



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

The GEF and Climate Change Catalyzing Transformation





Naoko Ishii
CEO and Chairperson
Global Environment Facility

It is time to act.

The United Nations Climate Action Summit boosted climate action momentum and demonstrated growing interest in a wide range of necessary responses, from nature-based solutions to the role of new coalitions and non-states actors. In the face of mounting scientific evidence, it is evident that a new movement is underway to confront the threat of climate change before it is too late.

The Intergovernmental Panel on Climate Change has confirmed unequivocally that the negative impacts of climate change are already upon us, with impacts on weather patterns, the oceans, and living conditions around the world. Warming temperatures are also having knock-on effects on biodiversity and the natural world through forest fires and other habitat destruction around the world.

Our global commons—the land, oceans, and atmosphere we share, and the ecosystems they host—are under severe threat from ever more powerful human activities. This is a major crisis and we need a new approach to tackle it through transformational change. The science tells us this needs to happen within a decade. For that we must fundamentally transform our food, urban, and energy systems, and move to a circular economy. The recently released report from the Global Commission on Adaptation

calls for revolutions in three areas—understanding, planning and finance—in order to ensure that climate impacts, risks, and solutions are being factored into decision making at all levels.

To help catalyze this transformation, the strategy for our latest four-year investment cycle (known as GEF-7) is explicitly focused on these key systems. The single largest program in GEF-7 focuses on food and land-use transformation, where there is enormous potential for both climate mitigation and adaptation. We are also enhancing our support for sustainable cities, recognizing that urban planning decisions today have huge implications for low-carbon and resilient development tomorrow.

More broadly, we will deploy the GEF's scarce financial resources where they can be most helpful to all stakeholders—governments, businesses, communities, researchers—to accelerate climate action. And we are strengthening our collaboration with other key climate funds, including the Green Climate Fund. I invite you to learn more about the GEF's work in climate change mitigation and adaptation through this publication, and to join us as we seek to support and scale climate change solutions in pursuit of systemic transformation.

From Science to Action

A wide range of scientific reports have provided unequivocal evidence that calls for urgent action on climate change and the global environment. The recent analyses by the Intergovernmental Panel on Climate Change, the U.N. Environment Program, and others show that global greenhouse gas emissions have grown more than 1 percent every year over the last decade—the opposite of what must happen to avoid the worst effects of climate change. And the UN Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES) sent a crystal-clear message about the status of life on Earth, and what is at stake if we don't act now. We need to venture into the uncharted action territory capable of triggering unprecedented change to our key economic and social systems with the scale and speed which science calls for.

As a financial mechanism to the UNFCCC, the GEF is well placed to help catalyze the required transformation. The GEF is working to promote innovative mitigation strategies to help countries shift to a low-emission development

pathway. These projects target a vast range of sectors and approaches, including climate-smart agriculture, sustainable urban design, and nature-based solutions to the challenge of resilience.

GEF is also working to strengthen resilience and reduce vulnerability to the adverse impacts of climate change in developing countries, and support their efforts to enhance adaptive capacity. This will require global efforts to promote innovation and technology transfer for climate change adaptation; mainstream climate change adaptation and resilience for systemic impact; and foster enabling conditions for effective and integrated climate change adaptation.

To reach these ambitious goals, the GEF is deploying resources where they can be most helpful to all stakeholders—governments, businesses, communities, researchers—to accelerate climate action. With the message from climate now loud and clear, the time has come for far-reaching climate action.

Sustainable Cities

If managed well, compact, resilient, inclusive, and resource-efficient cities could become key drivers toward global sustainability. If managed poorly, sprawling urban areas will exacerbate climate change, land degradation, and air and water pollution.

Cities consume over two-thirds of the global energy supply and over 70% of global greenhouse gas (GHG) emissions are associated with cities. A significant share of growth in the per capita GHG emissions in developing countries is attributed to urban areas, through expanding and intensifying energy use, with emissions from transport, commercial and residential buildings, **waste**, and industries.

Urban areas offer large opportunities to cut GHG emissions, while generating significant co-benefits, from new jobs to cleaner air. Increasingly, city networks, technology providers, businesses, and international financing institutions, are joining forces to help cities harness innovative planning tools, financing opportunities, and **technologies** for promoting sustainable urban growth.

The GEF has adopted an integrated and systems-based approach to catalyze transformational shifts towards sustainable urban growth under its flagship Sustainable Cities Impact Program. It is facilitating improved land-use planning, infrastructure integration, **nature based**

solutions, circular economy approaches, and resilient urban design. The program also aims to create enabling conditions through stronger local governance, innovative financing and global partnerships with a focus on innovation, private sector and community engagement.

A key part of this support includes facilitating knowledge sharing and expanding access to technical expertise and finance through the Global Platform on Sustainable Cities. The platform engages existing global city networks, financial institutions and technology providers including C40, ICLEI, World Resources Institute, UN-Habitat, GEF Agencies **including MDBs and UN Agencies**, and the European Space Agency. Climate vulnerability in unplanned and rapidly urbanizing developing countries continues to increase. Hence, the GEF's adaptation strategy for the Least Developed Country Fund (LDCF) and Special Climate Change Fund (SCCF) also focuses on strengthening climate resilience at the city level.

The Sustainable Cities Impact Program **is built on the Sustainable Cities Integrated Approach Pilot of GEF-6** and will invest additional \$160 million in next four years. Integrated, climate-smart urban planning is expected to reduce **approximately 184 million tons of GHG emissions and improve climate resilience of nearly 47 million people in addition to** improved management and protection of biodiversity and landscapes around cities.

Promoting Electromobility and Innovative Energy Coalitions

Decarbonization of the global energy system is critically important for meeting the goals of the Paris Agreement. Thanks to technology advancements and rapidly falling costs, barriers to the adoption of renewable energy technologies are disappearing quickly; nevertheless, **this transition must be accelerated**. Moreover, energy demand in developing countries is expected to continue to rise, driven by economic and population growth, while emissions from the transport sector are growing in tandem.

The GEF seeks to reduce risks and enhance enabling environments to facilitate the replication and scale-up of investments in sustainable energy from other sources, including the private sector. The GEF is focused on **promoting innovation for sustainable energy breakthroughs** in four key areas: decentralized renewable power with energy storage; electric mobility; accelerating energy efficiency adoption; and cleantech innovation.

Grid modernization and integration of energy storage are critically needed to facilitate the rapid growth of renewable energy in a cost-effective manner. By focusing on supporting clean mini-grids solutions for residential and productive uses, the current GEF strategy is expected to contribute to both mitigation and energy access goals. The new GEF-7 Africa Minigrids Program is the centerpiece of this strategy; it will focus on policy, technology, and financing barriers to ensure clean mini-grids can compete against diesel alternatives.

Coupled with renewable energy, electric vehicles are efficient, low-carbon, and can improve grid reliability and local air pollution. Still, regulatory, technical, and financial barriers to adoption of electric mobility are substantial, including high costs, range anxiety, limited availability of

models, and lack of supporting infrastructure. The **GEF's E-Mobility Program will support the introduction of electric mobility in developing countries** by promoting an integrated approach through activities at global, regional, and country levels. The key objectives of the program are to de-risk investments in electric vehicles through demonstration projects that strengthen local experience with electric mobility, coupled with knowledge and investment platforms.

Building on a successful partnership with Sustainable Energy for All, the **GEF's energy efficiency accelerators will expand their support to more countries and across sub-sectors**, including buildings, district heating and cooling, energy management in industry, equipment, and appliances. These accelerators promote global best practices, foster harmonization of testing and performance standards, and provide targeted technical assistance to countries. The **new Net Zero Carbon Buildings accelerator**, which was launched at the 2019 UN Climate Action Summit, will provide support to developing countries to reach the complete decarbonization of the building sector by 2050.

Also, countries are increasingly recognizing the risks posed by climate change to their energy sector, particularly hydropower and biomass-based renewable energy. The GEF's adaptation strategy recognizes this need and supports the enhancement of climate resilience of critical infrastructure through technical analysis and piloting of resilient energy technologies.

Over the next four years, the GEF is expected to support \$350 million in energy investments and contribute to the expected reduction of 500 million metric tons of CO₂ eq. emissions.



Transforming the Food and Agricultural System

Agriculture, forestry, and other land use accounts for about a quarter of GHG emissions. While emissions from deforestation and forest degradation are declining, **agricultural emissions, currently at 25% of the global total, are projected to grow through 2030.** Global population will reach 9.5 billion people by 2050. To meet the growing and changing demand for nutritious food and fiber, farmers will need to increase agricultural production by at least 50%. Agriculture is also a priority area for adaptation: climate change will continue to have serious and unequal impacts on food security, both directly through lower yields and indirectly through higher food prices.

How the world's food system and land use evolve over the coming decades will therefore have major implications for the health of the planet. **The world needs a more sustainable food system that embeds climate change considerations from farm to fork,** generates agricultural commodities without deforestation and habitat conversion, and restores soils and degraded areas. Transformational change in the global food and agricultural system requires an integrated approach that brings together horizontal and vertical dimensions, across landscapes and supply chains.

This necessitates the continued engagement of public and private sector actors across the system, linking actions at the national, subnational, and jurisdictional scales to downstream demand and financial decisions. This approach embeds sustainability in all steps of the supply chain,

driving the generation of climate and other environmental benefits within landscapes that are important for food production, as well as ecosystem services.

The GEF's Food Systems, Land Use and Restoration (FOLUR) Impact Program promotes such a **holistic approach** and supports countries in reconciling competing social, economic, and environmental objectives in land management. It is focused on key global landscapes and three interrelated priorities: promoting sustainable food systems to tackle negative externalities in entire value chains; removing deforestation from commercial commodity supply chains; and large-scale restoration of degraded landscapes for sustainable production and ecosystem services.

The FOLUR Impact Program is building a **global coalition that will engage key stakeholders in the major food systems and supply chains**, including existing partnerships such as the Food and Land Use coalition, Tropical Forest Alliance, Consumer Goods Forum, the Bonn Challenge and others, to work collectively with countries toward achieving sustainability.

This program will invest approximately **\$430 million** and is expected to contribute toward the restoration of 6 million hectares of land; the improvement of management practices in 123 million hectares of landscapes; and the mitigation of an expected 350 million metric tons of CO₂ eq. emissions.



Sustainable Forest Management in Key Biomes

Forests provide vital ecosystem services for the biosphere. These include climate regulation, watershed protection, biodiversity, and land productivity, as well as food, fuel, and fiber for hundreds of millions of people. Forests are a key carbon sink and play a vital role in regulating weather and precipitation patterns. However, **forest loss now accounts for about 12% of annual, global GHG emissions, making forests the third-largest source of emissions.** About 7.6 million hectares of forests are lost every year due to expansion of agricultural lands, illegal logging, mining, and infrastructure development.

The **GEF's Sustainable Forest Management (SFM) Impact Program** will invest approximately \$260 million to focus on the ecological integrity of the Amazon and the Congo Basins, and extend much needed attention to the world's Drylands. These key transboundary biomes are major integrated ecosystems and perhaps the last places where a concerted SFM approach can transform the course of development and produce multiple benefits for biodiversity, climate change, and land degradation.

The Amazon plays a critical role in regional and global climate regulation. It helps regulate temperature and humidity and is linked to regional climate patterns through hydrological cycles. Land conversion and deforestation in the Amazon release up to 0.5 billion metric tons of carbon per year, not including emissions from forest fires, thus making the Amazon an important factor in regulating global climate. The **Amazon Sustainable Landscapes**

Program aims at generating scalable results in reducing deforestation and the loss and fragmentation of natural habitats, as well as preventing the extinction of threatened species and improving their conservation status.

Sharing similar objectives with the Amazon Program, The **Congo Basin Program** has similar objectives. The Program focuses on the dense rainforests shared by Cameroon, Central Africa, Democratic Republic of Congo, Equatorial Guinea, Gabon, and Republic of Congo. Pursuing cross-cutting interventions that can generate multiple global environmental benefits, the Congo Basin Program will cover areas with significant carbon sequestration and biodiversity value, promoting the involvement of local communities and forest-dependent people—the basin is home to 150 distinct ethnic groups—and supporting the process of establishing and securing ecological corridors.

Finally, the **Dryland Sustainable Landscapes Program** aims to avoid, reduce, and reverse further degradation, desertification, and deforestation of land and ecosystems in drylands. It promotes the sustainable management of production landscapes, addressing the complex nexus of local livelihoods, land degradation, climate change, and environmental security. The world's drylands encompass critical landscapes for potential generation of global environmental benefits, including over 300 million metric tons in CO₂ eq. expected emissions reductions, promoting resilience of watersheds, and protecting rare and threatened biodiversity.

Oceans and Climate Change

The world's oceans are vital to economic development and human wellbeing. Marine and coastal ecosystems sustain fisheries and tourism, protect shorelines from storm damage, sequester carbon, filter run-off, waters and provide biodiversity hotspots. Mangroves, saltmarshes, and seagrasses store five times more carbon than tropical forests. Together with coral reefs, these ecosystems also provide critical buffers against flooding and high winds from increasingly frequent storms due to climate change.

Oceans, therefore, play a vital role in both climate change mitigation and resilience.

Yet, as the recent IPCC Report on Oceans and the Cryosphere unequivocally points out, these ecosystems are increasingly threatened by climate change and the resulting ocean acidification, and by unsustainable fishing, pollution, and habitat degradation. The need for strong, resilient marine and freshwater ecosystems is clear to all levels of society and resource users. However, these complex systems feed into many sectoral issues, while not being limited by political boundaries. **Long-term solutions need national implementation and action that is supported by regional cooperative frameworks** to ensure local priorities are acknowledged and respected between the stakeholders sharing ocean resources.

Recognizing the significance of these valuable, threatened ecosystems, the GEF has invested in ocean resilience through the International Waters and Biodiversity focal area funded projects. **The GEF is investing in Blue Economy initiatives** in which oceans are recognized for potential sustainable development of existing and new sectors, including tourism, extractive industries, renewable energy production, fisheries and aquaculture, coastal development, and marine transport. To foster innovation towards more sustainable use of marine and coastal resources, coastal and island nations are deploying a suite of tools.

The GEF supports the formulation of national marine spatial plans to inform political priority setting and decision making. Such priority setting supports the establishment of **marine protected areas (MPAs)** that protect and restore mangroves, saltmarshes, and seagrass beds. Project support includes establishing new and supporting existing MPAs in key biodiversity hotspots, restoring degraded key habitats, and protecting buffer zones and biological corridors. These investments are designed to strengthen climate-resilient representative samples of the countries' ecosystems and adequate coverage of threatened species at a sufficient scale to ensure their long-term persistence. Adaptation management measures are also being incorporated into MPA strategies, such as planning for shifts in species migration and changes in habitats.

Specifically **focused on carbon sequestration, the Blue Forest project** is providing the first global-scale assessment of the values associated with coastal carbon and ecosystem services, through pilots in Ecuador, Mozambique, Madagascar, Indonesia, United Arab Emirates, Central America, and Kenya. Recognizing and maximizing the value of ecosystem services, such as those provided by mangrove shorelines which include fisheries regeneration, carbon sequestration, and storm protection, is an essential step to improve coastal ecosystem management.

The GEF supports the International Maritime Organization's call for improvements in ship energy efficiency, helping create a global platform to address the rise of CO₂ emissions from the international maritime sector. The project is expected to help reduce 24-80 million tonnes of CO₂ per year by 2020, which will reduce pressure on the global marine system. At the same time, the project aims to catalyze a global transformation in the area of ship efficiency by stimulating private sector investment in ballast water treatment technology.



Enhancing Climate Resilience

Healthy systems that are resilient to disruptions, shocks, and stressors are critical in achieving environmental benefits and serve as a foundation for economic and human development. Climate resilience is a key component of any healthy system and is particularly important for vulnerable countries that depend heavily on climate-sensitive natural resources for subsistence and livelihoods. Even with immediate, ambitious mitigation efforts, the global climate will change and introduce additional risk to human well-being, food and water security, public health, and global ecosystems.

The GEF is supporting resilience through its adaptation program as well as through the GEF Trust Fund (GEF TF). With a \$4 billion portfolio for 2018-2022, the GEF TF is building resilience through a focus on nature-based solutions and integrated, systems-oriented approaches to food security and sustainable cities, while addressing climate risks and other threats.

The GEF's climate change adaptation strategy aims to reduce vulnerability and increase resilience. The Least Developed Countries (LDCs) which are the most vulnerable to climate change impacts remain the priority focus of the adaptation strategy. The GEF's Least Developed Countries Fund (LDCF) and the Special Climate Fund (SCCF) continue to be nimble funding sources to address the pressing climate vulnerability challenges of the 47 LDCs. Within just the first year of GEF-7, these funds have supported close to 50% of LDCs.

The GEF is uniquely placed to catalyze investment and action by the private sector for climate resilience and adaptation. The Challenge Program for Adaptation

Innovation launched a call for proposals in July 2019 that received over 400 project concepts from over 350 different private and public actors. Another example of increased private sector engagement is the Climate Resilience and Adaptation Finance and Technology Transfer Facility (CRAFT), which will invest in companies that provide resilience intelligence, such as data analytics, modeling, and forecasting, or resilience solutions that address climate risks in areas like water, agriculture, and energy, and could mobilize as much as \$500 million in adaptation investments.

The GEF is also well placed to finance cost-effective, ecosystem-based approaches to adaptation that also contribute to other environmental benefits. The Caribbean Small Island Developing States Multi-Country Soil Management Initiative for Integrated Landscape Restoration and Climate-resilient Food Systems (SOILCARE) project is blending resources from the SCCF and the GEF Trust Fund to mainstream adaptation in sustainable land management policies, technologies, and practices.

Advancing partnerships further to call for a strong global leadership on climate resilience, the GEF continues to collaborate with partners, such as the Global Commission on Adaptation, including on its flagship report "Adapt Now." The new Coordinated Engagement initiative of the GEF and the GCF is also geared toward enhanced impact, seeking to enable synergistic programming in countries. A Joint GEF-GCF National Dialogue in Lao PDR exemplified the potential for streamlining in-country institutional processes across the funds, greater exchange of project information, and opportunities to program resources in a harmonized manner.



Private Sector Engagement

Transforming the world's energy systems, cities, and land-use practices toward low-carbon and resilient pathways will require large-scale change in global finance flows. The overall volume of relevant financing is on the order of trillions of dollars per year, which will mostly have to come from the private sector. It is therefore **critical that scarce public resources are deployed in a way that helps catalyze an increasingly larger share of private financing flows.**

The GEF has engaged with the private sector by: (i) improving policy frameworks to de-risk and attract low-carbon investments at scale; (ii) supporting technology innovation, demonstration and transfer; and (iii) at transaction level, providing concessional funds through blended finance structures that further mobilize private sector finance.

Going forward, the GEF will work across two pillars for private sector engagement. The use of blended finance to

de-risk private sector partner participation with clear potential to generate beneficial climate change outcomes and other related co-benefits. The expansion of private sector engagement with GEF projects recognizing the key role of the private sector as an agent for market transformation. To further enhance GEFs work with the private sector, the Private Sector Advisory Group (PSAG) was established to provide strategic guidance to the Private Sector Engagement Strategy (PSES). As a representative group of diverse industries spanning key value chains globally, the PSAG is able to provide valuable insight and guidance across the GEF portfolio including climate change.

Following the successful experience with the GEF-6 Non-Grant Instrument pilot, which leveraged \$99 million in GEF non-grant resources to \$1.8 billion, the GEF-7 Blended Finance Program will continue to look for innovative and impactful investment opportunities in climate change, land degradation, and biodiversity conservation.



Transparency and Reporting

Transparency is the foundation for the Paris Agreement—it is a precondition to raising climate ambition, it is essential to inform each country's contribution to the Paris Agreement, and it helps build collective trust by holding countries accountable for their actions and obligations. As part of the **Paris Agreement, Parties agreed to an enhanced transparency framework for action and support**. Many developing countries, however, still lack the capacity to effectively monitor and report progress towards their Nationally Determined Contributions (NDCs).

At COP 21, Parties requested that the GEF support the establishment and operation of the **Capacity-building Initiative for Transparency (CBIT)**, both pre- and post-2020, as a priority reporting-related need. As of October 2019, the CBIT had invested \$89 million to support 58 countries in Africa, Asia, Eastern and Central Europe, Latin America and the Caribbean, and four global projects.

National CBIT projects are **addressing priority needs to meet the enhanced transparency requirements of the Paris Agreement**, including developing methods and arrangements for transparency of NDCs, adaptation actions and climate finance; strengthening institutional arrangements; supporting monitoring, reporting and verification systems and improving GHG inventories; and capacity-building, knowledge sharing, and training on transparency.

Supporting these national projects, the **CBIT Global Coordination Platform** is a web-based platform that brings together practitioners from countries and agencies in order to enable coordination of transparency actions, identify needs and gaps in national transparency systems, share lessons learned through regional and global meetings, and to facilitate access to emerging practices, methodologies, and guidance on transparency of climate action.

Since its inception, the **GEF has also supported over 380 enabling activity** projects for the preparation of over 487 National Communications, 182 Biennial Update Reports, and 102 Technology Needs Assessments (TNAs) with \$490 million in resources. As countries transition to the enhanced transparency framework under the Paris Agreement, the GEF will continue to provide support for transparency and reporting. The LDCF has supported the preparation for National Adaptation Programmes of Actions (NAPA) in 51 countries and the NAP process in LDCs.

The GEF continues to provide support to developing countries in assessing their needs and priorities, in a country-driven manner, including technology and capacity-building needs, and in translating these into action. The GEF continues to support developing countries to assess their needs and priorities, including technology and capacity-building needs, and in translating these into action. National policies and plans, including the NDCs are key to inform the prioritization of GEF resources and to ensure synergies across the GEF focal areas.



The GEF in Action

More than \$6.2 billion in mitigation finance programmed jointly with **\$52 billion** from other partners contributing to over **9 billion metric tons of CO₂ eq.** of expected GHG emission reductions.

More than \$1.7 billion in adaptation finance to reduce the vulnerability of more than **27 million people** in more than **130 countries**

\$2.5 billion for **497 renewable energy and energy efficiency projects**, contributing to **4 million metric tons of CO₂ eq.** of GHG reductions

435 projects supporting sustainable forest management

Over **143 million hectares** under sustainable land management, benefitting more than **80 million smallholders**

Protecting carbon sinks and biodiversity in **3,300 protected areas** covering **860 million hectares**

More than **450 projects** involving the **private sector**, more than 90 of which with equity, loans or risk-mitigation instruments, leveraging an average **co-financing ratio of 1:8**

Support for over **46 intended Nationally Determined Contributions**, **182 Biennial Update Reports**

Support to **58 countries** to build institutional and technical capacity for enhanced transparency with **\$89.4 million** through the CBIT





About the GEF

The GEF's 18 implementing partners are Asian Development Bank (ADB), African Development Bank (AfDB), Development Bank of Latin America (CAF), Conservation International (CI), Development Bank of Southern Africa (DBSA), European Bank for Reconstruction and Development (EBRD), Foreign Economic Cooperation Office—Ministry of Environmental Protection of China (FECO), Food and Agriculture Organization of the United Nations (FAO), Fundo Brasileiro para a Biodiversidade (FUNBIO), Inter-American Development Bank (IDB), International Fund for Agricultural Development (IFAD), International Union for Conservation of Nature (IUCN), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO), West African Development Bank (BOAD), World Bank Group (WBG) and World Wildlife Fund U.S. (WWF-US).

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The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided over **\$19 billion** in grants and mobilized an additional **\$100 billion** in co-financing for more than **4,700 projects** in **170 countries**. Through its Small Grants Programme, the GEF has provided support to nearly 24,000 civil society and community initiatives in 128 countries.

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