UNDERSTANDING FINANCING FOR LOSS & DAMAGE UNDER THE UNFCCC



Cathrine Wenger, Wenger Law¹

Loss and damage (L&D) generally refers to the economic and non-economic loss or damage associated with slow onset events and extreme weather events caused by climate change, although it is not formally defined under the United Nations Framework Convention on Climate Change (UNFCCC) or Paris Agreement. Vulnerable nations have consistently called for the provision of financial assistance and technical support to help them address L&D since the beginning of international climate negotiations.

This paper provides a brief background and key considerations for understanding finance for L&D under the UNFCCC and Paris Agreement, with a focus on addressing and responding to L&D. It raises the difficulty of defining L&D and types of loss, outlines recent efforts to address L&D finance by UNFCCC Parties, and identifies the financial institutions within the UNFCCC system relevant to the question of how to allocate finance for L&D. It acknowledges the significant gap between the finance needed and the finance available to address L&D and further identifies existing and potential tools and sources for supporting countries facing L&D. Finally, the paper lists other key considerations for Parties as they explore solutions and options.

KEY TAKEAWAYS:

- Sudden- and slow-onset events exacerbated by climate change cause L&D.
- Climate-vulnerable nations have been vocal about the provision of financial assistance and technical support needed to address L&D.
- The lack of a formal definition for L&D makes it difficult to draw a line between adaptation, resilience, and L&D; to quantify its impacts; to distinguish between financing to address adaptation and financing to address L&D; and for Parties to access L&D-specific finance.
- "Averting and minimizing" focuses largely on preventive and precautionary measures taken before climate impacts occur, such as adaptation and mitigation.
- "Addressing" L&D can be understood as the measures taken after the climate change event(s) occur.
- "Responding" to L&D focuses on both ongoing and ex post action.²
- Funding for L&D exists within and outside the UNFCCC, but there is a significant gap between country needs and the finance available to address L&D.
 - Common or more traditional financial solutions include national and international public and private grants and voluntary contributions.
 - Development and humanitarian sources of funding are also relevant sources of finance.
 - One or more of these tools—such as risk insurance facilities, climate risk pooling, contingency funds, and social protection schemes—could be used in tandem.
- The COP27 decision establishes new funding arrangements for L&D that include a fund for responding to—with a focus on addressing—L&D.
 - The agreement includes a political process to identify and expand sources of funding.
 - The funding arrangements and new fund could address gaps in finance for slow onset events and potentially non-economic losses for the first time.
- Parties have called for new, additional, adequate, and predictable sources of funding for addressing and responding to L&D. Efforts to identify and secure these sources will need to be balanced amongst several important considerations.

DEFINING LOSS & DAMAGE AND TYPES OF LOSS

Sudden- or slow-onset events can cause L&D. Examples of sudden-onset events or extreme weather events include forest fires, heat waves, floods, heavy rainfall, flooding, cyclones, typhoons, and hurricanes. Slow-onset events, on the other hand, include sea level rise, ocean acidification, glacial retreat, temperature rise, desertification, biodiversity loss, land degradation, and salinization.

Parties to the UNFCCC differentiate between averting, minimizing, and addressing L&D. "Averting and minimizing" focuses largely on preventive and precautionary measures taken before climate impacts occur, such as adaptation and mitigation. "Addressing" L&D can be understood as the measures taken after the climate change event(s) has happened (i.e., ex post action).³ "Responding" to L&D focuses on both ongoing and ex post action. However, action to address L&D will happen in the context of ongoing climate change.

Parties use these approaches—"averting," "minimizing," "addressing," and "responding"—because there is no formally agreed definition for L&D. Defining L&D is inherently challenging. It means accurately attributing human-induced climate change impacts to ongoing disaster impacts and socio-economic or political changes and measuring those impacts against what might "otherwise" have taken place without human intervention while also considering the complex and interrelated factors causing these adverse effects of climate change. Terminology like "averting," "minimizing," "addressing," and "responding" can provide some measure of clarity, but even these terms are not clear cut and do not draw a clear line between adaptation, resilience, and L&D.

Since it is difficult to draw a line between adaptation, resilience, and L&D, it is also difficult to identify the L&D caused by climate change events—and therefore difficult, if not impossible, to accurately quantify L&D costs. Economic losses caused by sudden- or slow-onset events can be quantifiable losses of property, assets, infrastructure, agricultural production or revenue, goods, and services. However, not all L&D is quantifiable, further complicating the picture.

Non-economic losses include impacts that are not easily quantifiable in economic terms, such as impacts to or loss of life, health, biodiversity, ecosystem services, indigenous knowledge, cultural heritage, and societal or cultural identity. Ultimately, the limitations of these approaches means that it becomes more challenging for countries to quantify losses and damages due to climate change events and to request L&D-specific support and finance.

EVOLUTION OF LOSS AND DAMAGE FINANCE UNDER THE UNFCCC AND PARIS AGREEMENT

From the start of international climate negotiations, vulnerable nations have called for the provision of financial assistance and technical support to help them address L&D. The term "loss and damage" first appeared in UNFCCC text at the thirteenth Conference of the Parties (COP13). The Bali Action Plan called for enhanced action on adaptation including disaster risk reduction and means to address L&D in developing countries.⁴

In 2010 at COP16, Parties established a three-year work program that began to develop technical work on L&D. This work led to the establishment of a formal mechanism for L&D at COP19 in 2013: the Warsaw International Mechanism (WIM) and its executive committee. The mechanism works to develop approaches to help vulnerable countries cope with unavoidable climate impacts, including extreme weather events and slowonset events.

In a victory for small island states and other highly climate-vulnerable countries, the Paris Agreement, adopted at COP21 in 2015, includes a free-standing provision extending the WIM, which, at the insistence of developed countries, makes it explicitly clear that "Article 8 of the Agreement does not involve or provide a basis for any liability or compensation."⁵

In 2016, the WIM Executive Committee invited the Forum of the Standing Committee on Finance (SCF), through its role facilitating information exchange on climate change finance, to take stock of financial instruments available to address the risk of L&D.⁶ The SCF outlined several instruments, including: risk transfer schemes and risk pooling (including insurance products and tools); catastrophe and resilience bonds; social protection schemes; and contingency finance. The review addressed their respective benefits, challenges, limitations, and gaps.

In 2018, the UNFCCC Secretariat organized the Suva Expert Dialogue on how to mobilize and enhance support for averting, minimizing, and addressing L&D.⁷ The Dialogue found limited evidence of sources of finance and financial instruments that explicitly address L&D. It also highlighted areas in need for further consideration, such as post-reconstruction, territory, human mobility, and cultural identity.⁸

The Santiago Network—established at COP25 in 2019 under the WIM and operationalized at COP26 in 2022—will catalyze technical assistance, knowledge, and resources that developing countries need to address L&D. The COP26 decision also launched the Glasgow Dialogue in response to a developing country call for the establishment of an L&D finance facility to support L&D action under the UNFCCC and the Paris Agreement. This dialogue intends to provide an open, inclusive, and non-prescriptive forum to discuss funding arrangements for activities to avert, minimize, and address L&D associated with the adverse impacts of climate change.⁹

However, Parties raised concerns that the Glasgow Dialogue lacked political oversight and did not have a mandated deliverable. As a result, Parties agreed to a new sub-agenda item on "matters relating to funding arrangements responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage" ahead of COP27 in 2023. The work under this item focused on the establishment of a L&D fund and the enhancement and coordination of existing funding arrangements for L&D.¹⁰ By the end of the conference and in a historic first, Parties agreed to adopt new funding arrangements for assisting developing countries that are particularly vulnerable to the adverse effects of climate change in responding to L&D, including establishing a fund.¹¹ Parties also agreed on institutional arrangements for the Santiago Network, establishing a secretariat, advisory board, and a network of member organizations, bodies, networks, and experts.

FINANCE AND LOSS AND DAMAGE UNDER THE UNFCCC AND PARIS AGREEMENT

Key financial institutions relevant to L&D within the UNFCCC system include:¹²

• The Global Environmental Facility (GEF) is a multilateral fund that serves as the financial mechanism for five conventions, including the UNFCCC and Paris Agreement. It is dedicated to addressing climate change, pollution, integrated cross-cutting programs, adaptation, biodiversity loss, and strains on land and ocean health for developing countries. It accomplishes this work through grants, policy support, and blended finance. It also manages two special funds established by UNFCCC Parties:

- The Special Climate Change Fund (SCCF) addresses the specific needs of developing countries.¹³ It was originally grant-focused but has evolved to include innovative financial instruments, such as concessional loans and equity. It can also provide weather risk insurance, and reinsurance products. The SCCF supports a broader continuum of measures, including climate information and early warning systems, ecosystem-based solutions, and climate resilience in key sectors.
- The Least Developed Countries Fund (LDCF) assists Least Developed Countries (LDCs) with grants to support adaptation action. Financial support for L&D includes funding projects for climate information services networks, the L&D elements of National Adaptation Plans, early-warning systems, as well as risk transfer, risk insurance and comprehensive risk management. Non-economic losses—such as human mobility and the loss of territory, social, and cultural identities—seem to fall outside the scope of its mandate.
- The Adaptation Fund—established under the Kyoto Protocol and serves the Paris Agreement—provides grants for both adaptation and L&D activities.
 L&D activities include preemptively strengthening resilience through risk assessments, risk prevention, climate monitoring, and early warning systems. Noneconomic losses, such as loss of biodiversity, loss of territory, or loss of societal and cultural identities, may fall outside of the Adaptation Fund's mandate.
- The Green Climate Fund (GCF) is an operating entity of the financial mechanism for the UNFCCC and Paris Agreement. It is a global platform that invests in low-emission and climate-resilient development projects and offers a range of instruments, including grants, loans, guarantees, equity, and results-based payments. In terms of L&D-related financing, it can provide grants, concessional loans, guarantees, and equity investments.¹⁴ A March 2023 UNFCCC Secretariat synthesis report identifies existing funding arrangements for addressing and responding to L&D within and outside of the UNFCCC.¹⁵

THE FINANCE GAP FOR LOSS AND DAMAGE

Funding for L&D exists both within and outside of the UNFCCC; however, there is a significant gap between the finance needed and the finance available to address L&D. As noted earlier, it is currently not possible to accurately estimate the cost of L&D given uncertainties in methodologies, processes, time horizons, and climate scenarios, as well as countries' socio-economic and political choices, which include adaptation policies and measures that influence the magnitude of L&D. These uncertainties not only make it difficult to close the gap, but they also widen that gap because action is delayed. Estimates of the L&D finance needed range between U.S. \$20-580 billion in 2030 to U.S. \$1.1-1.7 trillion in 2050.16 Current levels of L&D funding from within and outside of the UNFCCC fall far below these estimates. Parties generally agree that even these estimated needs are insufficient.

MEASURES AND TOOLS TO ADDRESS L&D

There are many ways that financing to "address" and "respond" to L&D can be secured within the current landscape of finance for L&D. Common or more traditional financial solutions include national and international public and private grants, as well as voluntary contributions. Development and humanitarian sources of funding are also relevant sources of finance. Other tools, such as risk insurance facilities, climate risk pooling, contingency funds, and social protection schemes, could also be used in tandem.

Various funds, processes, and initiatives under and outside of the UNFCCC and the Paris Agreement can utilize an array of tools to address L&D.¹⁷ Relevant or potential financial tools can be broken into four categories that represent measures "addressing" and "responding" to L&D:

• Recovery, rehabilitation, and reconstruction. Examples include restoring basic services and facilities; restoring the livelihoods, health and economic, social, cultural, environmental/ecosystem, and physical assets (such as infrastructure and housing); and re-establishing systems and activities of a community or society affected by disaster.

- Planned relocation/assisted migration. Examples include relocation or resettlement because of climate change; and support systems for forced migration and climate-induced displaced persons.
- Transformational development and alternative livelihoods. Examples include support for rebuilding and/or alternative livelihoods ex post climate change-related events/post migration/displacement; and assistance with diversification of income in already affected areas.
- Non-economic measures. Examples include active remembrance, societal protection, counseling, official apologies, enabling access and safe visits to abandoned sites, recognition and repair of loss, or other ways to reduce the impacts of climate change on affected individuals or communities.

Key considerations for ongoing work to improve these measures and tools include:

- the suitability of different measures and tools, including whether existing tools can be expanded to include slow-onset events and to "address" L&D
- the quality of funding provided, including reducing the debt burden for the most vulnerable countries and LDCs
- the availability of new and innovative sources of finance, such as taxes, levies, subsidies, and market mechanisms, including the voluntary carbon market, potential solidarity/equity units, and crowd-sourcing donations¹⁸
- those measures and tools that can be quickly and effectively utilized by existing L&D mechanisms, such as the Santiago Network or the WIM.

RELEVANT CONSIDERATIONS UNDER THE UNFCCC AND PARIS AGREEMENT

Parties agreed that Article 8 of the Paris Agreement on L&D would not provide a basis for liability or compensation.¹⁹ Beyond the Paris Agreement, Parties disagree on whether the provision of L&D financing is an obligation under international law more generally, or whether it is based on notions of solidarity, cooperation, and voluntary support.

At COP27, Parties seemed to avoid the question of duty and instead moved forward on enhancing financial

support for L&D. The COP27 decision on L&D establishes new funding arrangements for L&D that includes a fund for responding to—with a focus on addressing— L&D for assisting developing countries that are particularly vulnerable to the adverse effects of climate change.

The agreement includes a political process to identify and expand sources of funding through a Transitional Committee. The second Glasgow Dialogue which took place in June 2023 focused on the operationalization of the new funding arrangements including the new fund. These discussions centered around maximizing support from existing funding arrangements, such as responding to economic and non-economic losses, slow-onset events, and extreme weather events. The discussions that took place during the second Glasgow Dialogue have informed the work of the Transitional Committee.

The funding arrangements and fund could address gaps in finance for slow-onset events and potentially noneconomic losses for the first time.²⁰ These arrangements represent a hard-fought compromise between developed and developing countries, but important questions remain regarding how the L&D funding arrangements and fund will be resourced and operationalized.

OTHER KEY CONSIDERATIONS

There is a growing recognition that financial projects and policies can undermine human rights and the environment where environmental, social, and governance considerations and safeguards are not taken into account. Therefore, Parties should also consider the implications of important human rights, equity, and recent legal developments in the establishment and operationalization of the fund and funding arrangements for responding to and addressing L&D.

HUMAN RIGHTS

The UN Human Rights Office of the High Commissioner (OHCHR) is the principal human rights forum of the UN and advises the UN Secretary-General. With respect to climate change, the OHCHR has set out key messages on human rights and climate change that outline key human rights obligations, such as ensuring accountability and effective remedy for human rights harms caused by climate change.²¹

EQUITY

Equity is a core principle of the UNFCCC, including in the principle of "common but differentiated responsibilities and respective capabilities."²² Equity in climate finance would demand that the international community—but particularly countries with greater historic responsibility for climate change and greater capacity—provide climate finance to those countries with less responsibility and less capability. In relation to finance for L&D, Parties should consider:

- how to ensure access and fair distribution for L&D finance
- how to define "countries that are particularly vulnerable," as set out in the COP27 decision
- how to ensure the quality of funding for L&D, and how to reduce the risk of unsustainable debt
- how to apply the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances
- how and whether the key principles, such as polluter pays, historic responsibility principles, and intra- and inter-generational equity, affect finance for L&D
- whether to distribute funds to address L&D to developing countries that: (i) are major emitters of carbon emissions, (ii) have unambitious/inadequate nationally determined contributions (NDCs), and/ or (iii) have not planned and implemented adequate adaptation measures, including measures to avert, minimize, and address L&D
- how to understand adaptation and L&D actions in NDCs that are contingent on international support within the broader landscape of social protection and human rights obligations
- what is the potential to establish perverse incentives that can lead to reduced levels of adaptation efforts.

LEGAL AND OTHER OBLIGATIONS

Two recent developments have the potential to influence discussions on finance for L&D.

The UN Human Rights Committee (HRC) is a treaty body established by the International Covenant on Civil and Political Rights (ICCPR). The ICCPR commits nations to respect the civil and political rights of individuals, including rights to life, freedom of religion, freedom of speech, freedom of assembly, electoral rights, and due process and a fair trial. In a 2022 decision, the HRC found that Australia's failure to implement adequate adaptation measures, which would have protected the indigenous peoples in the small islands in Torres Strait, was in breach of articles 17 and 27 of the ICCPR.²³

In September 2021, Vanuatu announced at the UN General Assembly (UNGA) its intent to build a coalition of states to request an advisory opinion on climate change from the International Court of Justice (ICJ).²⁴ The advisory opinions of the ICJ are not legally binding but carry legal authority and moral weight. In November 2022, Vanuatu and other countries published a draft resolution seeking clarification of the legal consequences where governments, by their acts or omissions, have caused significant climate or environmental harm to countries vulnerable to climate change as well as to present and future generations.²⁵ In March 2023, UNGA unanimously requested the ICJ to issue an advisory opinion on the legal obligations regarding climate change.

CONCLUSION

The decision to establish and operationalize funding arrangements, including a fund, for responding to and addressing L&D for those countries that are particularly vulnerable to the adverse effects of climate change presents an important moment for the international community to assess the current limitations and gaps in finance for L&D. Existing UNFCCC financial mechanisms incorporate some aspects of finance for "addressing" and "responding" to L&D. However, these and other tools and measures are primarily structured toward "minimizing" and "averting" L&D. As such, Parties will need to consider how and whether they can be adjusted and molded to better address the L&D needs of countries. Parties have called for new, additional, adequate, and predictable sources of funding for "addressing" and "responding" to L&D; efforts to identify and secure these sources will also need to be balanced amongst several other important considerations.

ENDNOTES

1 This paper also benefitted from the contribution of Chelsea Johnson, Center for Climate and Energy Solutions.

2 Action taken after the event occurs.

3 In other words, damages can be reduced by adaptation and mitigation measures, but not eliminated, resulting in residual damages, or "residual loss and damage (L&D)."

4 UN Framework Convention on Climate Change [hereinafter UNFCCC], *Bali Action Plan*, Decision 1/CP.13, (March 13, 2008), *https://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf*.

5 UNFCCC, Adoption of the Paris Agreement, Decision 1/CP.21, ¶ 51, (January 29, 2016), https://unfccc.int/sites/default/ files/resource/docs/2015/cop21/eng/10a01.pdf.

6 "2016 Forum of the Standing Committee on Finance," UNFCCC, accessed September 21, 2023, https://unfccc.int/ event/2016-forum-of-the-standing-committee-on-finance.

7 UNFCCC, The Report of the Suva Expert Dialogue: Loss and Damage associated with Climate Change Impacts, (August 2018), https://unfccc.int/sites/default/files/resource/010818%20REPORT%200F%20THE%20SUVA%20EXPERT%20DIALOGUE. pdf.

8 The dialogue informed the technical paper written by the Secretariat in 2019 on the sources of and modalities for accessing financial support for addressing L&D. For more information see: UNFCCC, Elaboration of the sources of and modalities for accessing financial support for addressing loss and damage, ¶ 164 (June 14, 2019), *https://unfccc.int/sites/ default/files/resource/01_0.pdf*.

9 UNFCCC, Draft CMA decision proposed by the President, Decision 1/CMA.3, ¶ 73 (December 11, 2021), https://unfccc. int/sites/default/files/resource/Overarching_decision_1-CMA-3_0.pdf.

10 For example, the informal consultations with Group Chairs and Heads of Delegation in July and September 2022, as well as the ministerial consultations. For more information, see: UNFCCC, *The Road to Sharm el-Sheikh: Informal consultations by the COP 26 Presidency and the COP 27 incoming Presidency* (October 2023), *https://unfccc.int/process-and-meetings/conferences/the-road-to-sharm-el-sheikh-informal-consultations-by-the-cop-26-presidency-and-the-cop-27-incoming#July-14---Loss-and-Damage---Multilateral-consultations-with-Group-Chairs-and-HODs-.*

11 UNFCCC, Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage, Decision 2/CMA.4 (March 17, 2023), https://unfccc.int/sites/default/files/resource/cma2022_10a01_adv.pdf.

12 UNFCCC, Initial Synthesis Report on the Existing Funding Arrangements and Innovative Sources Relevant To Addressing Loss And Damage Associated With The Adverse Effects of Climate Change (March 2023), https://unfccc.int/sites/default/files/resource/ Initial_SR_25%20March%2025%201500hrs.pdf.

13 UNFCCC Secretariat, Elaboration of the sources of and modalities for accessing financial support for addressing loss and damage, ¶ 164 (June 14, 2019), https://unfccc.int/sites/default/files/resource/01_0.pdf.

14 For example, financed projects for risk assessment, risk prevention or reduction, and implementation of earlywarning systems to reduce loss of life. Other examples include ecosystem-based adaptation and risk reduction through flood mapping and early-warning systems, and weather index-based insurance programs. At COP25, Parties invited the Green Climate Fund (GCF) to continue to provide financial resources for L&D activities, consistent with its existing investments, results framework, and funding windows and structures, taking into account the five-year workplan of the Executive Committee (ExCom). Access channels include the Project Preparation Facility and the Readiness and Preparatory Support Programme. Parties also directed the GCF and the ExCom to take steps to clarify access to funding for L&D through the GCF.

UNDERSTANDING FINANCE FOR LOSS & DAMAGE UNDER THE UNFCCC

15 They identified that there are currently a wide range of bilateral and multilateral funding programmes, national funding programmes, insurance schemes, financial facilities, financial instruments, dedicated taxes and levies, and the private sector.

UNFCCC, Initial Synthesis Report on the Existing Funding Arrangements and Innovative Sources Relevant to Addressing Loss And Damage Associated With The Adverse Effects of Climate Change (March 2023), https://unfccc.int/sites/default/files/resource/Initial_ SR_25%20March%2025%201500hrs.pdf.

16 Anil Markandya and Mikel González-Eguino, 'Integrated Assessment for Identifying Climate Finance Needs for Loss and Damage: A Critical Review' in R. Mechler et al. (eds) *Loss and Damage from Climate Change* (Springer, Cham, November 2018), *https://doi.org/10.1007/978-3-319-72026-5_14*.

17 Cathrine Wenger, Institutional Ecosystem for L&D, (Arlington, VA: Center for Climate and Energy Solutions [hereafter C2ES], October 2022), https://www.c2es.org/document/the-institutional-ecosystem-for-loss-and-damage/.

18 UN Climate Change High-Level Champions, Actions After Impacts – what actions are non-state actors taking to address climate losses and damages? How can these be accelerated? 28, table 3 (November 2022), https://climatechampions.unfccc.int/ actions-after-impacts-addressing-climate-losses-and-damages/.

19 UNFCCC, Adoption of the Paris Agreement, Decision 1/CP.21, ¶51 (January 29, 2016), https://unfccc.int/sites/default/ files/resource/docs/2015/cop21/eng/10a01.pdf.

20 Prior to the COP27 decision, Parties had already agreed that the workstreams of the ExCom on L&D will be supported by financial means through the GCF. In addition, Parties had also agreed that technical assistance for L&D will be funded through the Santiago Network.

21 United Nations Human Rights Office of the High Commissioner, Key Messages on Human Rights and Climate Change (July 26, 2016), https://www.ohchr.org/en/documents/tools-and-resources/key-messages-human-rights-and-climate-change

22 "The Explainer: The Paris Agreement," UNFCCC, February 26, 2021, https://unfccc.int/blog/ the-explainer-the-paris-agreement.

23 Daniel Billy et al. v. Australia, *Views adopted by the Committee under article 5 (4) of the Optional Protocol*, CCPR/C/135/D/3624/2019, **¶¶** 8.12 and 8.14 (also referred to as the 'Torres Strait Islanders decision'), (September 22, 2022), *https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CCPR%2fC%2f135%2fD%2f3624%2f2019&La ng=en.*

24 Daniel Bodansky, An ICJ Advisory Opinion on Climate Change: Ten Questions and Answers (Arlington, VA: C2ES, October 2022), https://www.c2es.org/document/an-icj-advisory-opinion-on-climate-change-ten-questions-and-answers/.

25 UN General Assembly, Request for an advisory opinion of the International Court of Justice on the obligations of States in respect of climate change, U.N. A/77/L.58 (March 29, 2023), https://documents-dds-ny.un.org/doc/UNDOC/LTD/N23/063/82/PDF/ N2306382.pdf?OpenElement.



The Center for Climate and Energy Solutions (C2ES) is an independent, nonpartisan, nonprofit organization working to secure a safe and stable climate by accelerating the global transition to net-zero greenhouse gas emissions and a thriving, just, and resilient economy.

3100 CLARENDON BLVD SUITE 800 ARLINGTON, VA 22201 703-516-4146

C2ES.ORG