
A Solutions Approach to the GST

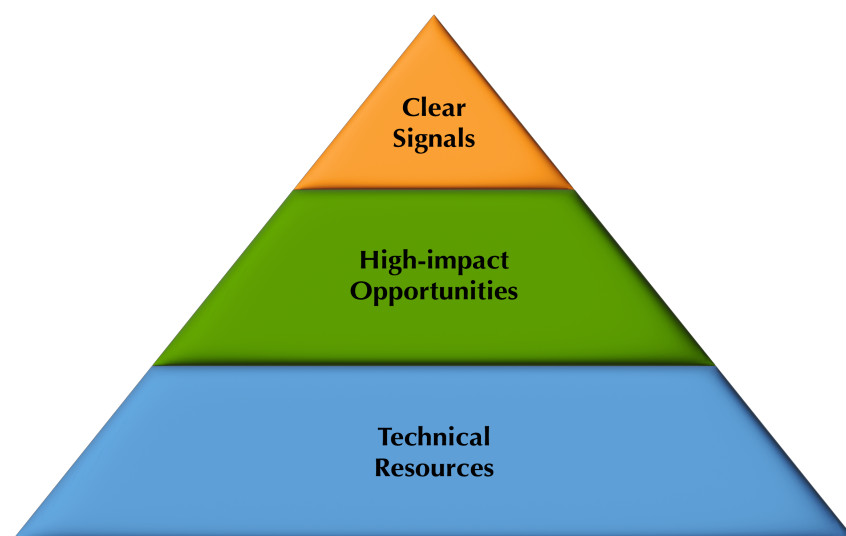
Interim Technical Paper for Consultation¹

May 2023

The global stocktake (**GST**) process and outcome at COP28 must send clear and specific signals as to opportunities for Parties and non-Party stakeholders (**NPS**) to achieve the goals of the Paris Agreement and to avoid catastrophic climate change. Both greater formal climate ambition, including through nationally determined contributions (**NDCs**), as well as enhanced international cooperation to implement action will be critical. In that context, and to a large extent, what happens after GST ends at COP28 will define its success. Parties should commit to a post-COP28 response to the GST.

The outputs of an effective GST process could usefully be conceptualized in three tiers:

- a limited number of high-level **clear signals/high level asks** for mitigation, adaptation, loss and damage (**L&D**), and means of implementation (**MOI**) that catalyze the shift of the global economy toward the achievement of the goals of the Paris Agreement;
- a defined set of specific, available, and implementable **high impact opportunities** to enhance and implement ambition. These must speak to constituencies (such as national-level policy makers and NPS) best placed to convert the signals/high level asks into action, including through science-based policy pathways that emerge from the GST technical dialogue process. These opportunities should be supported by accessible and scaled up means of implementation;
- consolidated **technical resources** that Parties and NPS can draw on when developing and implementing climate action, consistent with the goals of the Paris Agreement.



¹ Please send any comments or suggestions to Jennifer Huang via: <https://www.c2es.org/content/global-stocktake-an-opportunity-for-ambition>.



This paper draws upon, and is produced in the context of, the GST technical dialogue process that has revealed a broad spectrum of opportunities to address the challenges of climate change, as well as a wealth of work on pathways and agendas for 2030 and 2050 climate action, including the International Energy Agency's *Credible Pathways to 1.5 °C: Four pillars for action in the 2020s* report,² the Intergovernmental Panel on Climate Change chapter on "Climate Resilient Development Pathways,"³ the High Level Climate Champions' Breakthrough Agenda,⁴ and the Marrakech Partnership for Global Climate Action Pathways,⁵ among others.

To effectively achieve its mandate, **the GST should in its outcomes focus on those opportunities that will have the best chance of resulting in positive near-term "high-impact."** Identifying high-impact implementable opportunities necessitates the application of selection criteria, such as:

- certainty of impact (which may vary significantly according to geography)
- feasibility
- key relevant initiatives
- barriers
- synergies as well as trade-offs in achieving the Sustainable Development Goals (*SDGs*).

Applying these criteria, this paper identifies a range of suggested signal and opportunities to action them that have the potential for accelerating climate action and support in the near-term.⁶ C2ES will further test the viability of these solutions and welcomes comments and suggestions. At the same time, the general approach to identifying solutions has broader applicability to decision makers and stakeholders looking to identify and implement actionable solutions with near-term positive impact, including through enhanced international cooperation.

² <https://iea.blob.core.windows.net/assets/ea6587a0-ea87-4a85-8385-6fa668447f02/Crediblepathwaysto1.5C-Fourpillarsforactioninthe2020s.pdf>.

³ https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SOD_Chapter18.pdf.

⁴ <https://climatechampions.unfccc.int/system/breakthrough-agenda/>.

⁵ https://unfccc.int/climate-action/marrakech-partnership/reporting-and-tracking/climate_action_pathways.

⁶ This work builds on earlier work: landscape analyses, Distilling Critical Signals from the Global Stocktake, and TD1.3 submissions. See <https://www.c2es.org/content/global-stocktake-an-opportunity-for-ambition>.



A. Mitigation	5
1. Increase the share of renewable energy sources—particularly wind and solar—in global electricity generation, aiming for 55–90 percent by 2030 and 98–100 percent by 2050, while simultaneously reducing the share of fossil sources	5
2. Reduce methane emissions from the fossil fuel sector by 75 percent by 2030	7
3. Increase the share of electric vehicles (EVs) in light-duty vehicle (LDV) sales to 75–95 percent by 2030 and 100 percent by 2035. Increase the share of EVs in bus sales and medium- and heavy-duty vehicle sales to 60 percent and 30 percent by 2030, respectively	10
4. Halt and reverse forest loss and land degradation by 2030	13
5. Reduce the carbon intensity of building operations, minimize embodied emissions, and increase the rate of building retrofits to 3.5 percent by 2040, aiming for all new and existing assets to be net zero across their life cycles by 2050	16
B. Adaptation and Loss and Damage	18
1. Increase the climate resilience of the global population by 50 percent by 2030 and by at least 90 percent by 2050, recognizing that adaptation action is iterative	18
2. Halt and reverse biodiversity and ecosystem loss and degradation and put nature on a path to recovery by 2030	18
3. By 2030 foster climate resilient, sustainable agriculture that increases yields and agroforestry by 17 percent and reduces farm level greenhouse gas emissions by 21 percent without expansion of the agricultural frontier; and halve the share of food production lost and per capita food waste relative to 2019,	21
4. Ensure, by 2027, universal coverage of early warning systems, connected to longer-term risk management systems, and supported by effective risk communication and public stakeholder dialogue to prompt informed action, and by 2030 universal coverage of climate services in priority climate-sensitive sectors (agriculture and food security, health, disaster risk reduction, energy, and water),	24
5. Significantly increase by 2030 the capacity and resources of developing countries, with a focus on those that are particularly vulnerable to the adverse effects of climate change, to avert, minimize, and address L&D, including at the local, national, regional, and international level	27
C. Means of Implementation	30
1. Urges Parties, multilateral development banks (MDBs), and NPS, in particular financial institutions (IFIs), to significantly increase by 2030 the proportion of investments in renewable energy	30
2. Urges bilateral, multilateral, and private creditors to create mechanisms for debt payments suspension, restructuring, and cancelation with a view to addressing climate-related needs,	32
3. Call upon multilateral development banks, international finance institutions, climate funds, and other multilateral and bilateral cooperation agencies to increase the share of grants and highly concessional instruments for developing countries, particularly for the design, implementation, and monitoring of adaptation actions,	34



4. Urges tying fossil fuel subsidies reform to broader economy-wide just transition plans, and provide support to developing countries to implement it,	36
5. Calls for capacity building support to developing countries to operationalize Article 2.1.c of the Paris Agreement	38
6. Urges MDBs, IFIs and private investors to revise and adjust their investment plans and portfolios by 2030 to align with the temperature and resilience goals of the Paris Agreement	40
7. Call upon institutional investors and corporate actors to enhance understanding, disclosure and management of climate-related financial risks and opportunities.....	42



B. Adaptation and Loss and Damage

Signal/high-level ask	1. Increase the climate resilience of the global population by 50 percent by 2030 and by at least 90 percent by 2050, recognizing that adaptation action is iterative.
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The Global Goal on Adaptation (**GGA**)—established under Article 7.1 of the Paris Agreement to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change— is part of the GST in which Parties to the Paris Agreement will assess the collective progress toward achieving it. The ongoing work under the Glasgow-Sharm-el-Sheikh work programme on the GGA aims to find ways to operationalize the GGA.

At COP28 in Dubai, Parties could benefit from a clear overarching signal on the timeline and urgency of implementing the goal and achieving climate resilience. In that context, the suggested signal above is intended to catalyze ambition toward transformational adaptation and development, and as such could serve as a useful ‘umbrella’ for the sector-specific solutions presented below.

Signal/high level ask	2. Halt and reverse biodiversity and ecosystem loss and degradation and put nature on a path to recovery by 2030, by:
High impact opportunities/solutions	<ul style="list-style-type: none"> Expanding support for ecosystem stewardship by indigenous peoples and local communities, including by strengthening legislation for securing land rights of indigenous peoples and local communities according to traditional values and practices of land tenure.
	<ul style="list-style-type: none"> Promoting nature-based solutions and/or ecosystem-based approaches as an adaptation option for terrestrial, freshwater, coastal, and ocean ecosystems and urban environments, including for significantly enhancing resilience and reducing exposure of coastal communities impacted by sea level rise.
	<ul style="list-style-type: none"> Restoring areas of degraded terrestrial, inland water, and marine and coastal ecosystems.
	<ul style="list-style-type: none"> Conserving and managing areas of particular importance for biodiversity and ecosystem functions and services through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures.
	<ul style="list-style-type: none"> Implementing deep, rapid, and sustained reductions in global greenhouse gas emissions at their sources, while minimizing other ecosystem stressors different from climate change such as changes in land and sea use, direct exploitation of organisms, pollution, and invasion of alien species.



Impact

- Human and ecosystem vulnerability are interdependent,⁹⁹ which means that halting and reversing ecosystem loss and degradation and making ecosystems more resilient will also make human societies more resilient, and vice versa.
- Nature restoration can reduce the exposure or vulnerability for most people in the world (i.e., more than 5 billion people); minimizing ecosystem stressors can reduce the exposure or vulnerability of many people in the world (i.e., between 1–5 billion people); and ecosystem-based adaptation can reduce the exposure or vulnerability of specific groups of people (i.e., less than one billion people).¹⁰⁰
- Gender-sensitive, equity- and justice-based adaptation approaches, integration of indigenous knowledge systems within legal frameworks and the promotion of indigenous land tenure rights reduce vulnerability and increase resilience.¹⁰¹

Feasibility

- The IPCC undertook feasibility assessments for forest-based adaptation and for biodiversity management and ecosystem connectivity as adaptation options, concluding in both cases that there is robust evidence and medium agreement on their feasibility.¹⁰²
- Nevertheless, adaptation options that are feasible and effective today will become constrained and less effective with increasing global warming.¹⁰³ Biodiversity and ecosystem services have limited capacity to adapt to increasing global warming levels, and consequences of current and future global warming for climate resilient development include reduced effectiveness of Ecosystem-based Adaptation and approaches to climate change mitigation based on ecosystems and amplifying feedbacks to the climate system.¹⁰⁴

A selection of key existing initiatives

- The **UN Decade on Ecosystem Restoration (2021-2030)**.¹⁰⁵ At the Convention on Biological Diversity (CBD) COP15 in Montreal (December 2022), the UN recognized ten initiatives that aim to restore more than 68 million hectares and declared them World Restoration Flagships.¹⁰⁶
- The **Forest Declaration Platform** (related to the New York Declaration on Forests) is intended to foster political ambition, scale up and accelerate action, and, through the Forest Declaration Assessment, enable critical accountability to end natural forest loss and restore 350 million hectares of degraded landscapes and forestlands by 2030.¹⁰⁷ This is also in line with the Bonn Challenge.¹⁰⁸

⁹⁹ IPCC AR6 SYR SPM A.2.2.

¹⁰⁰ IPCC AR6 WGII Ch. 17, figure 17.3.

¹⁰¹ IPCC AR6 Technical Summary, TS.E.2.4.

¹⁰² IPCC AR6 WGII Ch. 18 Cross-Chapter Box FEASIB.

¹⁰³ IPCC AR6 SYR SPM B.4.

¹⁰⁴ IPCC AR6 WGII SPM D.4.3.

¹⁰⁵ <https://www.decadeonrestoration.org>.

¹⁰⁶ <https://www.unep.org/news-and-stories/press-release/un-recognizes-10-pioneering-initiatives-are-restoring-natural-world>.

¹⁰⁷ <https://forestdeclaration.org>.

¹⁰⁸ <https://www.bonnchallenge.org>.



- **Business for Nature** is a global coalition that brings together business and conservation organizations and forward-looking companies to encourage companies to commit and act to reverse natural loss and advocate for greater policy ambition.¹⁰⁹
- **The Science Based Targets Initiative (SBTi)** has elaborated **the Forest, Land and Agriculture (FLAG) Guidance** to provide a standard method for companies in land-intensive sectors to set science-based targets that include land-based emission reductions and removals¹¹⁰.
- The **Finance Sector Deforestation Action (FSDA)** was launched at COP26 as a results-driven collaborative of financial institutions that unites signatory organizations around an engagement approach to addressing nature-related risks and opportunities by tackling deforestation and creating essential convergence across other climate and nature-related initiatives. 38 financial institutions with more than US \$8.9 trillion in assets under management have committed to eliminating agricultural commodity-driven deforestation risks (from cattle, soy, palm oil, pulp, and paper) in their investment and lending portfolios by 2025.¹¹¹
- The **Race to Resilience** campaign has partners that are innovating science-based solutions to accelerate action on ocean and coastal ecosystems include: the Ocean Risk and Resilience Alliance (ORAA), the Global Mangrove Alliance and Global Fund for Coral Reef.
- The **Kunming-Montreal Global Biodiversity Framework** set up specific quantified targets for halting ecosystem loss, restoring degraded ecosystems and effectively conserving and managing areas of particular importance for biodiversity and ecosystem functions and services, in addition to targets related to tools and solutions for implementation and mainstreaming.

Barriers

- Institutional fragmentation, under-resourcing of services, inadequate adaptation funding, uneven capability to manage uncertainties and conflicting values, and reactive governance across competing policy domains collectively lock in existing exposures and vulnerabilities, creating barriers and limits to adaptation, and undermine climate resilient development prospects.¹¹²
- Many natural systems are near the hard limits of their natural adaptation capacity and additional systems will reach limits with increasing global warming.¹¹³

Strategic targeting/coverage potential

- This solution will be critical for megadiverse countries¹¹⁴ and those containing biodiversity hotspots;¹¹⁵ however, because ecosystems and biodiversity in general are a centerpiece for local, national, and regional adaptation, including for the most vulnerable people and communities who generally depend directly on local ecosystems for their livelihoods, wellbeing and resilience, and because biodiversity and ecosystems at the aggregate level are fundamental for a healthy planet of which humanity as a whole depends, this signal and its solutions should have universal coverage.

¹⁰⁹ <https://www.businessfornature.org/about>.

¹¹⁰ <https://sciencebasedtargets.org/sectors/forest-land-and-agriculture>.

¹¹¹ <https://climatechampions.unfccc.int/system/nature-and-tackling-deforestation/>.

¹¹² IPCC AR6 WGII, Technical Summary, TS.E.5.1.

¹¹³ IPCC WGII AR6 SPM C.3.3.

¹¹⁴ IPBES Glossary: Megadiverse country: "Countries (17) which have been identified as the most biodiversity-rich countries of the world, with a particular focus on endemic biodiversity (UNEP-WCMC 2014).

¹¹⁵ https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_CCP1.pdf.



Sustainable Development Goals

- Benefits of ecosystems and biodiversity to human societies have been widely recognized through concepts such as “ecosystem services” and “nature’s contributions to people”. Even though biodiversity and ecosystems are generally associated with **SDG 14** (life on land) and **SDG 15** (life below water), the achievement of virtually all other SDGs is directly dependent on them, as they are a precondition for the fulfilment and respect of people’s basic needs and rights and for maintaining a healthy planet.

Options for the outcome at COP28

The need to address biodiversity loss and climate change in an integrated manner has been explicitly recognized in COP cover decisions.¹¹⁶ But it has not yet been recognized in CMA cover decisions or concrete suggestions offered to operationalize those synergies. Parties could be asked to:

- Respond to the invitation made by CBD COP15 decision 15/13 to the governing bodies of biodiversity-related conventions and relevant multilateral environmental agreements, to contribute to the implementation and monitoring of the Kunming-Montreal Global Biodiversity Framework (**KMGBF**) and encourage mutually supportive decisions. This could include encouraging Parties to consider mitigation and adaptation options that increase the resilience of biodiversity and ecosystems (target 8 KMGBF) and optimizing co-benefits and synergies of finance targeting both the biodiversity and climate crises (target 19(e) KMGBF).
- Promote integration and complementarity between the Paris Agreement’s long-term goal of making finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development (Article 2.1(c)) and the KMGBF target 14, which aims at progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of the Framework. This call could include emerging businesses, cities, and regions with material land-use emissions, as part of their net-zero and adaptation plans, to achieve and maintain operations and supply chains that avoid the conversion of remaining natural ecosystems, with a view to eliminating deforestation and peatland loss by 2025 at the latest, and the conversion of other remaining natural ecosystems by 2030.¹¹⁷

Signal/high level ask	3. By 2030 foster climate resilient, sustainable agriculture that increases yields and agroforestry by 17 percent and reduces farm level greenhouse gas emissions by 21 percent without expansion of the agricultural frontier; and halve the share of food production lost and per capita food waste relative to 2019, by:
High impact opportunities/solutions	<ul style="list-style-type: none"> • Employing regenerative land use and agricultural practices, agro-ecology, and agroforestry. • Eliminating and repurposing harmful subsidies, enforcing existing laws and regulations, and providing incentives to shift from resource-depleting models of production to those that link resource efficiency and productivity gains to healthy and resilient food systems.

¹¹⁶ Paragraph 15 of decision 1/CP.25 and 10th preambular paragraph of decision 1/CP.26, respectively.

¹¹⁷ https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf.



	<ul style="list-style-type: none"> Investing in young human capital by providing incentives and training for land restoration
	<ul style="list-style-type: none"> Reducing food loss in the global south through improved harvesting techniques and post-harvest storage and logistics and food waste in the global north through improved use of treatments, consumer education, labelling, and expanded composting infrastructure.
	<ul style="list-style-type: none"> Increasing production of healthy plant-based proteins, plant-based meat alternatives, and cultured meat.
	<ul style="list-style-type: none"> Improving consumer education and food marketing to drive consumer demand.
	<ul style="list-style-type: none"> Increasing production of nutrient-dense foods.
	<ul style="list-style-type: none"> Improving distribution and access to nutritious foods, particularly in the global south.

Impact

- According to the IPCC, behavior change in diets and food waste is not only highly beneficial for ecosystems and ecosystem services, but it can also reduce the exposure or vulnerability for most people in the world (i.e., more than 5 billion people). A transition to plant-based diets, where appropriate, would be a logical first step to transform food systems since nearly 80 percent of total agricultural land is dedicated to feed and livestock production while providing less than 20 percent of the world's food calories.¹¹⁸
- Transforming agriculture and food systems will have a great impact on tackling the climate and biodiversity global crises and contribute to the achievement of the SDGs, since, globally, modern agriculture and food systems are responsible for 80 percent of deforestation, 70 percent of freshwater use, and are the single greatest cause of terrestrial biodiversity loss, having also neglected soil health and biodiversity below ground, which are the source of almost all our food calories.¹¹⁹ Besides a myriad of benefits that increase their resilience and, at the same time, human resilience, transforming these systems contributes to greenhouse gas emissions reductions through halting and reversing the destruction of forests and other ecosystems, as well as through reducing emissions of nitrous oxides from fertilizer use and methane from ruminant livestock.¹²⁰

Feasibility

- According to the Sharm el-Sheikh Adaptation Agenda, achieving these adaptation outcomes will require substantial policy action and mobilization of funds. On policy, actions should include incentivizing scaling of green technology (e.g., subsidizing organic fertilizers and precision agriculture), creating a policy framework to drive change in consumer demand (e.g., subsidizing fruit and vegetables), and transitioning away from policies that promote unhealthy practices (e.g., re-purposing and increasing agricultural subsidies to support regenerative practices). On funding, actions should include investment from the global north in subsidies to drive regenerative practices, support for the

¹¹⁸ UNCCD, Global Land Outlook 2, p. 5.

¹¹⁹ UNCCD, Global Land Outlook 2, p. x.

¹²⁰ UNCCD, Global Land Outlook 2, p. x.



global south's transition in adaptation and resilience, and creation of a safety net for the global south's response to climate shocks.

- Sustainable food production alternatives, inspired by agro-ecological approaches, are affordable and effective, although the transition will require time and money.¹²¹

A selection of key existing initiatives

- The **UN Decade on Ecosystem Restoration (2021-2030)**¹²² is led by the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization, in collaboration with the secretariats of the Rio convention, other relevant multilateral environmental agreements, and entities of the United Nations system.¹²³
- The **Coalition of Action for Healthy Diets from Sustainable Food Systems for Children and All** was formed as an outcome of the 2021 UN Food Systems Summit. It brings together UN Member States, UN agencies, civil society organizations, academic institutions and social movements.¹²⁴
- The **Science Based Targets Initiative (SBTi)** has elaborated the **Forest, Land and Agriculture (FLAG) Guidance** to provide a standard method for companies in land-intensive sectors to set science-based targets that include land-based emission reductions and removals.¹²⁵
- The Marrakech Partnership works together with multiple organizations and initiatives in advancing these solutions, including: **Agriculture Innovation Mission for Climate (AIM4C)**, **Africa Food Systems Transformation Initiative (AFSTI)**, **Food and Agriculture Organization (FAO)**, **EAT Foundation**, the **Global Alliance for Improved Nutrition**, the **Sustainable Consumption and Diets Platform**, **Global Alliance for Future of Food** and **Good Food Institute**.

Barriers

- Some possible barriers to transforming agriculture and food systems in all regions of the world could be related to constraints caused by projected impacts of climate change as identified by the IPCC. For example: climate change will make some current food production areas unsuitable; climate change will increase the number of people at risk of hunger in mid-century, concentrated in Sub-Saharan Africa, South Asia, and Central America; increased CO₂ concentration will reduce nutrient density of some crops; climate change will reduce the effectiveness of pollinator agents; greenhouse gas emissions will negatively impact air, soil, and water quality, exacerbating direct climatic impacts on yields; the occurrence and distribution of pests, weeds, and diseases, including zoonoses, in agricultural, forest, and food systems will be altered, and their control will become costlier.¹²⁶
- The fact that more than 70 percent of the world's agricultural land is controlled by just 1 percent of farms, primarily large agribusiness, constitutes a barrier to agriculture and food systems transformation, as agro-ecological and regenerative methods are particularly well suited to small-scale food producers, who typically rely on low-tech and labor-intensive practices.¹²⁷

¹²¹ UNCCD, Global Land Outlook 2, p. 5.

¹²² <https://www.decadeonrestoration.org>.

¹²³ United Nations General Assembly A/RES/73/284, 69th plenary meeting, 1 March 2019.

¹²⁴ <https://www.who.int/initiatives/food-systems-for-health/the-coalition-of-action-on-healthy-diets-from-sustainable-food-systems-for-children-and-all>.

¹²⁵ <https://sciencebasedtargets.org/sectors/forest-land-and-agriculture>.

¹²⁶ IPCC AR6 WGII, Ch. 5, p. 717-718.

¹²⁷ UNCCD, Global Land Outlook 2, p. 6.



Strategic targeting/coverage potential

- From the supply side, strategic targeting should focus on small-scale food producers because agroecological and regenerative methods are particularly well suited to them.¹²⁸ From the demand side, strategic targeting should focus on changing behavior of all consumers.

Sustainable Development Goals

- Transforming agriculture and food systems, including by transitioning to healthy diets, contributes directly to the achievement of many of the SDGs, including ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture (**SDG 2**), but also others such as ensuring healthy lives and promoting well-being for all at all ages (**SDG 3**), ensuring sustainable consumption and production patterns (**SDG 12**), and taking urgent action to combat climate change and its impacts (**SDG 13**).
- It is also strongly related to **SDG 14** and **SDG 15** (life below water and life on land) and to **SDG 6** (clean water and sanitation).

Options for the outcome at COP28

Parties could:

- Recognize current and projected risks and impacts of climate change to agriculture and food systems and the way they constraint their possibilities for transformation in some regions of the world, particularly those in low latitudes.
- Urge all Parties to invest in smallholder farmers to scale-up regenerative land use and agricultural practices, agro-ecology, and agroforestry, while facilitating secure land tenure, access to technology, credit, and markets, and urging developed country Parties to scale-up their provision of support.
- Urge all Parties to invest in increasing consumer awareness for making more sustainable dietary choices and reducing food waste.

Signal/high level ask	4. Ensure, by 2027, universal coverage of early warning systems, connected to longer-term risk management systems, and supported by effective risk communication and public stakeholder dialogue to prompt informed action, and by 2030 universal coverage of climate services in priority climate-sensitive sectors (agriculture and food security, health, disaster risk reduction, energy, and water), by: ¹²⁹
High impact opportunities/solutions	<ul style="list-style-type: none"> • Improving climate and weather observations to close the substantial basic weather and climate data gap and build robust Earth observation systems and related long-term data records. • Improving access to climate science information, both historical climate data and projected impacts.

¹²⁸ UNCCD, Global Land Outlook 2, p. 6.

¹²⁹ <https://public.wmo.int/en/bulletin/what-do-we-mean-climate-services>.



	<ul style="list-style-type: none"> Promoting and supporting the establishment of national frameworks for climate services and enhancing the Climate Services Information System component of the Global Framework for Climate Services.¹³⁰
	<ul style="list-style-type: none"> Catalyzing new and pre-existing innovative finance solutions

Impact

- Early warning systems (**EWS**) have been described as a proven, effective, and feasible climate adaptation measure, that save lives, reduce poverty and economic losses, and are shown to provide near a tenfold return on investment.¹³¹ According to the IPCC, early warning systems can reduce the exposure or vulnerability for most people in the world (i.e., more than 5 billion people) (high confidence).¹³² The COP and the CMA recognized in their Sharm el-Sheikh cover decisions that one third of the world does not have access to early warning and climate information services.
- Enhancing international cooperation, coordination, action, and support for systematic observation, climate services and early warning systems can help to close fundamental data, early warning, and early action preparedness gaps that many developing countries face and that prevents them from being able to adequately and effectively engage in adaptation and climate risk management decision making and implementation processes.

Feasibility

- The World Meteorological Organization (**WMO**) has described EWS as “the low-hanging fruit of climate change adaptation” because they are a relatively cheap and effective way to protect people and assets from hazards.¹³³ A wide variety of organizations, networks, funds, and others already work on different parts of the puzzle and the UNSG “Early Warnings for All” initiative is rallying them in a coordinated effort.

A selection of key existing initiatives

- The **UN Early Warning Initiative for the Implementation of Climate Adaptation (“Early Warnings for All”)**,¹³⁴ championed by the UNSG, has created momentum, and is convening action and support around its objective to ensure every person on Earth is protected by early warning systems within five years (i.e., by 2027). It has been estimated that new targeted investments of US \$3.1 billion are needed over the five years.¹³⁵ The initiative counts on a range of new and pre-existing innovative financing solutions to implement the plan, including scaling up the **Climate Risk Early Warning Systems (CREWS) Initiative**, the **Systematic Observations Financing Facility (SOFF)**, and accelerating investment programs of climate funds such as the Green Climate Fund, the Adaptation Fund, and key Multilateral Development Banks.¹³⁶

¹³⁰ https://gfcs.wmo.int/sites/default/files/Components/Climate%20Services%20Information%20System//GFCS-ANNEXES-CSIS-FINAL-14204_en.pdf.

¹³¹ Executive Action Plan 2023-2027 of the UN Global Early Warning Initiative for the Implementation of Climate Adaptation, p. 13.

¹³² IPCC AR6 WGII Ch. 17, figure 17.3.

¹³³ <https://public.wmo.int/en/media/press-release/early-warnings-all-initiative-scaled-action-ground>.

¹³⁴ <https://public.wmo.int/en/earlywarningsforall>.

¹³⁵ Executive Action Plan 2023-2027 of the UN Global Early Warning Initiative for the Implementation of Climate Adaptation, p. 5.

¹³⁶ <https://public.wmo.int/en/media/press-release/early-warnings-all-initiative-scaled-action-ground>.



- In Glasgow, the Green Climate Fund (GCF) and WMO released **the Climate Science Information for Climate Action resource pack**¹³⁷ and an accompanying guidance document.¹³⁸

Barriers

- Common challenges and obstacles that have been found to limit the expansion or success of EWS are related to:
 - Legal and institutional arrangements;
 - Technology, infrastructure, and forecasting capability in developing countries;
 - Human resources and expertise;
 - Addressing impacts of climate change on disaster risks;
 - Public engagement, empowerment, and community outreach;
 - Response co-ordination and disaster preparedness; and
 - Budget.¹³⁹

Strategic targeting/coverage potential

- The “Early Warnings for All” initiative aims to cover all countries and people of the world. Coverage of climate services should also aim to be universal.

Sustainable Development Goals

- **SDG 2 Zero hunger:** Droughts, floods, and rainfall variability have contributed to reduced food availability and increased food prices. Early warning systems will contribute to managing the threatening food and nutrition security, and the livelihoods of millions globally.
- **SDG 3 Good health and well-being and SDG 6 clean water and sanitation:** Early warning systems allow the identification of temperature changes, precipitation, and water-related disasters that could increase incidences of waterborne diseases such as cholera, especially in regions with limited access to safe water, sanitation, and hygiene infrastructure.
- **SDG 13 Climate action:** Early warning systems will contribute improve the understanding on how to integrate climate change measures into national policies, strategies, and planning. Therefore, if there is a wide range of knowledge and information related to climate risks available to policy makers, those policies will emerge from an informed basis.

Options for the outcome at COP28

The Sharm el-Sheikh COP27 and CMA4 cover decisions emphasized the need to address existing gaps in the Global Climate Observing System, particularly in developing countries. They recognized that one third of the world does not have access to early warning and climate information services. They also acknowledged the need to: enhance coordination of activities by the systematic observation community; to provide useful and actionable climate information for mitigation, adaptation and early warning systems; as well as to access information to enable understanding of adaptation limits and of attribution of extreme events. They also welcomed and reiterated the UNSG’s call to protect everyone on Earth through universal coverage of early warning systems within the next five years, and invited development

¹³⁷ <https://public.wmo.int/en/media/news/climate-science-information-climate-action>.

¹³⁸ https://library.wmo.int/index.php?lvl=notice_display&id=21974#.ZEkyyi0isWp.

¹³⁹ https://www.adaptation-undp.org/sites/default/files/resources/undp_brochure_early_warning_systems.pdf.



partners, international financial institutions, and the operating entities of the Financial Mechanism to provide support for implementation of the Early Warning for All Initiative.

To further build on these efforts, Parties could:

- Reiterate the invitation to provide support for the implementation of the UNSG's initiative in all regions.
- Emphasize the need to make rapid progress in addressing both the gaps in the Global Climate Observing System and the lack of universal access to early warning systems and climate services that affect developing countries in particular.
- Establish a global goal on observation as a concrete way to promote and measure progress by 2028 in the global climate observing system, particularly in developing countries.

Signal/high level ask	5. Significantly increase by 2030 the capacity and resources of developing countries, with a focus on those that are particularly vulnerable to the adverse effects of climate change, to avert, minimize, and address L&D, including at the local, national, regional, and international level, by:
High impact opportunities/solutions	<ul style="list-style-type: none"> • Strengthening international cooperation and support, including finance, capacity-building, and technology, for closing the gap in addressing loss and damage in a way that does not increase indebtedness or income loss of developing countries.
	<ul style="list-style-type: none"> • Increasing the capacity and resources of developing countries to make use of communication and reporting mechanisms under the Convention and the Paris Agreement to give visibility to their needs and priorities for addressing ongoing and projected loss and damage, as well as to report on ongoing and experienced loss and damage.
	<ul style="list-style-type: none"> • Integrating national adaptation planning processes with climate risk management and processes for assessing and addressing limits to adaptation and loss and damage needs.

Impact

- Climate change has already caused widespread adverse impacts and related losses and damages to nature and people,¹⁴⁰ and projected adverse impacts and related losses and damages escalate with every increment of global warming.¹⁴¹ Furthermore, the IPCC has clearly stated that adaptation does not prevent all losses and damages, even with effective adaptation and before reaching soft and hard limits.¹⁴² The risk for further L&D is thus very high taking into consideration that approximately 3.3 to 3.6 billion people live in contexts that are highly vulnerable to climate change.¹⁴³

¹⁴⁰ IPCC AR6 WGII SPM B.1.

¹⁴¹ IPCC AR6 WGII SPM B.2.

¹⁴² IPCC AR6 WGII SPM C.3.5.

¹⁴³ IPCC AR6 WGII SPM B.2.



Feasibility

- Increasing momentum has been created around the issue of addressing L&D, including dedicated L&D finance, especially since the review of the Warsaw International Mechanism (WIM) in 2019 and the COP/CMA in Glasgow in 2021. The IPCC AR6 WGII contribution in 2022 left no doubt that L&D is not only a future risk but already a lived reality for many people around the world. Technical assistance to developing countries for implementing approaches on L&D will be catalyzed through the Santiago Network, which should be fully operationalized during 2024 according to the roadmap agreed at COP27/CMA4 in Sharm el-Sheikh. Also, the Transitional Committee established in Sharm el-Sheikh for making recommendations to COP28 and CMA5 with a view to operationalizing the funding arrangements and the fund for responding to loss and damage that were also established by decisions 2/CP.27 and 2/CMA.4 has begun its work for delivering on its mandate before COP28 and CMA5. The same decisions 2/CP.27 and S/CMA.4 have also sent important signals to international financial institutions and other relevant entities to identify effective ways to contribute to funding for addressing L&D.

A selection of key existing initiatives

- Besides action and processes that have been triggered by COP and CMA decisions inside and outside the UNFCCC and the Paris Agreement, the UNSG initiative **“Early Warnings for All”** has potential to contribute with the generation of climate data and downscaled projections that could be useful for developing countries not only for preparing for early action in the face of an extreme weather event, but also to prepare for recovering, reconstructing and rehabilitating in a climate-resilient way ex-post an extreme weather event.
- Other initiatives are the G7’s **Global Shield against Climate Risks**,¹⁴⁴ launched on 14 November 2022 at COP27 and the **InsuResilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions**,¹⁴⁵ launched at COP23.
- Existing regional risk pooling initiatives are the **African Risk Capacity**,¹⁴⁶ the **Caribbean Catastrophe Risk Insurance Facility**,¹⁴⁷ and the **Pacific Catastrophe Risk Insurance Company (PCRIC)**.¹⁴⁸

Barriers

- One important barrier to significantly increasing the capacity and resources of developing countries to avert, minimize, and address L&D consists of the actual difficulty of distinguishing between “adaptation action and finance,” and “L&D action and finance.” Actions to “avert and minimize” L&D overlap with adaptation. There is also a tendency to associate the whole continuum of risk management with “averting, minimizing, and addressing” L&D. These terminological confusions should be clarified; and an agreement should be reached on what constitutes adaptation action and finance, as well as what constitutes L&D action and finance should be reached, hopefully in the context of the work of the Transitional Committee.

¹⁴⁴ <https://www.bmz.de/en/issues/climate-change-and-development/global-shield-against-climate-risks>.

¹⁴⁵ <https://www.insuresilience.org>.

¹⁴⁶ <https://www.arc.int>.

¹⁴⁷ <https://www.ccrif.org>.

¹⁴⁸ <https://pcric.org>



Strategic targeting/coverage potential

- According to the IPCC, across sectors and regions the most vulnerable people and systems are observed to be disproportionately affected by the adverse impacts of climate change and related losses and damages;¹⁴⁹ and global hotspots of high human vulnerability are found particularly in West, Central, and East Africa; South Asia; Central and South America; Small Island Developing States; and the Arctic.¹⁵⁰ Hence, the focus should be on the most vulnerable people of developing countries situated in these global hotspots of high human vulnerability.

Sustainable Development Goals

- L&D associated with the adverse effects of climate change has the potential to hinder the achievement of virtually **all the SDGs**. When addressing experienced L&D, it is paramount for countries and communities to have the capacity and resources to build back (or forward) better, building resilience during the recovery, reconstruction, and rehabilitation phase in areas such as infrastructure, health, food, water, livelihoods, ecosystems, and safety in general, contributing in that way to numerous SDGs.

Options for the outcome at COP28

Parties could:

- Invite developing country Parties to establish national inventories and registries of L&D due to climate change and to provide information on ongoing and experienced L&D in national communications and biennial transparency reports that distinguish between economic and non-economic losses and damages associated with the adverse effects of climate change and whether they relate to extreme weather events or slow onset events.
- Invite Parties to enhance international cooperation and support for enabling developing countries to effectively prepare in advance not only for taking early action to respond to extreme weather events, but also for fully recovering, rehabilitating, and reconstructing in a climate-resilient way after such events.
- Invite developing country Parties, as part of their national adaptation plan (NAP) processes, to identify ongoing and projected limits to adaptation and related needs and priorities based on appropriately downscaled climate projections and to include information thereon in their nationally determined contributions and adaptation communications.
- Accelerate the full operationalization of the fund for responding to L&D referred to in paragraph 3 of decisions 2/CP.27 and 2/CMA.4, so as to have it fully operationalized by COP29/CMA6.
- Increase capacity-building efforts for extending the reach of L&D databases in every sector and for including loss and damage into NDCs, as an effective way to raise the necessary attention to step up the necessary research and policy responses.

¹⁴⁹ IPCC AR6 WGII SPM B.1.

¹⁵⁰ IPCC AR6 WGII SPM B.2.4.