Deambroggio, C. 2019. *Borrador de Informe Sistematización de la experiencia: Fortalecimiento de los sistemas de información, monitoreo y gestión agroclimática, DIPROSE-Fondo de Adaptación*. April 2019

Under the project, 900 on-farm water harvesting, storage and management works were carried out, benefiting 2 052 families of family agriculture producers and 1 978 students, teachers and children, 14 schools, one community centre, and one childcare provider. For what concerns the development of the pilot insurance programs (Oficina de Riesgo Agropecuario-ORA) progress was made with the feasibility study of the sheltered horticultural insurance 17 in the province of Corrientes, and the authorization of the insurance policy was processed with the National Superintendence of Insurance, with the first policy for small-scale horticultural producers in the country having been recorded with such agency, valid for the entire national territory. In addition, the systematization of the lessons learned from the experience was carried out, surveying the opinion of producers, the provincial government of Corrientes, the national government, the technicians who participated in the experience, and the insurance companies. From a total of 787 families planned, the pilot insurance plan covered 1 247, surpassing the goal by 58 percent. With regards to the optimization of agricultural practices (e.g. orchards, forage resources and soil management), improvement of facilities and technical assistance at on-farm level were provided to a total of 292 producers families and to 510 students and teachers in 5 rural schools.

As regards the integration and expansion of agrometeorological networks, 18 new full-automatic meteorological stations were built and installed on site, and 10 simple meteorological stations were turned into full stations. Whenever possible, their location in areas with thin coverage was prioritized to expand the coverage of data measurement in areas with a greater relative presence of small-scale producers (rather than in areas of extensive or large-scale agriculture) and in key scenarios of climate change in the region.

The Project also advanced the integration of INTA’s meteorological stations data network with those of the provinces of Corrientes and Chaco, previously disconnected, and it was done through the signing of collaboration agreements with the private sector and provincial governments. The provinces of Santa Fe and Santiago del Estero did not have a network of stations at the time of Project execution and, therefore, did not participate in the integration at the provincial level, although the information from the INTA network stations was added. In addition, work was conducted on interoperability and the quality of information, improving access and servers to guarantee shared standards among institutions and greater availability of online information. In all, three portable stations were designed and assembled at the Climate and Water Institute of INTA. Two out of those are located in the province of Corrientes in two different types of livestock environments, one next to the other.

Based on the information generated by the increase in the number of stations and the improvements incorporated in the analysis and monitoring of agroclimatic information, the project proposed an Early Warning System. The Project developed a web platform, which compiles all the new agroclimatic outputs, and free, open-access agrometeorological information of various northeast Argentina institutions and contains information on the works carried out with the Project and different agroclimatic outputs. Training is another of the Project’s great contributions: 3 882 producers were trained of which 55 percent were women, 52 percent of trainees were younger than 35 and 9 percent were Indigenous.

Case study sources

AF 2013a, 2019a, 2019b

A1.3 Enhancing climate resilience in San Cristobal Province, the Dominican Republic - Integrated Water Resource Management Programme

Country: The Dominican Republic	Total project value: USD 9 953 692
Donors: Adaptation Fund	Project duration: 2019–2023

About the project

In the Dominican Republic, the physical demand for water resources is projected to increase by 13 percent by 2030. The shortage of drinking water due to extreme climatic events, such as droughts and floods, will increase the population’s exposure (especially of women, children and aging) to water-related diseases, such as diarrhoea, amebae, cholera, gastroenteritis, etc.

On the other hand, water resources are key for the development of the country: the generation of hydroelectric energy (15 percent of the total electricity consumed), drinking water, irrigation and drainage, among others, have been affected by extreme events. Additionally, climate change has led to an increased the occurrence of pests and diseases (such as dengue, cholera, malaria, etc.) and the modification of biophysical conditions (changes in temperature, humidity, rainfall, wind, etc.)

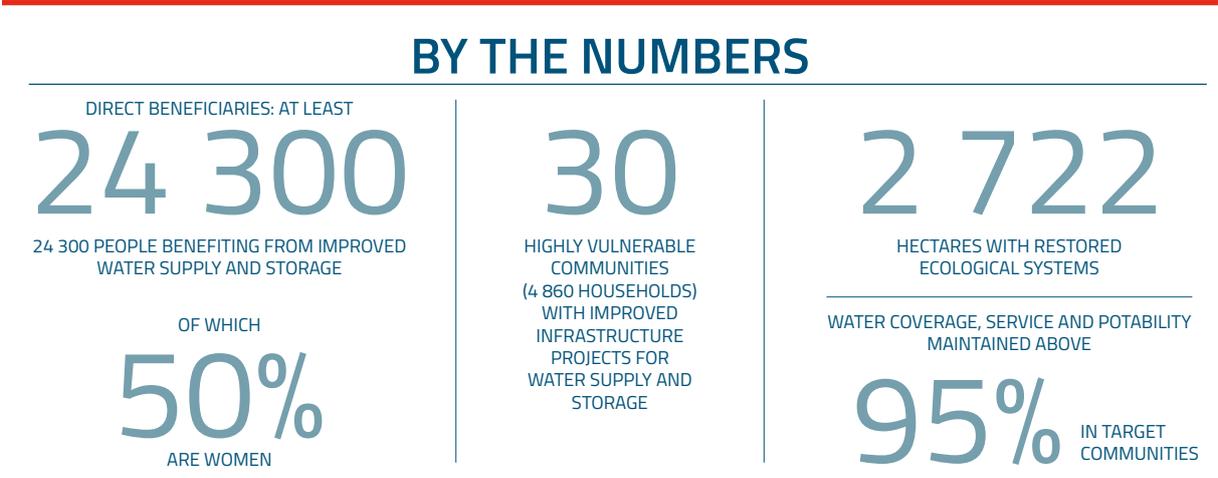


Photo credit: © Dominican Institute of Integral Development

A decrease in the duration of the rainy season experienced (6 months in the past 36 months) and the total volume of rainfall have caused the decline in production, often associated with the lack of water. Acute droughts are identified as the most significant risk in the medium and long term. These mostly concerned loss of agricultural productivity. All but two of the country’s reservoirs were operating at minimum capacity, which meant the authorities had to give priority to residential users over agriculture and power generation (AF, 2013b). Yields went down, and many crops were lost, especially in rice paddies, which require huge quantities of water. Production in the rice-growing region in the northwest of the country fell 80 percent due to the scarce rainfall and the reduced flow in the Yaque del Norte River. The Dominican Agribusiness Council reported a 25 to 30 percent drop in dairy production due to the drought, while hundreds of heads of beef cattle died in the south of the country.

Against a background of severe water stress, the AF-funded project aims at increasing the resilience and capacity to adapt to climate impacts and risks on the water resources of rural communities in the Province of San Cristóbal and contribute to the diversification of their livelihoods.

Figure A1. Project figures (The Dominican Republic)



Source: AF. 2021. Adaptation story – Dominican Republic. Washington DC, the Adaptation Fund Board Secretariat

Table A2. Progress indicators of project's objectives under the project logical framework (The Dominican Republic)

Type of indicator	Indicator	Target for project end
Objective: Increase resilience and capacity to adapt to climate impacts and risk on the water resources of rural communities of San Cristobal Province	Number of communities with capacity to adapt to climate risk	Improving access to potable water and sanitation services, with reforestation activities in line with a correct planning of land use in 30 communities and increasing institutional and community capacity and coordination for integrated management of water that supports other uses of water resources, especially for the diversification of the livelihoods of rural communities
OUTCOME 1		
Community-level implementation of climate resilient water resource management activities	Percentage of the population with improved water management practices that are resilient to the impacts of climate change in the selected areas	Water management resilient to CC has been implemented in 30 small communities of San Cristobal Province
Output 1.1. Community plans for drinking water supply and sanitation, for 30 communities to incorporate the risk related to CC, have been developed. (Adaptation Actions)	Number of communities in which the management plans have been developed and are implemented	Community water management plans implemented by 30 small rural communities
Output 1.2. The supply of drinking water under climate impacts multiple (i.e. droughts, heat waves, etc.) in 30 rural communities has increased. (Adaptation Results)	Number of operative infrastructure projects for water supply and storage implemented by communities	30 communities, benefiting at least 24 300 people (of which 50% are women)
Output 1.3. Measures for water conservation under climate impacts (i.e. management of micro-basin and re-afforestation plans, etc) for 2 722 hectares have been implemented (Adaptation Results)	Number of measures for water conservation implemented	Forest systems implemented on the site, which supply water to 2 722 hectares
OUTCOME 2		
Capacity building and strengthening in key institution and communities to manage the risk related to long-term climate change	Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risk	The technical capacity of communities and institutions to assess impacts, vulnerability and adaptation needs, in accordance with their respective competences has increased

continues...

Table 2. Progress indicators of project's objectives under the project logical framework (The Dominican Republic) (continued)

Type of indicator	Indicator	Target for project end
Output 2.1. A set of manual and other materials on best practices for drinking water management and sanitation, including a fully operational website. Have been developed (Adaptation Actions)	Number of training materials produced and utilized in training	Availability of materials on best practices for climate resilient water management
Output 2.2 Provincial Committee on adaptation to Climate Change of San Cristóbal has been established. (Adaptation Actions)	Number of provincial committees for adaptation to climate change	A Provincial Committee to Monitor Adaptation to Climate Change, fully established in the Province of San Cristóbal
Output 2.3. Learning and system platforms to integrate the risk related to climate change, in community water resources management and livelihood activities has been institutionalized in 30 communities. (Adaptation Actions)	Learning platform created under the operating program	A collaborative platform increases community participation in climate change adaptation

Source: AF. 2013b. *Enhancing climate resilience in San Cristóbal province, Dominican Republic. Project document*. Washington DC, the Adaptation Fund Board Secretariat. <https://www.adaptation-fund.org/projects-document-view/?URL=en/527661554310991742/4133-For-web-Dominican-Republic.pdf>

The project objective will be achieved through improving the access to water supply and sanitation services, re-forestation activities aligned with a correct land use, and increasing institutional and community capacity and coordination for integrated management that supports other uses of water, especially for the diversification of the livelihoods of communities.

Case study sources

PPR-1 2020; AF, 2013b, 2021, 2022a

A1.4 Developing climate resilience of farming communities in the drought prone part of Uzbekistan

Country: Uzbekistan	Total project value: USD 5 415 103
Donors: Adaptation Fund	Project duration: 2014–2020

About the project

In Uzbekistan water resources are under increasing stress due to recurrent droughts and a general trend of desertification – especially in the country poorest areas, like Karakalpakstan. The resulting decline in land productivity hits the most vulnerable communities – the rural poor that not only struggle to withstand the impacts of climate change today but are also woefully unprepared to face the future dangers and effects of the climate crisis.



Photo credit: © Adaptation Fund

The predominant rural profile and an economic over-dependence on agriculture makes the country highly sensitive to climate variability and long-term climate change. The rural communities living in the most arid areas of the country are those particularly in need of urgent adaptation measures, including drought early warning systems, farm-based improvements (more water efficient practices and technologies) to enhance water productivity and hence sustain livelihoods.

The project will be focusing on an adaptation strategy for Uzbekistan’s most marginal and vulnerable region, where the poorest parts of population reside, who are fully dependent and exposed to climate conditions and heavily rely on the natural resource base for their existence. Unfortunately, despite the recent investments in agricultural infrastructure and the progressive social reforms adopted in the country, vulnerable farmers and pastoralists in arid and marginal lands don’t receive any remarkable benefits.

In this context, the AF-funded project was designed to propel positive reform processes in climate adaptation, while also reaching out to the poorest and most marginal to provide urgent adaptation solutions. The project objective was to develop climate resilience of farming and pastoral communities in the drought prone parts of Uzbekistan, specifically Karakalpakstan.

The project aimed at supporting the central, regional and local governments and vulnerable farmers and pastoralists to withstand the current and future impacts of climate change along four main components:

- i. institutional capacity and mechanisms for drought risk management and early warning;
- ii. climate resilient agricultural and pastoral production systems;
- iii. landscape level approach to adaptation to climate change risks of increased aridity; and
- iv. knowledge management and awareness raising.

Results

In Karakalpakstan, the project's whole observational meteorological network (10 meteo stations) was automatized and two water gage stations in Amydarya river were modernized. Their staff and national experts have been trained in the operation and maintenance of the automated equipment. A drought early warning system has been developed and adapted to the Amudarya downstream environment, with national experts trained in drought early warning system's operation, maintenance as well as the development of its products.

Three Extension Service Centres have been established with the project support and consult farmers and dekhans on climate change adaptation activities. Land laser levelling technique demonstrated in the project pilot districts (at 460 ha) with the use of 7 sets of land laser levelling equipment have been provided by the project. In Kegeyli and Chimbay, agroconservation and water-saving technologies were tested at 22 ha of farmlands, and landscape level adaptation activities have been implemented at over 80 ha. Two rural-community based associations bringing together 12 240 people in Kanlykul and Kegeyli project pilot districts have been established to implement restorations of degraded pastures and forestlands (780 ha). The project reached 47 979 beneficiaries who received information about the adaptation measures that can be implemented at the landscape level, and who increased their knowledge about the climate resilient farming through 25 trainings, seminars and conferences conducted by the project.

Case study sources

AF, 2013c, 2022b; UNDP, 2022b

Appendix 2. GCF core indicators and supplementary indicators

Table A3. Core and supplementary GCF indicators

Indicator	Description	SDGs	Reference
Core Indicator 1	GHG emissions reduced, avoided or removed/sequestered <i>Unit: tonnes of carbon dioxide equivalent</i> <i>Disaggregation: results area</i> Suggested mitigation result areas (MRA): MRA 1: Energy generation and access MRA 2: Low-emission transport MRA 3: Buildings, cities, industries and appliances MRA 4: Forests and land use	13	Initial Results Management Framework (RMF)
Supplementary indicator 1.1	Annual energy savings <i>Unit: megawatt-hours</i>	9, 13	CIF (Clean Technology Fund)
Supplementary indicator 1.2	Installed energy storage capacity <i>Unit: megawatt-hours</i>	7, 9, 13	New indicator
Supplementary indicator 1.3	Installed renewable energy capacity <i>Unit: megawatts</i>	7, 9, 13	SDG indicator CIF (Clean Technology Fund)
Supplementary indicator 1.4	Renewable energy generated <i>Unit: megawatts</i>	7, 9, 13	New Indicator
Supplementary indicator 1.5	Improved low-emission vehicle fuel economy <i>Unit: volume of fuel per kilometre travelled</i>	7, 9, 13	ASEAN
Core Indicator 2	Direct and indirect beneficiaries reached <i>Unit: number of individuals</i> <i>Disaggregation: sex; and results area</i> Suggested adaptation result areas (ARA): ARA 1: Most vulnerable people and communities ARA 2: Health, well-being, food and water security ARA 3: Infrastructure and built environment ARA 4: Ecosystems and ecosystem services	5, 13	Initial RMF

continues...

Indicator	Description	SDGs	Reference
Supplementary indicator 2.1	Beneficiaries (female/male) adopting improved and/or new climate-resilient livelihood options <i>Unit: number of individuals</i>	5, 8, 13	Performance measurement frameworks (PMFs) LDCF SCCF
Supplementary indicator 2.2	Beneficiaries (female/male) with improved food security <i>Unit: number of individuals</i>	2, 5, 13	Initial RMF
Supplementary indicator 2.3	Beneficiaries (female/male) with more climate resilient water security <i>Unit: number of individuals</i>	5, 6, 13	UNICEF Global Water Partnership
Supplementary indicator 2.4	Beneficiaries (female/male) covered by new or improved early warning systems <i>Unit: number of individuals</i>	5, 9, 13	PMFs
Supplementary indicator 2.5	Beneficiaries (female/male) adopting innovations that strengthen climate change resilience <i>Unit: number of individuals</i>	5, 13	Recommended by the COP20
Supplementary indicator 2.6	Beneficiaries (female/male) living in buildings that have increased resilience against climate hazards <i>Unit: number of individuals</i>	5, 9, 13	New indicator
Supplementary indicator 2.7	Change in expected losses of lives due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention <i>Unit: number of individuals</i>	5, 11, 13	PMFs
Core Indicator 3	Value of physical assets made more resilient to the effects of climate change and/or more able to reduce GHG emissions <i>Unit: value of physical assets in USD</i> <i>Disaggregation: type of physical assets; and results area</i> Suggested results area: All eight results areas	9, 11, 13	LDCF SCCF AF
Supplementary indicator 3.1	Change in expected losses of economic assets due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention <i>Unit: value in USD</i>	1, 9, 11, 13	PMFs
Core Indicator 4	Hectares of natural resource areas brought under improved low-emission and/or climate-resilient management practices <i>Unit: hectares</i> <i>Disaggregation: type of natural resource areas; and results area</i> Suggested results areas MRA 4: Forestry and land use ARA 1: Most vulnerable people and communities ARA 2: Health, well-being, food and water security	2, 6, 13	GEF CIF AF

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Indicator	Description	SDGs	Reference
Supplementary indicator 4.1	Hectares of terrestrial forest, terrestrial non-forest, freshwater and coastal marine areas brought under restoration and/or improved ecosystems <i>Unit: hectares</i>	6, 13, 14,15	GEF
Supplementary indicator 4.2	Number of livestock brought under sustainable management practices <i>Unit: number of livestock</i>	2, 13, 15	New indicator
Supplementary indicator 4.3	Tonnes of fish stock brought under sustainable management practices <i>Unit: tonnes</i>	6, 13, 14,15	New indicator

Appendix 3. LDCF Indicators

Table A4. Proposed four core indicators for the LDCF and the SCCF (2018–2022)

Adaptation strategy objective	Core indicator	Sex disaggregated?
Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation	Number of direct beneficiaries	Yes
	Area of land under climate-resilient management (ha)	N/A
Mainstream climate change adaptation and resilience for systemic impact	Number of policies, plans, or development frameworks that mainstream climate resilience	N/A
Foster enabling conditions for effective and integrated climate change adaptation	Number of people with enhanced capacity to identify climate risk and/or engage in adaptation measures	Yes

Source: GEF. 2018. *GEF Programming Strategy on Adaptation to Climate Change for the Least Developed Countries Fund and the Special Climate Change Fund and Operational Improvements (GEF/LDCF.SCCF.24/03)*. Washington DC, GEF. https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.LDCF_SCCF_24.03_Programming_Strategy_and_Operational_Policy_2.pdf

Appendix 4. GEF Trust Fund - Tracked core indicators

The following 11 GEF Core Indicators have been tracked over 4 years:

1. Terrestrial protected areas created or under improved management for conservation and sustainable use (hectares)

Component Sub-Indicators:

- Terrestrial protected areas newly created
- Terrestrial protected areas under improved management effectiveness

2. Marine protected areas created or under improved management for conservation and sustainable use (hectares)

Component Sub-Indicators:

- Marine protected areas newly created
- Marine protected areas under improved management effectiveness

3. Area of land restored (hectares)

Component Sub-Indicators:

- Area of degraded agricultural lands restored
- Area of forest and forest land restored
- Area of natural grass and shrublands restored
- Area of wetlands (including estuaries and mangroves) restored

4. Area of landscapes under improved practices (hectares)

Component Sub-Indicators:

- Area of landscapes under improved management to benefit biodiversity (qualitative assessment, non-certified)
- Area of landscapes that meet national or international third-party certification and that incorporates biodiversity considerations
- Area of landscapes under sustainable land management in production systems
- Area of High Conservation Value forest loss avoided

5. Area of marine habitat under improved practices to benefit biodiversity (hectares, excluding protected areas)

Contextual Sub-Indicators:

- Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations
- Number of Large Marine Ecosystems with reduced pollution and hypoxia
- Amount of Marine Litter Avoided

6. Greenhouse gas emissions mitigated (metric tonnes of CO₂-eq)

Component Sub-Indicators:

- Carbon sequestered, or emissions avoided in the Agriculture, Forestry and Other Land Use (AFOLU) sector
- Emissions avoided outside Agriculture, Forestry and Other Land Use (AFOLU) sector

Contextual Sub-Indicators:

- Energy saved
- Increase in installed renewable energy capacity per technology

7. Number of shared water ecosystems (fresh or marine) under new or improved cooperative management

Contextual Sub-Indicators:

- Level of Transboundary Diagnostic Analysis and Strategic Action Program formulation and implementation
- Level of regional legal agreements and regional management institution(s) to support its implementation

- Level of national/local reforms and active participation of Inter-Ministerial Committees
- Level of engagement in IW:LEARN through participation and delivery of key products

8. Globally over-exploited fisheries moved to more sustainable levels (metric tonnes)

9. Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials, and products (metric tonnes of toxic chemicals reduced)

Component Sub-Indicators:

- Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)
- Quantity of mercury reduced
- Hydrochlorofluorocarbons reduced/phased out

Contextual Sub-Indicators:

- Number of countries with legislation and policy implemented to control chemicals and waste
- Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing, and cities
- Quantity of products/materials containing POPs/Mercury directly avoided

10. Reduction, avoidance of emissions of POPS to air from point and non-point sources (grams of toxic equivalent gTEQ)

Contextual Sub-Indicators:

- Number of countries with legislation and policies implemented to control emissions of POPs to air
- Number of emission control technologies/practices implemented

11. Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

Source: www.thegef.org/sites/default/files/documents/Results_Guidelines.pdf



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