

Submission by the United Nations Environment Programme (UNEP) to the United Nations Framework Convention on Climate Change on the Global Stock take (19/CMA.1 paragraph 36 & 37)

In response to the requests by the Chairs of the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation a call for the inputs referred to in paragraphs 36 and 37 for consideration in the technical assessment, the United Nations Environment Programme (UNEP) is pleased to share its contribution.

Paragraph 36

1. With reference to the (b) The overall effect of Parties' nationally determined contributions and overall progress made by Parties towards the implementation of their nationally determined contributions, including the information referred to in Article 13, paragraph 7(b), of the Paris Agreement; UNEP reiterates the key findings of the [Emissions Gap Report 2022](#):

[To get on track to meet the Paris Agreement goal, the world needs to reduce greenhouse gases by unprecedented levels over the next eight years.](#)

- Unconditional and conditional NDCs are estimated to reduce global emissions in 2030 by 5 and 10 per cent respectively, compared with emissions based on policies currently in place.
- To get on a least-cost pathway to limiting global warming to 2°C and 1.5°C, these percentages must reach 30 per cent and 45 per cent respectively.
- Emissions must continue to decline rapidly after 2030 to avoid exhausting the remaining atmospheric carbon budget.

[Despite the call for strengthened new or updated Nationally Determined Contributions \(NDCs\) for 2030, progress has been woefully inadequate.](#)

- In total and if fully implemented, all new and updated NDCs submitted between 1 January 2020 and 23 September 2022 are estimated to result in an annual additional reduction of 4.8 GtCO_{2e} by 2030 relative to the initial NDCs.
- NDCs submitted since COP26 only reduce 0.5 gigatonnes of CO₂ equivalent greenhouse gas emissions (GtCO_{2e}), less than one per cent, off projected global emissions in 2030.
- Most countries have just started implementing efforts to meet their new and updated NDCs; collectively, countries are expected to fall short of their 2030 promises without strengthened action. Globally, this implementation gap is about 3 GtCO_{2e} for the unconditional NDCs, and 6 GtCO_{2e} for the conditional NDCs. For the G20 members, the

implementation gap with respect to the unconditional NDCs is 1.8 GtCO₂e annually by 2030.

This lack of progress leaves the world on a path towards a temperature rise far above the Paris Agreement goal of well below 2°C, preferably 1.5°C.

- Unconditional NDCs are estimated to give a 66 per cent chance of limiting global warming to about 2.6°C by the end of the century. For conditional NDCs, this goes down to 2.4°C.
- Policies currently in place, without further strengthening, suggest a 2.8°C temperature increase.
- Implementation of all NDCs plus net-zero commitments made by an increasing number of countries point to a 1.8°C increase. However, currently this scenario is not credible, based on the discrepancy between current emissions, near-term NDC targets and long-term net-zero targets.

The massive emission reductions required necessitate a large-scale, rapid, and systemic transformation across the globe.

- The report explores the required actions in the electricity supply, industry, transport and buildings sectors, and the food and financial systems that would back these changes.
- The transformation towards zero greenhouse gas emissions in electricity supply, industry, transportation, and buildings is underway but needs to move much faster. The portfolio of the key actions to advance the transformation include:
 - avoiding lock in of new fossil fuel-intensive infrastructure,
 - further advancing zero-carbon technologies, market structures and planning for a just transformation,
 - applying zero-emission technology and behavioral changes to sustain reductions to reach zero emissions.
- Food systems, which account for one third of all emissions, can be reformed to deliver rapid and lasting cuts.
 - Focus areas for food systems include demand-side dietary changes (including tackling food waste), protection of natural ecosystems, improvements in food production at the farm level and decarbonization of food supply chains.
 - Transformations in the four areas can reduce 2050 food systems emissions to around a third of current levels as opposed to emissions almost doubling if current practices remain in place.
 - Governments can facilitate transformation by reforming subsidies and tax schemes. The private sector can reduce food loss and waste, use renewable energy and develop novel foods that cut down carbon emissions. Individual citizens can, within their socio-economic context, change their lifestyles to consume healthy, low carbon and sustainable food.
- Even if the transformation fails to fully bridge the 2030 emissions gap, every fraction of a degree matters. Launching the transformation is necessary to move towards a carbon-

neutral future that will allow us to limit global warming and deliver other social and environmental benefits, like clean air, green jobs, and universal energy access.

The world is poised for tremendous growth in the energy requirements of the cooling sector, which presents a significant challenge in meeting the goals of the Paris Agreement.

- Emissions from the cooling sector are concentrated in three areas: Space and Process Cooling, Cold Chain, and Refrigerants. The energy consumption associated with mechanical cooling systems, combined with the atmospheric impact of the refrigerants used, represent the largest end-use risks to the climate.
- One of the key challenges in the cooling segment is a lack of clearly defined goals and a tracking mechanism to determine progress in emission reduction. (Refrigerants are an exception, as the Kigali Amendment includes refrigerant targets and tracking.) Collective progress on mitigation actions in each area is insufficient to meet overall climate goals.

2. With reference to (c) The state of adaptation efforts, support, experience, and priorities, including the information referred to in Article 7, paragraphs 2, 10, 11 and 14, of the Paris Agreement, and the reports referred to in Article 13, paragraph 8, of the Paris Agreement; UNEP reiterates the key findings of the [Adaptation Gap Report 2022](#):

Climate risks are rising as global warming accelerates. Both strong mitigation and adaptation are key to help vulnerable countries and communities cope with impacts of climate change lower instances of loss and damage.

- A multiyear drought in the Horn of Africa, unprecedented flooding in South Asia and severe summer heat across the northern hemisphere point to mounting climate risks, which are coming at only 1.1°C above pre-industrial temperatures.
- According to the 6th Assessment Report of Working Group II of the Intergovernmental Panel on Climate Change (IPCC), the world is facing climate risks that will intensify with each tenth of a degree.
- Adaptation must therefore take center stage alongside mitigation in the global response to climate change. However, even ambitious investments in adaptation cannot fully prevent climate impacts, so losses and damages must be addressed adequately.

More than eight out of ten countries now have at least one national adaptation planning instrument, and they are getting better and more inclusive.

- At least 84 per cent of Parties to the UN Framework Convention on Climate Change (UNFCCC), up 5 per cent from last year, have established adaptation plans, strategies, laws, and policies. About half of those have more than one planning instrument in place.

- One third of the 197 country Parties to the UNFCCC have incorporated quantified and time-bound targets, which are an increasing part of national adaptation planning.
- Nearly 90 per cent of planning instruments analyzed display consideration for gender and/or historically disadvantaged groups, such as Indigenous peoples.

However, financing to turn these plans and strategies into action still isn't following. Estimated adaptation costs/needs are currently 5-10 times higher than international adaptation finance flows, and the gap continues to widen.

- International adaptation finance flows to developing countries are rising slowly. They reached USD 29 billion in 2020, as reported by donor countries, an increase of 4 per cent from 2019, representing 34 per cent of total climate finance.
- Combined adaptation and mitigation finance flows in 2020 fell at least USD 17 billion short of the USD 100 billion pledged to developing countries. Significant acceleration is needed if a doubling of 2019 finance flows by 2025 is to be met, as urged by the Glasgow Climate Pact, adopted at COP26 in 2021.
- Estimated annual adaptation needs are USD 160-340 billion by 2030 and USD 315-565 billion by 2050.

Implementation of adaptation actions is increasing but not keeping up with climate impacts.

- The number and volume of adaptation actions supported through international climate funds, multilateral finance, and bilateral donor support continues to rise.
- Actions are concentrated in the agriculture, water, ecosystems, and cross-cutting sectors. They primarily address drought, flooding, and rainfall variability.
- However, without a step change in support, adaptation actions could be outstripped by accelerating climate risks, which would further widen the adaptation implementation gap. Current adaptation practice falls woefully short of what is required, but there is good understanding how to improve effectiveness.

Considering the links between adaptation and mitigation action from the outset in planning, finance, and implementation can enhance co-benefits.

- More adaptation will be required, and more losses and damages will occur, if mitigation is insufficient. This makes both mitigation and adaptation intrinsically linked.
- Taking adaptation and mitigation jointly into account in planning, finance and implementation enhances the chances for co-benefits and limits potential trade-offs, such as hydropower reducing food security or irrigation increasing energy consumption.
- Some climate solutions effectively reduce climate risk and contribute to mitigation: particularly cooling solutions and nature-based solutions like planting and conserving mangroves, restoring salt marshes, or protecting peatlands.

Climate change and the use of energy for air conditioning are locked into a vicious circle.

- Climate change is raising temperatures, directly increasing the need for cooling, and expanding cold chains is for example required to ensure food security. A cold chain is an

uninterrupted system of temperature-controlled transport and storage of refrigerated food and medical products between upstream producers and final consumers, designed to maintain the quality and safety of these products.

- Emissions from the cooling sector are concentrated in three areas: Space and Process Cooling, Cold Chain, and Refrigerants. The energy consumption associated with mechanical cooling systems, combined with the atmospheric impact of the refrigerants used, represent the largest end-use risks to the climate. Comfort cooling represents one of the largest end-use risks to our climate, and the residential sector alone is set to account for an increase in global temperatures of over 0.5 degrees Celsius (°C) by 2100.
- Current mitigation efforts are not adequate. Passive cooling, shifting to super-efficient equipment and appliances, and ultra-low GWP refrigerants are still at an early stage of deployment and need to be scaled up to deliver net zero cooling for all. Some progress has been made on agreeing to phase down high-GWP refrigerants and on introducing MEPS. However, phase-out of high-GWP refrigerants is behind schedule, as is the implementation and/or review of existing MEPS.

Strong political will is needed to increase adaptation investments and outcomes.

- The war in Ukraine, global supply shortages and the COVID-19 pandemic have all contributed to an evolving energy and food security crisis, with costs of living as well as inflation surging in many countries across the world.
- However, these crises cannot be allowed to derail international efforts to increase adaptation. Unprecedented political will and far more long-term investments in adaptation are urgently needed to stop the adaptation gap widening.

3. On (d) The finance flows, including the information referred to in Article 2, paragraph 1(c), and means of implementation and support and mobilization and provision of support, including the information referred to in Article 9, paragraphs 4 and 6, Article 10, paragraph 6, Article 11, paragraph 3, and Article 13, in particular paragraphs 9 and 10 of the Paris Agreement. This should include information from the latest biennial assessment and overview of climate finance flows of the Standing Committee on Finance.

The financial system must overcome internal and external constraints to become a critical enabler of transformation across all sectors:

- A global transformation to a low-carbon economy is expected to require investments of at least USD 4-6 trillion a year. This is a relatively small (1.5-2 per cent) share of total financial assets managed, but significant (20-28 per cent) in terms of additional annual resources needed.

- Delivering such funding will require a transformation of the financial system and its structures and processes, engaging governments, central banks, commercial banks, institutional investors, and other financial actors.
- More specifically, it will require that financial actors systematically steer their portfolios - in its entirety across sector and geographic exposures - into alignment with Paris-aligned emissions pathways, adjusting, to that effect, financial decision-making as a matter of course.
- To support and catalyze such efforts, private sector financial actors are coming together in various 'net-0 financial Alliances', three of which are facilitated by UNEP: the net-0 Asset Owners Alliance, the net-0 Banking Alliance, and the net-0 Insurance Alliance.
- The work of these Alliances - including the logics, approaches, metrics, and collective mechanisms that they are developing to assess, measure, and over time track the degree of financial alignment with the Paris Agreement- could prove catalytic and essential in informing and supporting national Governments and the international community do the same, including in the context of the GST.
- As an example, the UN-convened Net-Zero Asset Owner Alliance is extraordinarily positioned to contribute to the GST finance flows assessment processes given its membership and commitment targets.
 - The Net-Zero Asset Owner Alliance is a member-led initiative of 84 institutional investors, with over US\$11 trillion in assets under management, committed to transitioning their investment portfolios to net-zero GHG emissions by 2050. The Alliance members were the first in financial industry to set intermediate targets (aligned with the Third edition of Target-Setting Protocol published, setting out pathway to reducing portfolio emissions for 84 major institutional investors including Aviva, CDPQ, and Dai-ichi Life
 - The third edition of Target-Setting Protocol has been published, setting out pathway to reducing portfolio emissions for 84 major institutional investors.
 - The updated methodology now covers private assets target-setting including Commercial Real Estate Lending, and reporting on Sovereign Bonds, and the alliance incorporates principles on Just Transition for target achievement while barring carbon removals.
 - On Engagement, Alliance members are demonstrating leadership through direct and coordinated engagement with companies and asset managers. Most engagement key performance indicators saw an increase between 2021 and 2022. Most impressively, the number of investee companies adopting science-based targets has more than tripled in the last year to 122, from 35 in 2021.
 - There are now 41 members that set sub-portfolio targets – committing to reduce portfolio emissions across four asset classes for which target-setting methodologies exist (listed equity, publicly traded corporate bonds, real estate, and infrastructure) by at least 22% by 2025 or by at least 49% by 2030. The number of AUM under sub-portfolio targets has more than doubled to \$3.3 trillion, from \$1.5 trillion last year.

- Sector targets are set on Transportation, Materials, Utilities, and Oil and Gas in line with sector decarbonisation models and pathways such as the International Energy Agency's (IEA) Net Zero by 2050 roadmap and the [One Earth Climate Model \(OECM\)](#).
- 20% of the members that submitted targets set sector targets and the targeted reduction averages varied between 20 and 33 percent based on the sector. The Alliance aims to increase the number of members setting Sector Targets and believes the key is closing the sectoral data deficit. That is why the Alliance released an [Urgent call to action to companies and data providers](#) alongside the progress report.
- The absolute value invested in climate solutions, committed under the Financing Transition Target, has increased by nearly three times with the membership growth, to a total of USD 253 billion this year. The largest portion of climate solutions investments is in certified "green" investments, such as green bonds, renewable energy, and real estate sectors.

4. On (e) Efforts to enhance understanding, action, and support, on a cooperative and facilitative basis, related to averting, minimizing, and addressing loss and damage associated with the adverse effects of climate change;

Ambition to enhance action and support towards averting, minimizing, and addressing loss and damage associated with the adverse effects of climate change has been increased:

- At COP27, the decision to establish new funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage has moved forward with the conformation of the transitional committee. However, this process will need to take stock of what are the countries' needs, gaps, challenges and priorities related to averting, minimizing, and addressing loss and damage and their requirements for finance.
- In terms of minimizing and addressing loss and damage, UNEP has assisted over 75 projects on climate change adaptation in over 50 countries. Combined, the projects are aiming to benefit around 2.7 million people, restore 131,000 hectares of land, improve climate adaptation knowledge of 102,000 people and 131 institutions, and build over 1,100 water harvesting structures and 82 weather stations.
- Loss of and damage to nature, ecosystems, and ecosystems services (provisioning, regulating, cultural and supporting services) play a key part in the climate impact, risk and vulnerability chain. There is a need to document and understand these effects. Maintaining natural capital stocks and biodiversity is the basis for current and future climate resilience and should be a key part of national and global efforts to address loss and damage. UNEP has produced courses, toolkits, and other knowledge products to advance ecosystem-based adaptation efforts and practices, such as:

- [The Ecosystem-based Adaptation Briefing Note Series](#)
 - [Guidelines For Integrating Ecosystem-based Adaptation Into National Adaptation Plans](#)
 - [Massive Open Online Course: Nature-based Solutions for Disaster and Climate Resilience](#)
 - [Ecosystem-based Adaptation Planning: ALivE - Adaptation, Livelihoods and Ecosystems](#)
- Additionally, UNEP is currently supporting 20 projects to develop National Adaptation Plans in Africa, Asia and Latin America and the Caribbean. This includes efforts to define methods and systems to assess and quantify impacts, risks, and vulnerability and, when appropriate, loss and damages from extreme and slow on-set events. Having costed and recognized losses and damages will contribute to the definition of the scope and scale of the future Loss and Damage Fund and speed the process for countries.
 - The UN Decade on Ecosystem Restoration, and its global mandate to protect, manage and restore ecosystems all over the world provides an opportunity to avert and minimize loss and damage. The UN Decade Finance Task Force (FTF), chaired by the World Bank, aims to catalyse action which can contribute to unlocking the capital needed to meet the Decade's goals. ['Unlocking Restoration Finance: A Stocktake Report'](#) is the first in a series of outputs of the FTF. This report provides an overview of the current challenges to and opportunities for increasing public and private investment in restoration. The report also lays out a draft roadmap of actions the FTF will take to overcome challenges and contribute to scaling investment in restoration.

Further action is required to strengthen the efforts to enhance understanding, towards averting, minimizing loss and damage, particularly, non-economic loss and damage to biodiversity and ecosystems (extreme and slow on-set events resulting from climate variability and change).

- Knowledge gaps remain on (a) projected changes in climate-related risks, including those related to extreme weather events and slow onset events, (b) limits to adaptation and understanding of the continuum between adaptation and loss and damage (i.e., residual risks that are unavoidable) and (c) effectiveness of existing approaches towards averting, minimizing loss and damage. This work has to progress in order to advance action and support.
- UNEP hosts the Global Adaptation Network (GAN), which serves as a worldwide platform to support exchange of climate change knowledge in a variety of ways. Of relevance, would be GAN's regional networks and partners, each of which brokers knowledge services in respective regions to raise awareness, enable early action on loss and damage,

feeding into UNFCCC processes that will help increase the availability of funding and facilitate the access to it. A series of regional webinars aimed to increase the understanding of loss and damage, including policy and science dimensions, were held in 2022 and would continue in future.

UNEP recalls the UN SG's call at the UN General Assembly for financing for loss and damage, the focus at COP27 should move beyond finance alone to identifying and finding solutions that can be scaled up to address climate risks in a comprehensive manner:

- The integration of early warning systems, climate services, restoration and protection of critical degraded ecosystems, a combination of risk reduction, insurance or re-insurance schemes, and adaptation and social protection strategies should be considered to provide a definite way to bring forward solutions.
 - UNEP's commitment to [Early Warning for All](#) is demonstrated through the **Climate Information / Early Warning Systems (CIEWS) Portfolio**. UNEP's CIEWS projects focus on building and developing national capacity for climate information services and impact-based multi-hazard early warning systems in developing countries, particularly in LDCs and SIDS. A transformative new programme initiated by the UNEP and GCF aims to establish climate and ocean information services and multi-hazard early warning systems in Pacific Small Island Developing States, which are among the most vulnerable in the world when it comes to climate change, natural disasters and increasingly frequent or intense extreme climate events such as tropical cyclones, flooding, and drought.
5. On (f) Barriers and challenges, including finance, technology, and capacity-building gaps, faced by developing countries.

Natural climate solutions can provide over 37% of the climate mitigation needed for Paris agreement and can do so cost effectively. However, the world is underperforming on tripling investment in NbS from current levels by 2030 (set by SFN 2021), to meet Rio Convention targets, particularly keeping global warming to below 2C and preferably 1.5C, halting biodiversity loss and land degradation neutrality.

- Current annual public and private finance flows to NbS are USD 154 billion, up by 2.6% relative to the last edition of SFN, far below the 13% annual increase in NbS finance flows needed. Hence the annual rate of growth of investments into nature-based solutions needs to grow by a factor of 5 in real terms. Governments, business, and finance needs to increase annual growth in investments in nature by a factor of 5x.
- Of total investment in NbS only 17% comes from the private sector – this needs to increase dramatically if we are to limit climate change, biodiversity loss and land degradation given fiscal constraints on governments.

Time for voluntary business commitments without action is over. Investment in “sustainable supply chains” currently at USD 8 billion/year will have to increase significantly, as does the amount of “impact investing” directed to NbS. Nature negative flows from public sources are three to seven times larger than current investments in NbS.

Public financial flows to the agriculture, energy and fishing sectors that potentially harm nature lie between USD 0.5 and 1.1 trillion annually. The reform and repurposing of environmentally harmful subsidies is an urgent priority with significant benefits.

The triple win of NbS: If we triple investment in NbS by 2030, it's a triple win. The additional finance would result in:

- Carbon sequestration of 13 gigatons CO₂e annually by 2050
- A halt to biodiversity loss, represented by a maintenance of the Biodiversity Intactness Index at 2020 levels
- Land restoration of 1 billion ha by 2050, which is a substantial part of the total 4.7 billion ha currently used as cropland and pasture.

Cooling

- The world needs a radical change in residential comfort cooling technology that can effectively and assuredly offset the exponential increase in cooling energy demand and put us on a path to cooling with less warming. Mitigation efforts in space and process cooling have made progress, with many non-governmental organizations highlighting the need for more aggressive passive strategies to minimize the need for cooling and meet the remaining demand with super-efficient equipment. However, the pace of evolution in the air-conditioning industry is alarmingly slow even considering best available technology, especially when compared with some of the recent technological innovations such as LED lighting, solar photovoltaic panels, and electric vehicles.
- One of the key challenges in the cooling segment is a lack of clearly defined goals and a tracking mechanism to determine progress in emission reduction. (Refrigerants are an exception, as the Kigali Amendment includes refrigerant targets and tracking.) Collective progress on mitigation actions in each area is insufficient to meet overall climate goals.
- Developing a sustainable food cold chain presents a complex problem with diverse drivers and barriers, all interconnected and with multiple feedback loops, varying by country and depending on local economic, environmental, social, cultural, and political circumstances. It is about more than procuring and installing solar-powered cold rooms at the farm gate or chiller cabinets with lower-GWP refrigerants in supermarkets. Successes include the Africa Centre of Excellence for Sustainable Cooling and Cold-Chain (ACES) and an effort in the Philippines to develop a sustainable cold chain road map to guide public and private entities on a path to achieve food security in a sustainable way.

Accelerating comprehensive and climate-responsible action on cooling in national planning and policy:

- National Cooling Action Plans (NCAPs) are an important first step for countries to set up a framework that can help catalyse integrated and comprehensive action to improve cooling technology and its impact on climate. At least 33 countries have responded to the call from the UN Secretary-General to develop and adopt NCAPs.
- Governments can do much more to get us onto a more sustainable track that involves a more moderate rate of increase in cooling-related energy needs and that is compatible with the ambitious emission reduction goals of the Paris Agreement.

Technology

The work of the CTCN indicates inadequate support provided to the developing countries in all areas including technology, finance, and capacity building.

- This includes challenges in, identification of climate technologies which are scalable at national and local level, accessing financial resources for climate technology, absorptive capacity of developing countries and institutional framework.
- Surveys and evaluations conducted by the CTCN and/or independent institutions have highlighted the key support CTCN can bring in creating enabling environments and laying the groundwork for early adoption and scale-up of climate technologies if adequate funding is provided. However, there is still a great need for strengthening capacity building and knowledge transfer and exchange, especially leveraging knowledge already acquired in the implementation of technical assistance and knowledge sharing initiatives. Experience to date points to the potential high return for the implementation of regional capacity building and knowledge transfer and exchange programmes. One essential component of these programmes would necessarily be scale-up design (ensuring adequate follow-up/impact monitoring) and access to financing. A Synthesis report for the technical assessment component of the first global stock take, was prepared by the Technology Executive Committee, 04 April 2022 and presented to the Secretariat. This report has details information on matters related to technology development and transfer, including the information referred to in Article 10 of the Paris Agreement, barriers and challenges faced by developing countries and good practices, experiences, and potential opportunities to enhance international cooperation on mitigation and adaptation. https://unfccc.int/sites/default/files/resource/GST_SR_TEC.pdf

Energy efficiency

- To reach the Paris Agreement mitigation targets, energy efficiency will have to provide almost half of the savings needed in the energy sector.
- This requires energy efficiency improvements in the order of 3 to 4 % annually but the current rate of improvement is less than 2%. This represents a major challenge. Electricity consumption is the largest greenhouse gas emissions sector and the focus of the UNEP Led Global Sustainable Energy Market Transformation Initiative United for Efficiency (U4E).: From the Initiatives work in more than 40 countries over the past 5 years, it's clear that the absence of effective National level, Strategic, Energy Efficiency Programmes is still a major barrier to the ready availability of affordable, energy efficient lighting, appliances and industrial equipment technologies in almost every developing and emerging economy. This is particularly challenging as new demand for electricity from developing and emerging economies is set to more than double by 2050 and currently outstrips the pace of renewable power installations.

Many governments do not have effective Green Public Procurement (GPP) Policies and Practices for the main energy efficient, eco-designed, electrical products.

- A widespread lack of effective public purchasing of sustainable products results in much higher energy state and semi-state entity consumption of electricity than necessary, with all associated higher operating costs and emissions. The lack of GPP also hampers a

faster market transformation to eco-efficient products by delaying the availability of higher performance products in the wider market. UNEP-U4E's 156 country savings assessments show the potential monetary savings, carbon mitigation and environmental benefits that are possible by transitioning to energy-efficient lighting, cooling appliances and equipment.

Planned, Strategic National level Market Transformation and Green Technology (inc. GPP) Programmes can greatly accelerate the global rate of improvement needed in energy efficiency by:

- Providing the enabling conditions from energy efficiency policy, knowledge, investment, and technologies.
- Providing energy efficiency programme capacity development, technical and financial support.
- Integrating environmental considerations as well as fiscal policy and public finance.
- Ensuring that the national savings are invested in catalytic net-zero and nature-positive investments (renewable energies) necessary for the achievement of a fully globally sustainable energy system transformation.
- Resetting the narrative from supply side investment only priority to include fast, national savings and energy security measures through energy efficiency programmes. By combining energy efficiency and renewable energy measures in parallel and with priority to energy efficiency as the 'first fuel', we can reach net zero through sustained measures across all the main sectors of national economies.

6. On (g) Good practices, experience, and potential opportunities to enhance international cooperation on mitigation and adaptation and to increase support under Article 13, paragraph 5, of the Paris Agreement; and (h) Fairness considerations, including equity, as communicated by Parties in their nationally determined contributions.

Methane:

Multilateralism and international cooperation are put into practice via the UN Environment Programme's International Methane Emissions Observatory (IMEO) that aims to catalyze the collection, reconciliation, and integration of empirically based near real time methane emissions data, to provide unprecedented climate transparency and the information required for reducing this powerful greenhouse gas.

IMEO is an initiative part of UNEP Industry and Economy Division to catalyze a multi-sector action, including from companies, research institutions, governments, and civil society partners.

Through IMEO, UNEP provide transparent, reliable, and actionable data to reduce methane emissions by 2030. It serves the rapidly growing ecosystem of governments, companies, investors, researchers, NGOs, and other entities engaging in this crucial climate challenge.



To that end, UNEP works to build capacity among stakeholders to access, interpret, and apply empirical data in ways that effectively lead to mitigation. UNEP's IMEO also works with other partners within the methane ecosystem to ensure that mitigation approaches and policies are rooted in reliable data and follow leading best practices. IMEO serves as a core implementing partner of the Global Methane Pledge launched at COP26 with the collective objective to reduce global methane emissions by 30% by 2030.

IMEO's core functions respond to the urgent needs and problems within the global effort to achieve the Paris Agreement and to implement the Pledge:

- Integrate methane data from all available sources collected into a coherent and policy-relevant platform, accounting for the confidence of each data element, with the overall goal of improving the characterization of global methane emissions.
- Improve the transparency, accuracy and granularity of emissions data from the oil and gas industry through the Oil and Gas Methane Partnership 2.0 (OGMP 2.0) allowing for targeted methane mitigation. OGMP 2.0, with almost 100 members covering over 35% of global oil and gas production, over 75% of LNG flows, over 20% of global gas transmission and distribution pipelines and over 10% of gas storage is increasingly recognized as the global transparency standard for the oil and gas industry. It requires companies to report annually on their methane emissions across all material assets using the most accurate methods and science-based measurement frameworks, as opposed to using generic emission factors. Companies also commit to establishing a methane reduction target and report on progress towards this target. OGMP 2.0 directly engages oil and gas companies that have the agency to act on emissions reduction. It enhances their understanding of their emissions' profiles and helps them use this knowledge to mitigate emissions in a cost-effective way with the view of the industry as a whole achieving the recommended targets of 45% reductions in methane emissions by 2025, leading to 60-75% reductions by 2030 or, alternatively, a "near zero" emission intensity.
- Corroborate the oil and gas industry's data against other data sources – including satellites, scientific measurement studies and national inventories – to provide the highest level of confidence for companies and governments to act.
- Fund scientific measurement studies to improve the characterization of methane emissions from human activities globally. IMEO's Methane Science Studies directly measure methane emissions from anthropogenic sources around the world and provide key insight into important opportunities for mitigation action. The studies apply multiple technologies and methodologies and help refine approaches that can be used by other stakeholders for methane measurements. IMEO Studies focus issues such as reconciliation of data, abandoned wells, as well as contributing to efforts such as the Global Methane Budget. At same time, other studies are more targeted and focus on countries and particular targets as basins or types of infrastructure and sources. In total 20 studies were executed by IMEO, with an additional 6 planned for 2023, with an expected constant increase in the following years.

- Evaluate measurement methodologies and technologies to encourage the adoption of the best solutions on the broadest scale.
- Engage countries through capacity building by developing policy-relevant science, strengthening the science-policy interface, and deepening the understanding of the climate importance of methane mitigation. UNEP engages governments to raise awareness on methane emissions and build capacity to pursue science-based policies and strategies to reduce methane emissions. IMEO has developed a methane training series for government stakeholders to deliver important information on methane emissions sources, measurement and quantification approaches, and key opportunities for mitigation. This training has been delivered to nearly 400 participants in 21 countries around the world.
- Provide early warning services for extraordinary anthropogenic methane emissions via the Methane Alert and Response System (MARS). Through MARS (fully operational in late 2023), UNEP will notify the relevant stakeholders about major methane emissions events and connect them within a network of support to mitigate the emission event.

United for Efficiency

- <https://www.unep.org/gan/news/press-release/unep-wcmc-release-briefing-note-series-ecosystem-based-adaptation><https://www.unep.org/gan/news/press-release/unep-wcmc-release-briefing-note-series-ecosystem-based-adaptation> The UNEP led Global Sustainable Energy Market Transformation Initiative United for Efficiency (U4E). Provides a good example of enhanced international cooperation.
- The initiative has developed and is supporting the implementation of internationally applicable Minimum and Higher Energy Performance Standards for Electrical Appliances and Industrial Equipment in more than 40 countries.
- In its global leapfrogging market transformation programme, UNEP-U4E has developed a comprehensive range of guidance documents and tools, including international standards and norms based minimum and higher energy performance regulations for use by governments and other stakeholders.
- UNEP-U4E promotes the full global market transformation to energy-efficient lighting, appliances and industrial equipment and further enables the global manufacturing evolution to high-efficiency, eco-designed electrical products through green public procurement guidelines and specifications for the main electricity consuming products by all state and semi-state entities which is a win-win both in terms of large-scale energy and financial savings as well as emissions reductions.
- The application of current international minimum and higher energy performance standards for the six main electrical products by developing and emerging economies can prevent the annual emission of more than 1.7 Gigaton of greenhouse gases. These savings equal to the annual emissions of more than 850 large fossil fuel power plants [UNEP-U4E 2022 factsheet]. Expansion of strategic national market transformation programmes based on minimum and higher energy performance standards to all 156



countries assessed by the UNEP-U4E would quickly unlock large annual emissions savings as well as financial savings for the countries totaling more than \$ 270 Billion annually.

Paragraph 37.

7. Under (f), Relevant reports from United Nations agencies and other international organizations, which should be supportive of the UNFCCC process; (h) Relevant reports from regional groups and institutions; and (i) Submissions from non-Party stakeholders and UNFCCC observer organizations.

UNEP submits for consideration the following reports to be considered as sources of the GST:

- i. [Emissions Gap Report](#)
- ii. [Adaptation Gap Report](#)
- iii. [State of Finance for Nature Report](#)