

## Review

# A systematic review of guiding legal and policy framework on climate-induced loss and damage

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## Abstract

Prior to the establishment of the Warsaw International Mechanism in 2013, climate-induced loss and damage (CILD) was not a significant aspect of global climate change conversations. This was followed by tangible financial concessions during COP27, signalling further global commitments. This research examines the legal perspectives of CILD, contextualising the CILD regime in the light of legal principles around climate change, liabilities, compensation and other relevant principles. The overarching research objective is to assess guiding legal and policy frameworks on CILD and identify areas for improvement in policy development and decision-making at the national level. Through the application of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol version 2020, a systematic review of literature on legislation and other ethical and normative frameworks relating to CILD, human rights, and climate change action is performed. Both the Scopus and Web of Science databases are used to retrieve data. The key findings are that the legal regime for CILD is an emerging area at the national and sub-national levels. Additionally, CILD policies at various levels do not adequately incorporate structures for liability, compensation, and human rights considerations, as well as the necessity for collaboration across governance levels. Based on the findings, individual governments must determine suitable liability and compensation regimes that address CILD within their countries.

**Keywords** SDG13 · Climate action · Loss and damage · Liability · UNFCCC · Compensation

## Abbreviations

|        |  |
|--------|--|
| COP    | Conference of Parties  |
| L&D    | Loss and Damage (referring to the third element of climate action after Mitigation and Adaptation) |
| CILD   | Climate-induced loss and damage  |
| WIM    | The Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts      |
| PRISMA | The Preferred Reporting Items for Systematic Reviews and Meta-Analyses                             |
| UNFCCC | United Nations Framework Convention on Climate Change  |
| PA     | Paris Agreement  |
| WoS    | Web of Science   |

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## 1 Introduction

Climate action across levels of governance is beginning to transcend adaptation and mitigation and now comprises issues around loss and damage. While climate-induced loss and damage (CILD) was not explicitly covered in the United Nations Framework Convention on Climate Change (UNFCCC), Article 1(1) of the Convention acknowledges that changes in the climate would result in deleterious effects (UNFCCC, 1992) on natural and human systems, including socio-economic systems across various societies (UNFCCC, 1992; IPCC, [24]).

After years of negotiations [32, 33], movement towards the inclusion of CILD in the Convention began at COPs 16, 17 and 18 with a recognition of losses and damages as a result of “extreme weather and slow onset events” (Decision 1/CP.16, paragraph 25). There was also an agreement that the Convention would promote actions to address CILD (Decision 3/CP.18, paragraph 5). These negotiations culminated in the decision at COP 19, resulting in the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) (Decision 2/CP.19). The WIM outlines strategies to be adopted in addressing CILD, including facilitating action around financing, capacity building, expertise sharing and support in addressing CILD (UNFCCC/Decision 2/CP.19, para. 5). The WIM represented a significant advancement from the previous lack of acknowledgement regarding loss and damage in the context of climate action [15, 32]. While it underscored the aspirations to reduce loss and damage, the WIM fell short of establishing a robust framework for loss and damage comparable to the frameworks for mitigation and adaptation under the UNFCCC [49, 53].

The Paris Agreement, a legally binding document, further validates the WIM [53]. Significantly, Article 8 of the Paris Agreement (UNFCCC, 2015) emphasises the need to address CILD and the role of sustainable development in reducing such losses and damages [41, 58]. Article 8 of the Paris Agreement also highlights critical areas of State action and cooperation in establishing a robust regime on CILD. These include early warning systems and disaster preparedness, risk assessment and management, insurance solutions, recognition of non-economic losses and resilience of human and natural systems [10, 63].

The formal inclusion of CILD in the climate change discourse is a recognition that adaptation and mitigation are no longer sufficient to address issues around climate change. Both human and natural systems have been on the receiving end of the impacts of climate change, leading to various forms of economic and non-economic losses and damages. In this regard, CILD has been situated within the context beyond the limits of adaptation [33] and in the context of losses and damages that are avoidable, unavoided and unavoidable [33]. While the UNFCCC situates loss and damage within the context of developing countries with particular vulnerabilities, the (Intergovernmental Panel on Climate Change (IPCC) defines it as all harm occurring as a result of observed climate change impacts and projected risks (Intergovernmental Panel On Climate Change (IPCC), [24]).

The discourse surrounding CILD reflects a dual approach—the formal framework established by the WIM, which intersects with the broader implications of loss and damage as it pertains to both economic and non-economic impacts of climate change (IPCC, 2022). Following this premise, the concept of ‘Loss and Damage’ in climate action can be interpreted in two primary contexts (IPCC, [24]). First, Loss and Damage (L&D) are used in the context of political negotiations and discourse within the United Nations Framework Convention on Climate Change (UNFCCC) to refer to all negotiations on a framework addressing CILD (IPCC, 2022). Conversely, in a broader context, “loss and damage” refers to the harm incurred, encompassing both economic and non-economic losses that arise due to the adverse effects of climate change [12]. Loss and damage in the broader context are further categorised as economic and non-economic [12].

Although Article 8 of the Paris Agreement reinforces the position of the WIM, it does not input any obligation or liability on State members to take action to address CILD [1, 33, 64]. Significant issues remain unresolved under the UNFCCC framework, such as financing, liability and compensation, which are fundamental for a viable legal framework [16, 17, 55]. There is also an increasing trend of climate change liability litigation linked to CILD in line with various principles of international law [15, 54]. These principles include the “polluter pays principle”, the duty to take care under the international principle of “common but differentiated responsibilities”, and the identification of victims for compensatory action and remediation [15, 54]. Further, while the legal framework for CILD is taking shape internationally, there remains limited engagement for country scenarios.

In terms of financing, the only funding available to address climate-induced non-economic loss and damage is the Fund for Responding to Loss and Damage (FRLD) [27, 45]. For the loss and damage framework to be well-encompassing, issues around assessment, beneficiaries, allocation prioritisation, caps to financing, how to gain access and so on still have to be addressed [24, 35, 64].

Based on the foregoing arguments, the main question that this research seeks to answer is as follows: What are the legal and normative frameworks of CILD, and how has literature conceptualised them from a legal perspective?

In order to satisfactorily answer this question, the research (1) outlines and discusses the international legal framework on CILD to tease the underlying normative framework; (2) assesses research and intellectual discourse around CILD at the international level; and (3) highlights lessons that can be learnt from the global framework to enhance CILD governance across levels.

## 2 Method

Adopting a PRISMA approach,<sup>1</sup> the research examines the legal regime of CILD within the trans and/or international context [43], in order to ascertain its (in) adequacy and/or identify areas for improvement. While several authors have written on climate-induced loss and damage and adopted various research methods [5, 6, 33], this study provides a systematic review of all the work done within the legal niche with the aim of identifying gaps and areas for further research.

A systematic review of the legal regime of CILD gives a clear overview and assessment of research in that area so far [47]. The systematic review is adopted as it allows for the study of trends, direction and synergies in legal research in CILD [26]. It also identifies the focus areas and how these tie into ongoing discourse and negotiations on CILD across levels of governance. The literature analysed and subjected to the PRISMA approach is obtained from Scopus and Web of Science databases. Several stages need to be fulfilled when one uses PRISMA, and these will now be considered in turn in the following sub-sections.

### 2.1 Search query

To obtain the relevant literature, the search query applied to both the Scopus and Web of Science databases was developed with searches done on the 4th of October 2024. The entry search query used on both databases is as follows: (climate AND change AND loss AND damage). This was refined as appropriate for both databases (Boxes 1 and 2). The WoS query and exclusion criteria are available and can be viewed following this link <https://www.webofscience.com/wos/woscc/summary/c86c0e53-9a23-487c-a59b-2c5215b6cb74-010eadd44f/relevance/1>.

#### Box 1: SCOPUS search and exclusion prompt

TITLE ( climate AND change AND loss AND damage) AND ( EXCLUDE ( DOCTYPE,"ch" ) OR EXCLUDE ( DOCTYPE,"re" ) OR EXCLUDE ( DOCTYPE,"ed" ) OR EXCLUDE ( DOCTYPE,"er" ) OR EXCLUDE ( DOCTYPE,"no" ) OR EXCLUDE ( DOCTYPE,"bk" ) OR EXCLUDE ( DOCTYPE,"dp" ) OR EXCLUDE ( DOCTYPE,"cp" ) ) AND ( LIMIT-TO ( LANGUAGE,"English" ) ) = 66 documents.

#### Box 2: WoS search and exclusion prompt

Search Query for WoS: ( climate AND change AND loss AND damage ) (Title) and Data Paper or Book Review or Book or News Item or Early Access or

<sup>1</sup> PRISMA refers to the Preferred Reporting Items for Systematic reviews and Meta-Analyses which allows for the systematic reporting of literature reviews to allow for transparency and replicability of the review and reporting process [52].

## 2.2 Selection criteria

The selection criteria were based on the PRISMA checklist [42]. In line with the Protocol, the focus is on mapping [44] and synthesising [42] the body of knowledge and relevant literature within the legal field relating to CILD. Considering that the research is limited to legal perspectives within the broader CILD research, the selection criteria were limited to the subject area of law and government law. After carefully reviewing the retrieved articles and emerging thematic focus areas, 2010 was selected as the baseline. The search on the databases was not limited to any country, it spans research into international and national perspectives on the subject matter. WoS and Scopus returned 53 and 66 documents, respectively.

## 2.3 Eligibility assessment

The Covidence online software<sup>2</sup> was employed for the eligibility and quality assessment. A total of 119 documents were imported into Covidence for the eligibility assessment, which was carried out by both authors. With the aid of the Covidence software, the screening and assessment were carried out in two stages: (1) abstract screening and (2) full-text screening. As seen in Fig. 1, 28 documents were excluded after the abstract screening. The full-text screening was carried out with the purpose of extracting papers focused on legal perspectives of CILD, international frameworks on climate loss and damage, policies, politics and governance around CILD, and other relevant issues. The full-text screening process resulted in the exclusion of 8 documents deemed irrelevant to this review's focus. The reasons for exclusion are as follows: **4**=No full text, **2**=Outside study scope, **1**=Not published, **1**=Only Editorial. The divergence in assessment was resolved by a joint review of 16 documents. Cao et al. [13], He et al. [20] and Ma et al. [29] were not accessible as they are not open access and were not subscribed to by the University library, while Bruckner [8] was not traceable anywhere.

## 3 Findings

The PRISMA flow chart in Fig. 1 summarises the initial stages of the systematic review conducted in this study.

### 3.1 Trends in publication

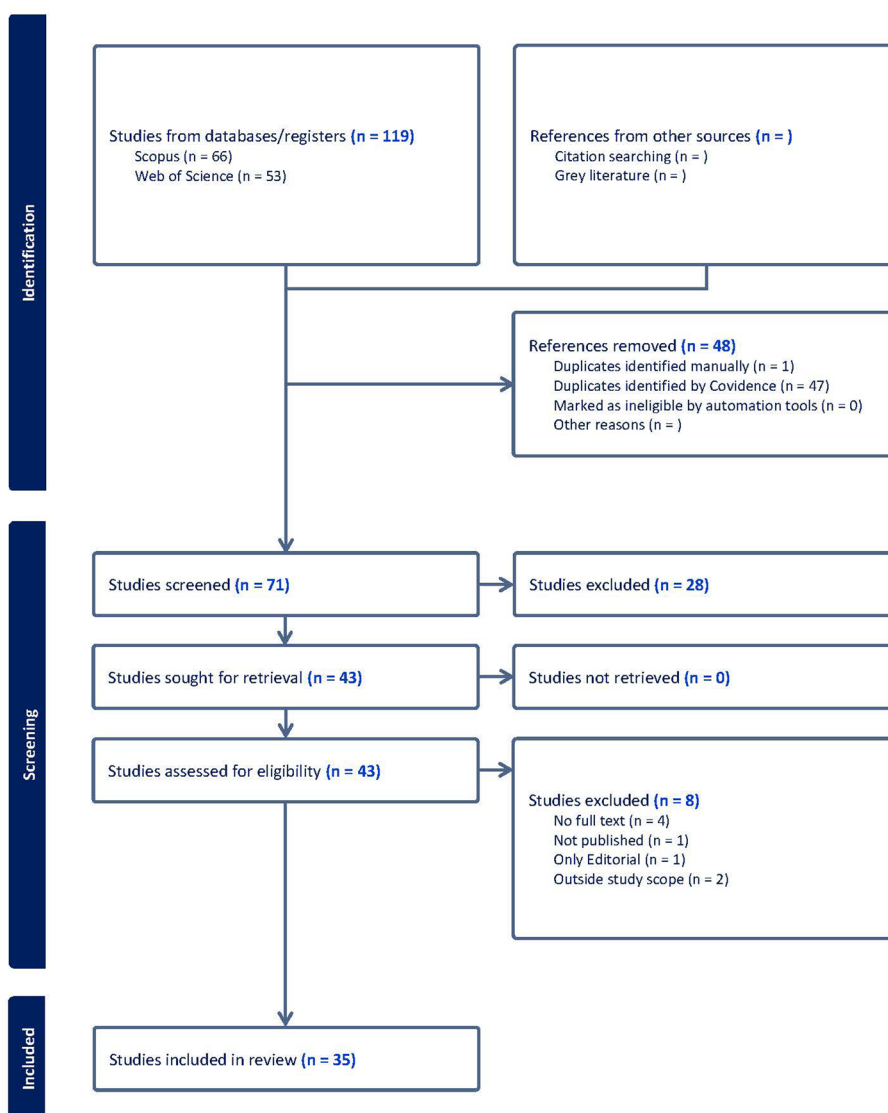
After the screening and assessment processes, a total of 35 papers were identified as relevant, forming the dataset for the systematic literature review. An in-depth content analysis was conducted with the assistance of the qualitative research software ATLAS.ti.<sup>3</sup> In summary, the final selection of 35 papers included the following commonalities: all documents were written in English; the research focused on the legal perspectives of CILD; the documents were peer-reviewed journal publications pertinent to the topic; and all were published between 2010 and 2024. Annex 1 to this article is detailed information on all documents included in this study, including abstracts, methodology and sources.

Table 1 presents an overview of the articles, authors, and journals included in this review. It also highlights the most cited articles, their publication years, and key thematic areas prominent in the literature examined. The focal themes identified in the documents revolve around several critical concepts, with the most significant being climate actions by countries or states, climate justice, extreme weather events, impacts of climate change, the Conference of Parties, UNFCCC, governance levels, mitigation and adaptation strategies, climate change/loss and damage funds, the liability of state and non-state actors, as well as disaster and risks related to climate change.

Figure 2 shows that the highest number of publications relating to legal perspectives of CILD was carried out in the year 2020=25.7% and 2023=22.86%, respectively. It is significant that peaks in the legal discourse under review coincide with significant landmarks in the UNFCCC Loss and Damage negotiations. These include the establishment of the

<sup>2</sup> Covidence is an online software that enhances the review of literature by aiding the process of title, abstract and full paper review. It facilitates the review process by an interface which allows multiple researchers to screen documents concurrently. See <https://www.covidence.org/>.

<sup>3</sup> ATLAS.ti is a software used for qualitative data analysis. In this research, it is adopted to highlight themes and concepts across the literature review.

**Fig. 1** PRISMA Flow Chat**Legal Perspectives on CCL&D**

14th November 2024

covidence

Santiago network and review of the WIM (2019), the establishment and operationalisation of the Loss and Damage Funds (2022–2023) (UNFCCC, Loss and Damage chronology).

The articles in this review focus on various subject areas within the legal discipline and adopt both doctrinal and empirical research methodologies. As is characteristic of legal research [14, 31], the literature reviewed in this study entails a normative analysis of key concepts and themes relating to CILD. As seen in Fig. 3, the specific research methods identified include country case study analysis = 3, conceptual and thematic analysis = 23, conceptual and empirical study = 4, historical overview and conceptual analysis = 4 and decided case analysis = 1. It is important to note that the research methodology was deduced from an in-depth analysis of the documents. Unlike researchers in the sciences and social sciences, most legal researchers and scholars do not characteristically focus on discussing research methods [25, 57].

**Table 1** Literature included in the review

| Article  | Themes   | Cited by |
|--|--|----------|
| 1 Vanhala, L., & Hestbaek, C. (2016). Framing climate change loss and damage in UNFCCC negotiations. <i>Global Environmental Politics</i> , 16(4), 111–129   | Negotiations; Insurance; Policy Development in L&D at National levels; Financing L&D; International Instruments on L&D; Compensation; Remediation or Restoration commensurate to L&D; Liability for L&D; Private and Non-State; Actors' Contribution to L&D; Developed Countries' view; Liability for States; Developing Countries' Views  | 97       |
| 2 Page, E. A., & Heyward, C. (2017). Compensating for climate change loss and damage. <i>Political Studies</i> , 65(2), 356–372  | Assessment of L&D; Compensation; Ethics Considerations; Liability for L&D; International Instruments on L&D; WIM on L&D; Developed Countries' view; Developing Countries Views; Negotiations; Conceptual clarification of L&D; Meaning of L&D; Identification of Victims of L&D; Causation and Attribution; Remediation or Restoration commensurate to L&D   | 45       |
| 3 Calliari, E., Serdeczny, O., & Vanhala, L. (2020). Making sense of the politics in the climate change loss & damage debate. <i>Global Environmental Change</i> , 64, 102133  | Negotiations; Conceptual clarification of L&D; Developing Countries Views; Developed Countries' view; Meaning of L&D; International Instruments on L&D; Compensation; Financing L&D; Liability for L&D; Island States; Arguments against the Compensation regime; Policy Development in L&D  | 44       |
| 4 Huggel, C., Stone, D., Eicken, H., & Hansen, G. (2015). Potential and limitations of the attribution of climate change impacts for informing loss and damage discussions and policies. <i>Climatic Change</i> , 133, 453–467       | Categorisation of L&D; Conceptual clarification of L&D; Governance of L&D; Negotiations; Financing L&D; Causation and Attribution; Actionable wrongs; Liability for L&D; Claimants for L&D; Compensation; Litigation and Judiciary's Role in L&D; Assessment of L&D; Identification of Victims of L&D; Meaning of L&D  | 37       |
| 5 Wyns, A. (2023). COP27 establishes loss and damage fund to respond to human cost of climate change. <i>The Lancet Planetary Health</i> , 7(1), e21–e22   | Developing Countries Views; Island States; Negotiations; Financing L&D; Liabilities for Corporations; Liability for Contributors   | 33       |
| 6 Weverinke-Singh, M., & Sallii, D. H. (2020). Between negotiations and litigation: Vanuatu's perspective on loss and damage from climate change. <i>Climate Policy</i> , 20(6), 681–692   | Island States; Liability for L&D; Litigation and Judiciary Role in L&D; Challenges of Legal Action for L&D; Liability of Contributors; Local Contribution to L&D Regime; State action for L&D; Compensation; Developed Countries' view; Developing Countries Views; Financing L&D; Insurance; International Instruments on L&D; Negotiations; Conceptual clarification of L&D; WIM on L&D; Liabilities for Corporations; Causation and Attribution | 33       |
| 7 Calliari, E. (2018). Loss and damage: a critical discourse analysis of Parties' positions in climate change negotiations. <i>Journal of Risk Research</i> , 21(6), 725–747   | Developed Countries' view; Negotiations; Developing Countries Views; Ethics Considerations; Compensation; WIM on L&D; Other Legal Instruments to L&D; Liability for States; Governance of L&D;   | 32       |
| 8 Doelle, M., & Seck, S. (2021). Loss & damage from climate change: from concept to remedy? In <i>The Third Pillar of International Climate Change Policy</i> (pp. 59–70). Routledge   | Assessment of L&D; Causation and Attribution; Meaning of L&D; Conceptual clarification of L&D; Claimants for L&D; Challenges of Legal Action for L&D; Identification of Victims of L&D; Compensation; Litigation and Judiciary Role in L&D; Insurance; Liability for L&D; Liability for Contributors; Financing L&D; Liabilities for Corporations; Actionable wrongs; Liability for States   | 31       |
| 9 Lyster, R. (2015). A fossil fuel-funded climate disaster response fund under the Warsaw international mechanism for loss and damage associated with climate change impacts. <i>Transnational Environmental Law</i> , 4(1), 125–151 | Claimants for L&D; Compensation; Financing L&D; Liability for L&D; Liability for Contributors; Liabilities for Corporations; Causation and Attribution; Challenges of Legal Action for L&D; Litigation and Judiciary Rol in L&D; Insurance; Governance of L&D; State action for L&D  | 24       |
| 10 Dehm, J. (2020). Climate change, slow violence and the indefinite deferral of responsibility for loss and damage. <i>Griffith Law Review</i> , 29(2), 220–252   | Ethical Considerations; Human Rights in L&D; Liability for L&D; WIM on L&D; Negotiations; International Instruments on L&D; Insurance  | 20       |



**Table 1** (continued)

| Article  | Themes   | Cited by |
|--|--|----------|
| 11 Toussaint, P., & Martinez Blanco, A. (2020). A human rights-based approach to loss and damage under the climate change regime. <i>Climate policy</i> , 20(6), 743–757   | Conceptual clarification of L&D; Ethical Considerations; Human Rights in L&D; Meaning of L&D; International Instruments on L&D; Developing Countries Views; Developed Countries' view; Negotiations; Island States; Challenges of Legal Action for L&D; Policy Development in L&D; Public participation in L&D; Multilevel action on L&D                                   | 19       |
| 12 Verheyen, R. (2015). Loss and damage due to climate change: attribution and causation-where climate science and law meet. <i>International Journal of Global Warming</i> , 8(2), 158–169  | Causation and Attribution; Challenges of Legal Action for L&D; Actionable wrongs; Claimants for L&D; Liability for L&D; Litigation and Judiciary Role in L&D; WIM on L&D   | 18       |
| 13 Naylor, A. W., & Ford, J. (2023). Vulnerability and loss and damage following the COP27 of the UN Framework Convention on Climate Change. <i>Regional Environmental Change</i> , 23(1), 38  | Conceptual clarification of L&D; Financing L&D; Assessment of L&D; Causation and Attribution; Compensation; Developed Countries' view; Identification of Victims of L&D; International Instruments on L&D; Liability for L&D; Liability for States   | 18       |
| 14 McNamara, K. E. (2014). Exploring loss and damage at the international climate change talks. <i>International Journal of Disaster Risk Science</i> , 5, 242–246   | Negotiations; Developing Countries Views; Developed Countries' view; Compensation  | 17       |
| 15 Nand, M. M., & Bardsley, D. K. (2020). Climate change loss and damage policy implications for Pacific Island Countries. <i>Local Environment</i> , 25(9), 725–740   | Island States; Liability for L&D; Trade-offs in Negotiations; Policy Development in L&D; Remediation   | 13       |
| 16 Ohdedar, B. (2016). Loss and damage from the impacts of climate change: A framework for implementation. <i>Nordic Journal of International Law</i> , 85(1), 1–36  | International Instruments on L&D; Negotiations; Island States; Conceptual clarification of L&D; Financing L&D; Liability for L&D; Developed Countries' view; Developing Countries Views; Causation and Attribution; Challenges of Attribution & L&D; Compensation; Remediation and Restoration commensurate to L&D; Insurance; Liability for States; Ethics Considerations | 11       |
| 17 Johnson, C. A. (2017). Holding polluting countries to account for climate change: Is "loss and damage" up to the task?. <i>Review of Policy Research</i> , 34(1), 50–67   | Ethics Considerations; Conceptual clarification of L&D; Actionable wrongs; Claimants for L&D; Liability for L&D; Other Legal Instruments to L&D; Challenges of Legal Action for L&D; Financing L&D; Liability for States; Negotiations; Compensation   | 10       |
| 18 Adger, W. N. (2023). Loss and Damage from climate change: legacies from Glasgow and Sharm el-Sheikh. <i>Scottish Geographical Journal</i> , 139(1–2), 142–149   | Negotiation; Ethics Considerations; Liability for L&D; Liability for States; Multilevel action on L&D; National knowledge of L&D; Financing L&D; IDP, Human Mobility and L&D; Meaning of L&D; Focus of L&D in States; Compensation; State action for L&D; Private and Non-State Actors' Contribution to L&D; Assessment of L&D; Conceptual clarification of L&D            | 8        |
| 19 Calliari, E., & Vanhala, L. (2022). The 'national turn' in climate change loss and damage governance research: Constructing the L&D policy landscape in Tuvalu. <i>Climate Policy</i> , 22(2), 184–197  | Liability for Contributors; International Instruments on L&D   | 7        |
| 20 Vanhala, L. (2023). Putting the constructive ambiguity of climate change loss and damage into practice: The early work of the UNFCCC WIM ExCom. <i>Review of European, Comparative &amp; International Environmental Law</i> , 32(3), 428–438 | Negotiations; Conceptual clarification of L&D; Meaning of L&D; Financing L&D; International Instruments on L&D; WIM on L&D; Human Rights in L&D; Compensation; Remediation or Restoration commensurate to L&D  | 6        |

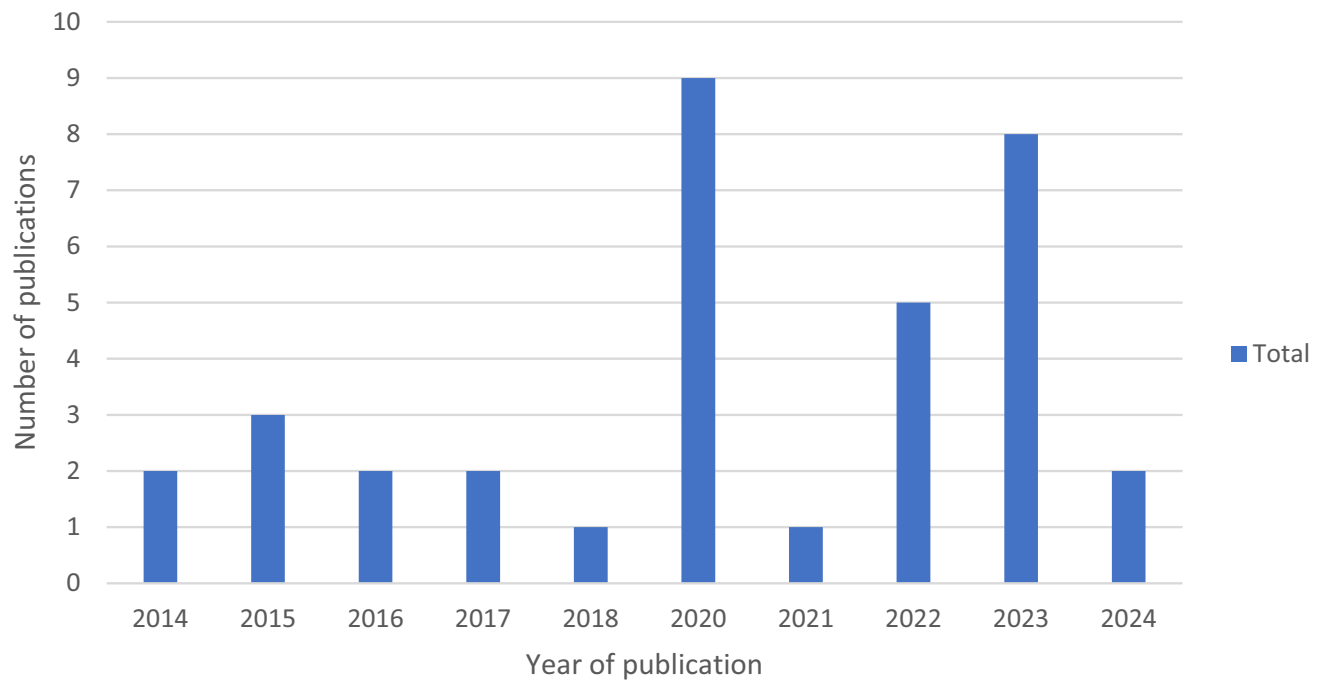
Table 1 (continued)

| Article   | Themes  | Cited by |
|---|---|----------|
| 21 Amini, A., Abedi, M., Nesari, E., Daryadel, E., Kolahi, M., Mianabadi, H., & Fisher, J. (2023). The Paris Agreement's approach toward climate change loss and damage. <i>World Affairs</i> , 186(1), 46–80                         | Island States; WIM on L&D; International Instruments on L&D; Insurance; Financing L&D; Liability for L&D; Compensation; Conceptual clarification of L&D; Remediation or Restoration commensurate to L&D; Negotiations; Liability for States; Ethics Considerations; Trade-offs in Negotiations; Liability for L&D; Claimants for L&D; Island States; Compensation; Remediation or Restoration commensurate to L&D; Financing L&D; Developing Countries Views; Insurance; Negotiations; Conceptual clarification of L&D; Meaning of L&D; Assessment of L&D; Identification of Victims of L&D; Litigation and Judiciary Role in L&D; International Instruments on L&D | 6        |
| 22 Broberg, M., & Romera, B. M. (2021). Loss and Damage after Paris: All Talk and No Action?. In <i>The Third Pillar of International Climate Change Policy</i> (pp. 1–8). Routledge  | Liability for L&D; Claimants for L&D; Island States; Compensation; Remediation or Restoration commensurate to L&D; Financing L&D; Developing Countries Views; Insurance; Negotiations; Conceptual clarification of L&D; Meaning of L&D; Assessment of L&D; Identification of Victims of L&D; Litigation and Judiciary Role in L&D; International Instruments on L&D   | 6        |
| 23 García-Portela, L. (2020). Moral responsibility for climate change loss and damage. <i>Teorema: Revista Internacional de Filosofía</i> , 39(1), 7–24   | Conceptual clarification of L&D; Ethics Considerations; Liability for L&D; Liability for Contributors; Compensation; Remediation or Restoration commensurate to L&D   | 5        |
| 24 Surminski, S., & Eldridge, J. (2015). Observations on the role of the private sector in the UNFCCC's loss and damage of climate change work program. <i>International Journal of Global Warming</i> , 8(2), 213–230                | Negotiations; Other Legal Instruments to L&D; International Instruments on L&D; Private and Non-State Actors' Contribution to L&D; Multilevel action on L&D; Meaning of L&D; Conceptual clarification of L&D; Categorisation of L&D; Governance of L&D; Policy Development in L&D; Private Entities and L&D governance; Local Contribution to L&D Regime; Insurance; Public participation in L&D;   | 5        |
| 25 Nand, M. M., Bardsley, D. K., & Suh, J. (2023). Climate change loss and damage governance. Where are we now? A case study from Fiji's sugar industry. <i>Local Environment</i> , 28(6), 768–783                                    | State action for L&D; Policy Development in L&D; Multilevel action on L&D; Local Contribution to L&D Regime   | 3        |
| 26 Puig, D. (2022). Re-conceptualising climate change-driven 'loss and damage'. <i>International Journal of Global Warming</i> , 27(2), 202–212   | Meaning of L&D; Conceptual clarification of L&D   | 3        |
| 27 Rao, M. A. TWAIL Perspective on Loss and Damage from Climate Change: Reflections from Indira Gandhi's Speech at Stockholm (2022) 12. <i>Asian Journal of International Law</i> , 63–81   | Meaning of L&D; WIM on L&D; Identification of Victims of L&D; L&D in High Risk Areas; International Instruments on L&D; Conceptual clarification of L&D; Developed Countries' view; Developing Countries Views; Negotiations; Liability for L&D; Ethics Considerations; Financing L&D; IDP; Human Mobility and L&D; Compensation; Remediation or Restoration commensurate to L&D  | 3        |
| 28 Menk, L., Schinko, T., Karabaczek, V., Hagen, I., & Kienberger, S. (2022). What's at stake? A human well-being based proposal for assessing risk of loss and damage from climate change. <i>Frontiers in Climate</i> , 4, 1032,886 | Assessment of L&D; Conceptual clarification of L&D; Policy Development in L&D; Human Rights in L&D; Compensation; Causation and Attribution; State action for L&D   | 2        |
| 29 Arévalo García, J. G. (2020). Challenges of compensation and reparation for loss and damage related to the adverse effects of climate change. <i>Mexican law review</i> , 13(1), 183–199   | Negotiations; WIM on L&D; Compensation; International Instruments on L&D; Causation and Attribution; Assessment of L&D; Financing L&D; Conceptual clarification of L&D; Meaning of L&D; Developing Countries Views; Liability for L&D; Developed Countries' view; Arguments against the Compensation regime; Identification of Victims of L&D; Liability of States; Liability of Contributors; Litigation and Judiciary Role in L&D; Human Rights in L&D; Liabilities for Corporations; Local Contribution to L&D Regime; State action for L&D  | 2        |



**Table 1** (continued)

| Article  | Themes   | Cited by |
|--|--|----------|
| 30 Tigre, M. A., & Wewerinke-Singh, M. (2023). Beyond the North–South divide: Litigation's role in resolving climate change loss and damage claims. <i>Review of European, Comparative &amp; International Environmental Law</i> , 32(3), 439–452        | Causation and Attribution; Liability for L&D; Litigation and Judiciary Role in L&D; Liability for Contributors; Assessment of L&D; Claimants for L&D; Compensation; Liability for States; State action for L&D; Conceptual clarification of L&D; Human Rights in L&D; Challenges of Legal Action for L&D   | 2        |
| 31 Sacramento, N. J. (2023). Grassroots involvement on Global South policy narratives and deliberative action on climate change loss and damage. <i>Public Administration and Policy</i> , 26(2), 156–168  | Policy Development in L&D; State action for L&D; Local Contribution to L&D Regime; Meaning of L&D; Conceptual clarification of L&D; Assessment of L&D; L&D in High Risk Areas; Public participation in L&D; Grassroots contribution to L&D; Private and Non-State Actors' Contribution to L&D  | 1        |
| 32 Zuhir, M. A., Febrian, F., Murzal, M., & Ridwan, R. (2022). Exercising No Harm Rule: Claims for Damage and Loss Due Climate Change Effects. <i>Sriwijaya Law Review</i> , 6(1), 174–188   | Causation and Attribution; Conceptual clarification of L&D; Liability for L&D; Compensation; Liability of States; Liability of Contributors; Human Rights in L&D   | –        |
| 33 Onyeabor, E., Agu, H. U., Anozie, M. C., Chime, I., & Nwafor, N. (2021). The political question and litigating loss and damage: any hope for victims of climate change induced impacts in Nigeria?. <i>Commonwealth Law Bulletin</i> , 47(3), 462–478 | Liability for L&D; Litigation and Judiciary Role in L&D; Liabilities for Corporations; Liability for Contributors; Human Rights in L&D; Conceptual clarification of L&D; Policy Development in L&D; State action for L&D;  | –        |
| 34 Salimi Turkamani, H. (2024). The Loss and Damage Fund: A Solution to Interpretive Conflicts of Responsibility for Climate Change?. <i>Netherlands International Law Review</i> , 1–26   | Developed Countries' view; Developing Countries Views; Ethics Considerations; Compensation; Financing L&D; Insurance; Meaning of L&D; Negotiations; Causation and Attribution; Liability for States; Liability for L&D; Island States; WIM on L&D; International Instruments on L&D; Trade-offs in Negotiations; Remediation or Restoration commensurate to L&D; L&D in High Risk Areas; Assessment of L&D; Conceptual clarification of L&D; Liabilities for Corporations; Claimants for L&D | –        |
| 35 Düvel, E., & García-Portela, L. (2024). The ethics of climate change loss and damage. <i>Wiley Interdisciplinary Reviews: Climate Change</i> , e910   | Compensation; Remediation or Restoration commensurate to L&D; Island States; Claimants for L&D; Liability for L&D; Litigation and Judiciary Role in L&D; Meaning of L&D; Conceptual clarification of L&D; Challenges of Legal Action for L&D; Liabilities for Corporations; Liability for Contributors; Liability for States; Human Rights in L&D; Causation and Attribution; Insurance; Assessment of L&D; Ethics Considerations  | –        |



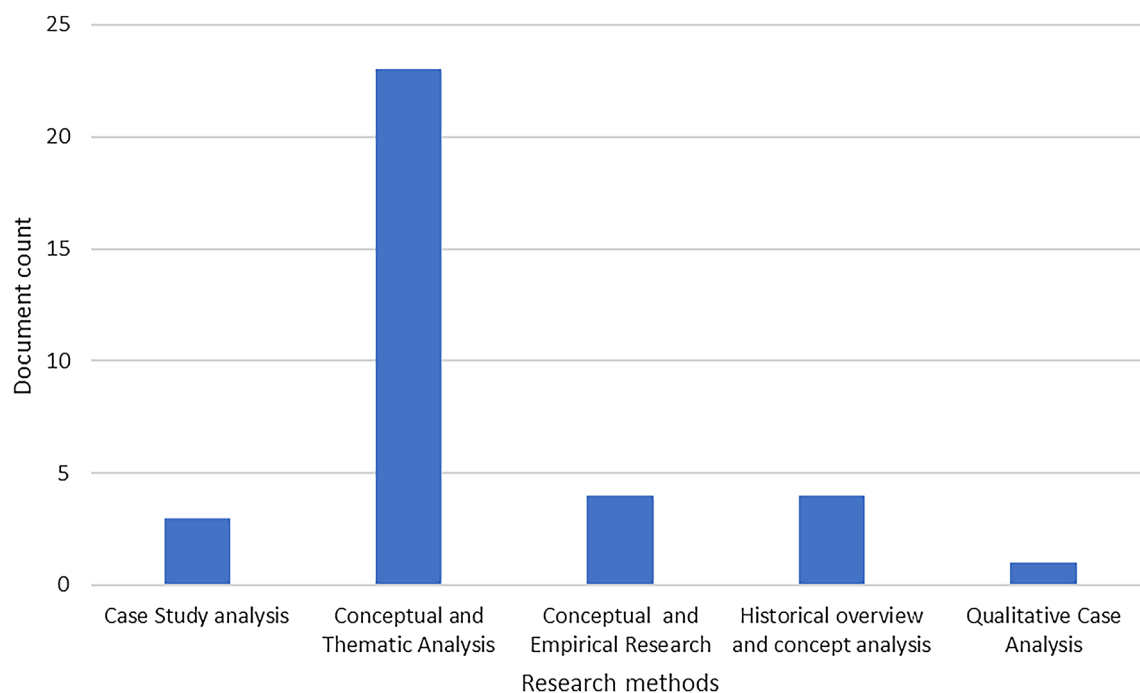
**Fig. 2** Years of publication

However, in recent times, as legal research adopts inter/cross-disciplinary approaches, there is increased engagement with research methods and methodologies [25].

### 3.2 Perceptions of climate-induced loss and damage in the literature

17 of the 35 documents discuss the meaning of CILD. The UNFCCC definition of the concept of climate change loss and damage in terms of potential and actual impacts of climate change on human and natural systems, thereby causing harm, is adopted by a number of scholars [18, 41, 48, 53]. Adger [1] notes that a consensus is necessary between science and policy on the definition of ‘loss and damage’ for the entire mechanism of funding, compensation and governance to function effectively. Also emphasising the necessity for such a definition, Calliari et al. [11] and Vanhala, L. [59] note that the lack of a concise definition was a consensus during negotiations but has weakened the institutionalisation of loss and damage within the UNFCCC. The absence of a concise definition is perceived in the literature by others as a positive outcome in terms of what is referred to as “constructive ambiguity” [49, 53]. Rather than define loss and damage, other scholars adopt a style of contextual clarification by itemising and categorising what amounts to CILD. Surminski & Eldridge [53] situate CILD within the context of disaster risk management and reduction, climate change adaptation, extreme and slow onset events, economic and non-economic losses and other negatives that occur due to the inability to adapt or cope in the highlighted scenarios. Other arguments on the definition of loss and damage is that it should encompass all effects of climate change beyond adaptation and mitigation efforts [49], including irreversible (loss) and reversible (damage) impacts [7], disruptions in systems which can be attributed to climate change [17, 41].

Collaborative action is essential to the legal regime of loss and damage, as noted in the WIM and the Paris Agreement. In order for it to have effective coverage, CILD is categorised into action to address and manage loss and damage, a structure to establish liability and compensation for loss and damage, and an institutional framework under the UNFCCC which includes loss and damage financing [22, 53].



**Fig. 3** Breakdown of research methods

### 3.3 Legal framework on climate-induced loss and damage

The loss and damage legal framework is traced in the literature to negotiations by the Alliance of Small Island States (AOSIS) [35, 41, 63]. Following negotiations and agitations for the institutionalisation of the loss and damage regime championed by the AOSIS and developing countries [15], it was first institutionalised in the Cancun Adaptation Framework, which highlighted the need to strengthen cooperation and technical expertise on loss and damage at the international level [11, 53]. The WIM was the first step towards establishing a comprehensive framework for loss and damage within the UNFCCC. It synthesised the regime on loss and damage, iterated comprehensive approaches to disaster risk management, and synergised action on loss and damage amongst various stakeholders [2, 15, 41]. It also emphasised the need to harness financial, technical and other expert support to address loss and damage [2, 15, 41]. The agenda of the WIM was later extended to cover human mobility and displacement as a result of CILD [53].

While the Warsaw International Mechanism (WIM) marked a significant advancement in the creation of a legal framework for addressing CILD, it has been noted that it remains primarily categorised under adaptation [15, 49]. This positioning within the adaptation regime suggests that it has not been established as a distinct area of climate action, which could have warranted separate funding and operationalisation. The Paris Agreement of 2015 (PA) is the first legally binding international instrument to explicitly provide for the regime of loss and damage under the UNFCCC. The provisions of Article 8 have been seen as a compromise to the stalemate in negotiations between the developing countries and the developed countries [9, 15, 49]. Page & Heyward [41] note that the provisions of Article 8 of the PA are sufficient to offer support to the WIM but not comprehensive enough to address issues of loss and damage financing. Specifically, the PA does not address the issues of liability and compensation for loss and damage [1, 53, 64], and the human rights link, even though it was a significant part of the negotiations [18, 56]. Despite these seeming setbacks, it is argued that the PA is a viable part of the emerging regime of loss and damage [63].

The Sendai Framework establishes a framework to address various causes of disaster risk, including climate change [21]. The Sendai Framework aims to reduce climate change-related disaster risks through an intergovernmental process, including the UNFCCC [21]. A principal objective of the Sendai Framework is to mitigate disasters and their associated losses across both human and natural systems that are influenced by various disaster drivers [30, 51]—2030, 2015). This initiative emphasises vulnerable communities, notably small island states, landlocked countries, and other developing nations [15]. The Sendai Framework provides a more detailed disaster risk prevention and management mechanism.

It outlines state and regional responsibilities to prevent disasters, protect persons and properties, as well as financial, technical and capacity building to support disaster risk reduction and management [15, 59].

### 3.4 National and state approaches to loss and damage

In addition to the international negotiations leading to the establishment of L&D as a third leg of climate action under the UNFCCC, the literature highlights the need for action at the national level. Calliari and Vanhala [10], note that while national climate policies have limited or zero consideration for loss and damage, there has been some planning for loss and damage using existing policies [10]. In this regard, it has been suggested that national action must primarily focus on identifying loss and damage gaps in state policies and abilities to address CILD and political comprehension of the concept of L&D as an aspect of climate governance [10, 36]. Further, state responsibility in this regard extends to ensuring human rights considerations of the vulnerable, those most affected and potential victims of CILD [56]. It also extends to enhancing the establishment of financial and insurance structures to address such loss and damage [53].

Further, the literature iterates the importance of public participation in the loss and damage space, especially the inclusion of Indigenous and grassroots communities in fashioning suitable loss and damage policies and action plans [48]. The imposition is a significant aspect of the CILD regime. This approach includes the application of the "polluter pays" principle, which allows countries to internalise the external effects of economic activities, such as greenhouse gas emissions [18, 38, 63]. This is achieved through financial sanctions and the obligation to compensate for the social and environmental impacts of these activities [18]. The literature also highlights some challenges with national approaches, such as the itemisation of public and private actors' roles, especially as relates to insurance and risk management [53]. Also, the expertise deficiency, fragmented operations of government ministries, departments and agencies, the inadequacy of data and lack of standardisation in data collection undermine governments' abilities to address loss and damage effectively [36].

### 3.5 Governance considerations in the loss and damage regime

Significant approaches to establishing a viable legal framework on CILD include cross-cutting approaches that take cognisance of other legal frameworks, such as the Law of the Sea, especially as it relates to Island states [10]. Further, there is a need to adopt a human rights-based approach [56] and highlight rights, duties and obligations linked to the loss and damage regime [24]. Also highlighted is the need for welfare and compensatory schemes for victims of CILD [22, 28]. And finally a proper iteration of the roles of the private sector in risk assessment and transfer through insurance schemes [53], civil society groups [24, 60] and finally, and other non-state actors, such as Indigenous communities [24, 48].

### 3.6 Liability and compensation as part of the legal regime

An essential part of CILD is the liability for harm experienced and compensation of victims [38]. Liability ranges from causation in fact or law on the part of States or private corporations. It also entails action or inaction on the part of the government [16, 22], and failure of duty to take care on the part of private and public actors leading to tortious liabilities or human rights violations [16, 22, 61]. The liability and compensation for loss and damage emphasises climate litigation and justice to compensate victims of CILD. The literature reviewed highlights a number of cases in this regard. These include cases instituted by Vanuatu and the Philippines on the contribution of corporations to climate change, leading to CILD [63], Saúl Luciano Lliuya v. RWE [50] and Asmania et al. v. Holcim [4]; [62]. In both cases, the claimants sought relief against foreign corporations that they claimed had contributed to gas emissions within their countries and were liable to pay compensation for loss and damages experienced by the local communities [62].

The imposition of liability or seeking of relief through litigation is faced with several challenges identified in the literature [17]. There is the nagging challenge of establishing causation, which is linked to the science of attribution [2, 16, 54]. Other obstacles include the question of whom to sue, linked with the distribution of liability, the challenge of endless lawsuits [54], the appropriate law or legal framework to situate liability [28], especially as the PA does not impose liability on States [1, 37]. Despite these challenges, climate litigation is seen as an opportunity to get compensation and remediation for high-risk victims and particularly vulnerable communities that experience CILD [7, 38, 40].

### 3.7 Human rights and climate justice

Toussaint and Blanco [56] argue for human-rights considerations within the loss and damage regime based on the fact that CILD affects various categories of human rights. There is a strong argument for human rights inclusion in the loss and damage regime, as loss and damage affects general human wellbeing [34], exacerbates the unjust experiences of vulnerable and marginalised groups [1] and threatens peace and security [18]. Be that as it may, seeking climate justice or human rights enforcement through the loss and damage regime has been seen as claiming a relief in the wrong forum, based on the fact that human rights violations fall within the purview of public international law [3], and gives no guarantee of imputing liability for loss and damage [18].

### 3.8 Summary

Figure 4 summarises the key concepts identified across the reviewed papers in this study, offering an overview of the discourse within the legal realm of CILD. Notably, important themes such as “liability,” “compensation,” “harm,” and “justice” emerge prominently. The literature also emphasises perspectives from developing and developed countries alongside discussions on significant legal frameworks, including the UNFCCC, decisions from various COPs, the Warsaw International Mechanism (WIM), and the Paris Agreement.

The law on loss and damage is a developing field and has gained more relevance with increased conversations around climate justice and climate litigation. As with any area of human activity, there must be a significant body of law to delineate and govern issues of rights, obligations, powers and liabilities both procedurally and substantially across various levels of governance. The literature reviewed in this research clearly outlines the extent of the international legal framework, including negotiations leading up to the formal recognition of loss and damage as an aspect of climate action under the UNFCCC [9, 11, 58]. There is a focus on clearly delineating the regime of CILD law to ensure enforceability. In this regard, a proper conceptualisation of “loss” and “damage” is suggested [49, 58, 59, 46]. Broberg [7] suggests distinguishing between liability for prevention of harm (adaptation) and liability for addressing unavoidable harm. Further on the issue of conceptualisation, there is the need to identify and analyse the various concepts linked to legal liability and actionable wrongs and properly situate these within the context of loss and damage [16, 19].

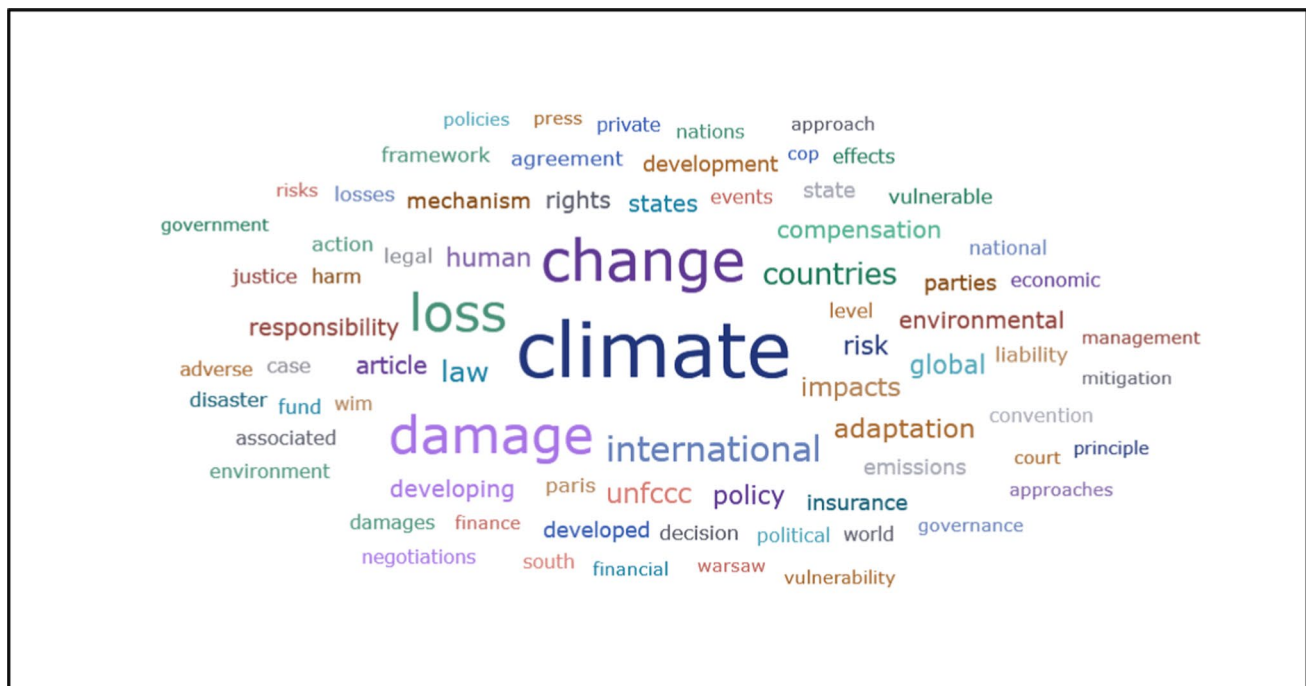


Fig. 4 Frequency of words in the research papers

A key concept that cuts across several works in the review is “causation”; Verheyen [61], Huggel et al. [22] and García [18] examine the concepts of causation and attribution in terms of scientific evidence and how this forms the foundation of legal liability and climate justice. Such an understanding clarifies issues around liability, causes of action, identification of victims and other issues such as compensation and remediation. The research highlights the interception of loss and damage with several socio-legal concepts. These include the interrelations between CILD, its impacts on human well-being [34], human rights [18, 56], and how best to address these issues. Others include country perspectives on addressing CILD, including seeking compensation through climate change litigation [17, 40, 54, 63], multi-level governance [10], grassroots and indigenous communities involvement [48], cross-institutional approach [38, 56] and private sector involvement through a public–private arrangement, especially in the area of insurance and insurance solutions for CILD, and disaster risk reduction [53].

While there are arguments for the compensatory approach to addressing loss and damage [41], others call for a more collaborative approach to addressing CILD [2], and climate change injustices [1], for instance, through funding and ensuring no one is left behind [1, 37, 64]. This reiterates the position of the Santiago Network, which calls for cooperation and knowledge sharing to address issues (UNFCCC/CP/2023/L.8).

In furtherance of a normative standpoint, there is an argument for a moral and legal responsibility towards particularly vulnerable countries, such as the Pacific Island States, on the part of developed countries and other entities (viewed as having contributed to climate change) [15, 17, 19, 24, 28, 35, 39]. Lyster [28] particularly advances holding fossil-fuel corporations liable for reparations of CILD through establishing a Fund financed by specially imposed taxes and sanctions. Further, on liability, research posits the application of legally binding customary international law principles, such as the “no harm principle” and the precautionary principle, to put an obligation on states to take necessary measures to check activities that may lead to environmental loss and damage [3]. The literature features examples like Vanuatu and the Peruvian farmer, *Lluya v RWE* (Case No. 2 O 285/15 Essen Regional Court) and *Asmania et al. v Holcim* seeking to hold countries and large corporations liable for GHG emissions contributing to climate change.

The research examines the legal framework at the national level and identifies Tuvalu as having taken some steps in this regard [10]. The study of Fiji brings a sector-specific perspective into the discourse and identifies climate disaster and risk management approaches through policies and guidelines [36]. It also highlights significant challenges with the legal regime of CILD, all of which culminate in the fact that there is significant work still to be done within the legal field of CILD, particularly at the national and sub-national levels, where not a lot of work has been done. These challenges are presented in Table 2.

#### 4 Discussion

The review identifies key and topical issues within the legal discourse on CILD. Specifically, its findings focus on trends in the research, including the perceptions of CILD in the literature. It also examines the legal framework on CILD and State approaches to addressing the challenge. The study also analyses governance issues relating to CILD. Issues around

**Table 2** Identified challenges to establishing a legal regime of loss and damage

| Challenges |   |
|------------|---|
| 1          | Challenges include establishing cause-effect relationships, defining thresholds, and addressing data limitations [35, 62].                          |
| 2          | Lack of diverse deliberative spaces to ensure genuine community involvement in policy-making [48]   |
| 3          | There is uncertainty regarding funding for loss and damage within the agreement. [63]   |
| 4          | Attributing events to human activity and concerns of perpetuating injustices [23, 36, 42].  |
| 5          | Despite this progress, challenges remain in scaling up emissions reductions to limit global warming to 1.5 °C and combat fossil fuel addiction [64] |
| 6          | Challenges include determining responsibility, assessing non-economic losses, and estimating future costs of loss and damage [24, 37]               |
| 7          | Establishing liabilities through a human rights approach [56]   |
| 8          | Lack of a compensation or liability regime [7]  |
| 9          | It is unclear how any fund for loss and damage may deal with intangible and non-commensurable losses. [18]  |
| 10         | Differences in opinions between developed and developing countries [60]   |



liability, compensation and responsibility for loss and damage were some of the recurring themes across the documents reviewed.

Further, the study highlights the negotiation processes leading up to the formal adoption of L&D as a third aspect of climate action under the UNFCCC. The WIM and Paris Agreement feature as the major international instruments, fundamentally because they both provide for the loss and damage mechanism and action necessary in that regard. Several key concepts are discussed, though significant research is still needed. These include the human rights-based approach to loss and damage, loss and damage as an aspect of climate justice, actionable wrongs under the loss and damage regime, and multi-level governance, especially at the national and sub-national levels. In this regard, the research highlights the need to integrate key governance principles such as public participation and inter-governmental cooperation.

To emphasise the significance of community engagement in the loss and damage regime, 3 of the studies reviewed employ empirical studies as a form of socio-legal approach [10, 48, 59]. The empirical studies show limited knowledge of CILD and engagement within sub-national governments and Indigenous communities. Still on the issues of governmental cooperation, the research highlights how the differences of opinion between developing and developed states shaped the negotiations, and the eventual outcomes, including the Paris Agreement. Further, the research shows that a viable loss and damage regime would require collaboration and integration of other international institutions and instruments, mainly because climate change is an all-pervading problem. Specifically, such a framework would advance sustainable development in line with the Paris Agreement. Specifically, a viable loss and damage framework would strengthen climate action (Sustainable Development Goal 13) and engender justice and equity (Sustainable Development Goal 16).

The study shows there is little engagement with loss and damage within the legal framework at the national level. This can be attributed to the novelty of the concept; it is, pertinent that policies and decision-making at this level begin to consider and integrate the discourse on CILD, insurance and liability of contributors within their jurisdiction or territories. A major challenge identified in the research is compensating non-economic losses and damage. In this regard, it is argued that every loss or injury can be linked to an economic loss, whether in terms of financial costs incurred in addressing the non-economic loss or some numerically quantifiable loss linked to the non-economic loss. Placing a value on non-economic loss is not a novel issue in Law, as it is a common practice to ascribe justifiable financial values to supposedly intangible injuries.

Observations in relation to the research include that there is a significant overlap of documents between Scopus and WoS, and only 3 studies were exclusive to WoS [7, 18, 24]. Also, some studies should have been included in the review, but it was impossible to lay a hold on them due to restricted access.

## 5 Conclusion

The systematic analysis of the legal perspectives of CILD elucidates the major areas of international engagement and discourse while highlighting key national practices in selected jurisdictions. The study highlights several latent themes within the law of loss and damage. These include the liability of states for inaction leading to CILD, the liability of states and corporations for historical GHG emissions, assessment of loss and damage, and the role of established tortious liability principles and principles of customary international law in enriching the loss and damage regime. The analysis underscores the immutable synergy between natural sciences, social sciences, and law. This synergy is imperative for evidence-based findings that can effectively inform and guide government policies and judicial proceedings in addressing legal and policy issues around CILD.

This study suggests the need for further research at the national level, public–private collaborations, and considerations regarding the availability of funding for the reparation and remediation of CILD. In the final analysis, while WIM and Article 8 of the Paris Agreement are significant in formalising the L&D framework, further steps must be taken, especially in relation to non-economic loss and damage, human mobility and other climate-induced non-tangible injuries.

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**Author contributions** Conceptualisation – GN and OA Drawing up research protocol – GN and OA Screening – GN and OA Research and Writing – GN and OA Preparation of figures and tables—OA Review – GN and OA.

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**Data availability** All data used in this research study are contained in the manuscript. Further details on original datasets from Scopus and Web of Science can be provided upon request.

**Declarations**

**Ethics approval and consent to participate** Not applicable.

**Consent for publication** Not applicable.

**Competing interests** The authors declare no competing interests.

**Appendix**

List of Documents contained in this review, including abstracts and methodologies.

| Title  | Authors    | Abstract  | Methodology and Methods          | Published Year | Journal         | Vol | Issue  | Pages   | Citation Overview |
|--|------------|---|----------------------------------|----------------|-----------------|-----|--------|---------|-------------------|
| Loss and Damage from climate change: legacies from Glasgow and Sharm el-Sheikh | Adger, W.N | Conferences of the UN climate change convention have legacies both in formal outcomes and treaties and in raising the profile of emerging climate dilemmas. The joint legacies of COP26 in Glasgow and COP27 in Sharm el-Sheikh have been in elevating the profile and formalising the potential for solidaristic action on “Loss and Damage from climate change. This article reviews the documented outcomes on Loss and Damage from the two events to analyse the significance and constraints of this element of the overall climate change regime. Loss and Damage is likely to be constrained as a global collective action by the capacity to identify and measure losses and damages and by the ability of the climate change regime to deliver on meaningful resource transfers. Yet the formalisation of elements of climate justice through Loss and Damage is a real and lasting legacy of these COP events | Conceptual and Thematic Analysis | 2023           | Scott. Geogr. J | 139 | 02-Jan | 142–149 | 8                 |

| Title  | Authors  | Abstract   | Methodology and Methods          | Published Year | Journal           | Vol | Issue | Pages   | Citation Overview |
|--|--|--|----------------------------------|----------------|-------------------|-----|-------|---------|-------------------|
| The Paris Agreement's Approach Toward Climate Change Loss and Damage           | Amini, A.; Abedi, M.; Nesari, E.; Daryadel, E.; Kolahi, M.; Mianabadi, H.; Fisher, J | Article 8 of the Paris Agreement introduces obligations upon the Parties to the Agreement with respect to Loss and Damage associated with adverse impacts of climate change. According to Paragraph 52 of the Conference of the Parties Decision, Article 8 is not a basis for liability or compensation. Therefore, the problem is whether violation of obligations leads to a state responsibility. Using a dogmatic method, this research contends that recognizing the significance of averting, minimizing, and addressing Loss and Damage means acceptance of responsibility for a breach of obligations. Although the means of seeking reparation would not be compensation, States are obliged to eliminate sources of damage and take precautionary measures to address loss and damage. Notwithstanding this, placing the issue of loss and damage under the Agreement into a separate article can reflect to a great extent the significance of the matter  | Conceptual and Thematic Analysis | 2023           | World Aff         | 186 | 1     | 46–80   | 6                 |
| Exercising No Harm Rule: Claims for Damage and Loss Due Climate Change Effects | Apriandi, M  | The act of utilising all the resources owned by a state, including natural re-sources, is the right of every state. However, its use is prohibited if it causes harm to other states. This is then referred to as the principle of no harm rule in international law. Therefore, each state is responsible not for causing damage to other States' environments or areas outside the limits of its jurisdiction. This article will analyse the development of the no harm rules and its application model for claiming state responsibility. As normative research, it used secondary data as the main data, and the primary, secondary and tertiary legal materials were analysed qualitatively. In discussion, this principle has long existed as customary international law to mitigate transboundary pollution. In the case of the environment in general, many studies have applied this principle. However, due to the uniqueness of the climate change issue, evidence and proof of the impacts caused cannot be used as the basis for a lawsuit like ordinary environmental cases. Based on the discussion and simulation conducted, it is concluded that the no-harm principle can be applied to climate change issues. However, this principle is not satisfactory and has limitations in its application | Conceptual and Thematic Analysis | 2022           | Sriwijaya Law Rev | 6   | 1     | 174–188 | 0                 |

| Title  | Authors     | Abstract  | Methodology and Methods          | Published Year | Journal     | Vol | Issue | Pages   | Citation Overview |
|--|-------------|---|----------------------------------|----------------|-------------|-----|-------|---------|-------------------|
| The Third Pillar of International Climate Change Law: Explaining 'Loss and Damage' after the Paris Agreement | Broberg, M  | With the 2015 Paris Agreement, 'loss and damage' (L&D) was introduced into the UNFCCC treaty framework as a new, third substantive area of climate change law. Both before and after its adoption, this new area has been subject to much contention, and this is reflected in a high degree of uncertainty surrounding its interpretation. This article examines the definition of L&D and the types of impact covered by the notion. It also examines the relationship of L&D with mitigation and adaptation, as well as the instruments that are covered by it. Finally, the article considers the controversial issue of who can invoke L&D-and against whom  | Conceptual and Thematic Analysis | 2020           | CLIMATE LAW | 10  | 2     | 211–223 | 6                 |
| Loss and damage: a critical discourse analysis of Parties' positions in climate change negotiations          | Calliari, E | The years-long negotiations on loss and damage (L&D) associated with climate change impacts reached a milestone with the adoption of the Paris Agreement, sanctioning the permanence of the Warsaw International Mechanism (WIM) created in 2013. The WIM aims at advancing knowledge gathering, coordination and support to address L&D associated with extreme and slow onset events in vulnerable developing countries (Decision 2/CP.19). Despite being among the most controversial issues to be recently treated in climate change negotiation, L&D has attracted little attention in the field of international relations. This paper aims at addressing this gap by reconstructing the emergence and evolution of the negotiating positions on L&D of developing and developed countries. It employs a critical discourse analytical approach and builds on Fairclough's three-dimensional framework for critical discourse analysis, taking decision 2/CP.19 as the core communicative event. Consistently, the decision is analysed at three different levels: as a text (micro-scale); as a discursive practice (meso-scale); and as a social practice (macro-scale). The analysis makes use of a wide range of materials including previous decisions, High Level Segment statements and Parties submissions. It reconstructs Parties' conflicting views on the positioning of L&D vis-à-vis the adaptation space (L&D as a part of, or as beyond adaptation) and the scientific, ethical and legal arguments employed to support these standpoints. It highlights, in particular, the strategic importance which the compensation argument had in determining developing countries' capacity to influence the UNFCCC process up to the inclusion of a specific article on L&D in the Paris Agreement. While calls for compensation might have lost momentum as a result of the Warsaw and Paris talks, the paper argues that their potential is far from exhausted. They in fact imply a more general request for climate justice which the UNFCCC has not yet addressed | Conceptual and Thematic Analysis | 2018           | J. Risk Res | 21  | 6     | 725–747 | 32                |

| Title   | Authors                                 | Abstract  | Methodology and Methods           | Published Year | Journal                | Vol | Issue | Pages | Citation Overview |
|---|---|---|-----------------------------------|----------------|------------------------|-----|-------|-------|-------------------|
| Making sense of the politics in the climate change loss & damage debate | Calliari, E.; Serdeczny, O.; Vanhala, L | The Warsaw International Mechanism for Loss and Damage (L&D) associated with Climate Change Impacts (WIM) was established in 2013 to advance i) knowledge generation; ii) coordination and iii) support to address losses and damages under the UNFCCC. So far, the work undertaken by the WIM Executive Committee (ExCom) has focused on enhancing understanding and awareness of the issue and promoting collaboration with relevant stakeholders. Delivering on the WIM's third function on action and support has lagged behind, and the political nature of L&D has often been blamed for this. Key terrains of contention among Parties have included the positioning of L&D governance vis-à-vis the adaptation space and struggles around state liability and compensation. As a way to facilitate discussion on implementation options, recent research has suggested de-politicising aspects of the L&D debate; yet we have very little insight into how the politics are understood within the realm of international L&D governance. This paper brings an analysis of the political into the picture by identifying the complex and underlying issues that fuel contention within UNFCCC L&D negotiations. It gives centre stage to the way different framings of norms and material interests affect the debate, and challenges the tendency in current L&D literature to overlook the socio-historical and political underpinnings of this area of policy-making. We employ a qualitative multi-methods research design which draws on content analysis of 138 official Parties' submissions and statements, 14 elite interviews with key current and former L&D negotiators and is built on a foundation of 3 years of participant observation at COPs and WIM meetings. We approach this data with a political ethnographic sensibility that seeks to explore how meanings are constructed within and across different sources of data. Our empirical results show that, rather than being a monolithic dispute, L&D catalyses different yet intertwined unresolved discussions. We identify five areas of contention, including continued disputes around compensation; conflicts on the legitimacy of L&D as a third pillar of climate action; tensions between the technical and political dimension of the debate; debates over accountability for losses and damages incurred; and the connection of L&D with other unresolved issues under the Convention | Conceptual and Empirical Research | 2020           | Global Environ. Change | 64  |       |       | 44                |

| Title  | Authors                  | Abstract   | Methodology and Methods           | Published Year | Journal      | Vol | Issue | Pages   | Citation Overview |
|--|--------------------------|--|-----------------------------------|----------------|--------------|-----|-------|---------|-------------------|
| The “national turn” in climate change loss and damage governance research: constructing the L&D policy landscape in Tuvalu | Calliari, E.; Vanhala, L | Loss and damage (L&D) is now a key area of climate policy. Yet studies of L&D governance have focused disproportionately on the international level while the national scale of analysis has been overlooked. Recent developments in the UNFCCC negotiations and a growing call for a science of loss that can support policy-makers to address L&D suggest the need for a greater understanding of L&D governance at the national level. How do national policy-makers understand the concept of L&D? What types of policies have been developed, implemented and funded to address L&D? We study the paradigmatic case of Tuvalu to illustrate the value of turning to the national level of analysis, while recognizing that other countries might frame L&D and its relevance for the national context differently, and thus devise a diverse set of policy responses. Drawing on semi-structured interviews with national stakeholders and a systematic policy review using methods of interpretive policy analysis, we show that the concept of L&D was introduced in official documentation in 2012 and is not explicitly distinguished from adaptation. We find that managing L&D constitutes a complex governance system with competencies and responsibilities diffused across different national actors and multiple governance scales. As conceptualized by policy-makers and within policy documents, L&D is closely tied to issues related to national sovereignty, human mobility, infrastructure investment and protection of the Exclusive Economic Zone. We conclude by suggesting that there is a need for a national turn in research on L&D governance to produce knowledge that will support policy-makers, but also argue that national level analyses will always need to be situated within a multi-scalar context. Key policy insights: Conceptual understandings of L&D and how it is distinct from adaptation do not translate neatly into national policy-making practices. In Tuvalu, L&D does not feature as a stand-alone policy domain, but rather it is treated as a cross-cutting issue. National responses to L&D might involve action at the regional and international level. The establishment of the Santiago Network at COP25 provides new impetus for considering how to govern climate change L&D at the national level | Conceptual and Empirical Research | 2022           | Clim. Policy | 22  | 2     | 184–197 | 7                 |



| Title   | Authors                      | Abstract  | Methodology and Methods                  | Published Year | Journal                             | Vol | Issue | Pages | Citation Overview |
|---|------------------------------|---|--|----------------|-------------------------------------|-----|-------|-------|-------------------|
| The ethics of climate change loss and damage  | Düvel, E.; García-Portela, L | In the last decade, the international community has become increasingly aware that some negative impacts of climate change cannot be prevented. During the COP19 in Warsaw in 2013, the parties who agreed to the Warsaw International Mechanism (WIM) acknowledged that there were already greater climate impacts than could be reduced by adaptation (UNFCCC, 2014). These impacts have been called “loss and damage”, and the policies and measures that deal with them are usually referred to as L&D, or L&D measures or policies. Since then, examples of loss and damage have unfortunately become abundant, but we lack a systematic approach to the ethical issues surrounding loss and damage. This article provides an overview of some of the ethical issues surrounding loss and damage in the context of climate change. We discuss what should count as loss and damage, how access to justice for loss and damage should be granted and their different rationale, as well as issues of noneconomic and nonanthropocentric loss and damage. This article is categorized under: Climate, Nature, and Ethics > Ethics and Climate Change   | Conceptual and Thematic Analysis         | 2024           | Wiley Interdiscip Rev. Clim. Change |     |       | 0     |                   |
| Climate change, ‘slow violence’ and the indefinite deferral of responsibility for “loss and damage” | Dehm, J                      | This article traces debates within international climate regime on loss and damage from climate impacts. Impacts from climate change should be understood as incremental violence structurally over-determined by international relations of power and control that affect most acutely those who contributed least to dangerous levels of anthropocentric greenhouse gas emissions. Calls for compensation or reparation for “loss and damage” are therefore a demand for climate justice. This article shows how questions of loss and damage were initially avoided within the climate regime. At the nineteenth Conference of the Parties in December 2013 the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Warsaw International Mechanisms for Loss and Damage (WIM) associated with climate change. However, even then questions of compensative or reparative justice were persistently evaded. The institutionalisation of the WIM focused on questions of comprehensive risk assessment and disaster risk reduction and the promotion of privatised, insurance-based and financialised approaches to financing loss and damage. These operate in different ways to displace responsibility away from historical polluters, by nationalising responsibility to anticipate and prepare for disasters and seeking to responsibilise the vulnerable and risk-exposed subject | Historical overview and concept analysis | 2020           | Griffith Law Rev                    |     |       | 1–33  | 20                |

| Title  | Authors             | Abstract   | Methodology and Methods          | Published Year | Journal            | Vol | Issue | Pages   | Citation Overview |
|--|---------------------|--|----------------------------------|----------------|--------------------|-----|-------|---------|-------------------|
| Loss & Damage From Climate Change: From Concept To Remedy?   | Doelle, M.; Seck, S | In this article we examine legal perspectives on remedies for harm caused by climate related loss and damage. We start by discussing the meaning of loss and damage, and its relationship to climate mitigation and adaptation. We then consider, at a conceptual level, how those harmed by loss and damage from human-induced climate change may pursue remedies against those who have contributed to the harm suffered. Key policy insights Loss and damage is an issue that requires the attention of law and policy makers at domestic and international levels While existing legal systems are unlikely to be adequately equipped in their present form to respond adequately to claims for remedy to harm caused by loss and damage, they will be challenged to evolve over time to respond more effectively Legal systems will be challenged to identify appropriate claimants, appropriate respondents, appropriate remedies and actionable wrongs Different legal systems will make different choices on these critical issues   | Conceptual and Thematic Analysis | 2020           | Clim. Policy       | 20  | 6     | 669–680 | 31                |
| Challenges of Compensation and Reparation for Loss and Damage Related to the Adverse Effects of Climate Change | Garcia, JGA         | Anthropogenic climate change has and will have unavoidable adverse effects despite mitigation and adaptation policies. Therefore, the financial burden of the costs of loss and damage must be distributed fairly and proportionally. This implies that those responsible for climate change must take responsibility and compensate those who suffer losses and, if possible, repair the damages related to this phenomenon. However, climate justice has been limited by the lack of a causal link between a specific climate change effect and specific damages or losses. Accordingly, this article discusses the compensation and reparation of losses and damages related to the adverse effects of climate change, as a stream applicable after mitigation and adaptation policies. In addition, this article reviews the implications of the relevant findings that established the existence and development of climate change as a problem that affects the enjoyment of human rights, to argue how the theory of human rights can contribute to the current legal model for reparation and compensation for losses and damages associated with climate change. Also, due to the impossibility of obtaining a legally binding agreement as a structure for integration, and to adequately address the problem of causes, consequences, benefits and burdens, vulnerable groups ought to be the most affected | Conceptual and Thematic Analysis | 2020           | MEXICAN LAW REVIEW | 13  | 1     | 183–199 | 2                 |

| Title   | Authors                                      | Abstract  | Methodology and Methods          | Published Year | Journal      | Vol | Issue | Pages   | Citation Overview |
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| Moral responsibility for climate change loss and damage: A response to the excusable ignorance objection                      | Garcia-Portela, L                            | The Polluter Pays Principle (PPP) states that polluters should bear the burdens associated with their pollution. This principle has been highly contested because of the putative impossibility of considering individuals morally responsible for an important amount of their emissions. For the PPP faces the so-called excusable ignorance objection, which states that polluters were for a long time non-negligently ignorant about the negative consequences of greenhouse gas emissions and, thus, cannot be considered morally responsible for their negative consequences. This paper focuses on the concept of moral responsibility as it appears in the excusable ignorance objection. I claim that this objection stems from a narrow notion of moral responsibility and that a more fundamental notion of moral responsibility would pave the way to overcome it. I show that it should be out of the question whether historical polluters should bear some burdens associated with climate change because of their historical emissions. The relevant question is which kind of burdens they can legitimately be asked to bear. I argue that this notion of moral responsibility allows us to assign burdens of symbolic reparation, which are at the core of "Loss and Damage" policies  | Conceptual and Thematic Analysis | 2020           | Teorema      | 39  | 1     | 24-Jul  | 5                 |
| Potential and limitations of the attribution of climate change impacts for informing loss and damage discussions and policies | Huggel, C.; Stone, D.; Eicken, H.; Hansen, G | The issue of climate related loss and damage (L&D) has re-emerged and gained significant traction in international climate policy in recent years. However, many aspects remain unclear, including how aspects of liability and compensation in relation with L&D will be treated under the UNFCCC, human rights and environmental law. Furthermore, the type of scientific evidence required to link climate change impacts for each of these L&D mechanisms needs to be clarified. Here we analyze to which degree different types of scientific evidence can inform L&D discussions and policies. We distinguish between (i) L&D observation, (ii) understanding causation, and (iii) linking L&D to anthropogenic emissions through attribution studies. We draw on three case studies from Australia, Colombia and Alaska to demonstrate the relevance of the different types of evidence. We then discuss the potential and limitations of these types of scientific evidence, in particular attribution, for informing current L&D discussions and policies. Attribution (iii) sets the highest bar, but also provides the most complete set of information to support adaptation, risk reduction and L&D policies. However, rather than suggesting that attribution is a necessary requirement for L&D policies we want to highlight its potential for facilitating a more thematically structured, and thus hopefully a more constructive, policy and justice discussion | Conceptual and Thematic Analysis | 2015           | Clim. Change | 133 | 3     | 453–467 | 37                |

| Title   | Authors     | Abstract  | Methodology and Methods                  | Published Year | Journal                   | Vol | Issue | Pages   | Citation Overview |
|---|-------------|---|--|----------------|---------------------------|-----|-------|---------|-------------------|
| Holding Polluting Countries to Account for Climate Change: Is "Loss and Damage" Up to the Task?   | Johnson, CA | Formally established by the Conference of the Parties to the UN Framework Convention on Climate Change in 2013, the Loss and Damage Mechanism represents what is for many an important effort on the part of developing countries (including China and the G77) to hold polluting countries to account for past and potential harms incurred as a result of climate change. This paper explores the viability of using the Mechanism as a means of holding polluting countries to account for the provisions outlined in the Framework Convention. In reviewing the history and recent policy within the UNFCCC, the paper makes the case that demands for greater accountability through the Loss and Damage Mechanism have been frustrated by a lack of consensus about the rights of poor countries to pursue carbon-intensive development pathways, the obligations of current and future generations to the actions and decisions of their forebears, and the obligations of national governments to their own citizens and the UNFCCC. Instead of assigning responsibility for past and future losses and damages, the Mechanism has gravitated toward a more technocratic/bureaucratic exercise aimed at collecting data, enhancing knowledge, and making policy recommendations | Historical overview and concept analysis | 2017           | REVIEW OF POLICY RESEARCH | 34  | 1     | 50–67   | 10                |
| A fossil fuel-funded climate disaster response fund under the Warsaw international mechanism for loss and damage associated with climate change impacts | Lyster, R   | Three sets of social institutions deal with catastrophic risk: government regulation through rule making, the market, and civil liability. Climate disasters expose the limitations of all of these social institutions and often result in extensive uncompensated losses, particularly in developing countries. The author proposes the establishment of a fossil fuel-funded Climate Disaster Response Fund to compensate victims for the 'residual' risk of climate disasters in developing countries that are particularly vulnerable to the impacts of climate change. This Fund, established under the UNFCCC's Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts, would comprise levies placed on the world's top 200 fossil fuel companies. This proposal is modelled on various domestic and international funds which have been established to overcome the difficulties posed by tort law and which require companies to pay for the hazardous consequences of their activities and products. Precedents include funds to compensate for the damage caused by toxic chemicals, oil pollution spills, asbestos and nuclear accidents   | Conceptual and Thematic Analysis         | 2014           | Trans. Environ. Law       | 4   | 1     | 125–151 | 24                |

| Title   | Authors       | Abstract   | Methodology and Methods                  | Published Year | Journal                   | Vol | Issue | Pages   | Citation Overview |
|---|---------------|--|--|----------------|---------------------------|-----|-------|---------|-------------------|
| Exploring Loss and Damage at the International Climate Change Talks | McNamara, K.E | In recent years, there has been a growing need to address loss and damage as a result of climate change through international processes. At the most recent November 2013 international climate change talks in Warsaw, 194 countries negotiated the best way to establish institutional arrangements for loss and damage under the United Nations Framework Convention on Climate Change. Such a decision to establish these arrangements was made in 2012 in Doha in a decision known as the Doha Gateway. While the 19th (2013) Conference of the Parties succeeded in delivering the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts, there was concern by some negotiators earlier into the conference that this would never transpire given the staunch disagreements between countries and lobbying blocks on a way forward. This article provides a brief historical overview of loss and damage at the climate change talks, and examines the key discourses defining this issue between 2011 and 2013 by analyzing submissions by lobbying blocks and member countries, and final negotiated texts. These discourses revolve around causality and solutions, compensation, and the relationship between loss and damage and adaptation | Historical overview and concept analysis | 2014           | Int. J. Disaster Risk Sci | 5   | 3     | 242–246 | 17                |

| Title  | Authors   | Abstract  | Methodology and Methods          | Published Year | Journal     | Vol | Issue | Pages | Citation Overview |
|--|---|---|----------------------------------|----------------|-------------|-----|-------|-------|-------------------|
| What's at stake? A human well-being based proposal for assessing risk of loss and damage from climate change | Menk, L.; Schinko, T.; Karabac-zek, V.; Hagen, I.; Kien-berger, S | Current scientific discourse on the assessment of loss and damage from climate change focuses primarily on what is straightforwardly quantifiable, such as monetary value, numbers of casualties, or destroyed homes. However, the range of possible harms induced by climate change is much broader, particularly as regards residual risks that occur beyond limits to adaptation. In international climate policy, this has been institutionalized within the Loss and Damage discourse, which emphasizes the importance of non-economic loss and damage (NELD). Nevertheless, NELDs are often neglected in loss and damage assessments, being intangible and difficult to quantify. As a consequence, to date, no systematic concept or indicator framework exists that integrates market-based and non-market-based loss and damage. In this perspective, we suggest assessing risk of loss and damage using a climate change risk and vulnerability assessment (CRVA) framework: the Impact Chain method. This highly adaptable method has proven successful in unraveling complex risks in socio-ecological systems through a combination of engaging (political) stakeholders and performing quantitative data analysis. We suggest expanding the framework's logic to include not only the sources but also the consequences of risk by conceptualizing loss and damage as harm to nine domains of human well-being. Our approach is consistent with the risk conceptualization by the Intergovernmental Panel on Climate Change (IPCC). Conceptualization and systematic assessment of the full spectrum of imminent loss and damage allows a more comprehensive anticipation of potential impacts on human well-being, identifying vulnerable groups and providing essential evidence for transformative and comprehensive climate risk management | Conceptual and Thematic Analysis | 2022           | Front. Clim | 4   |       |       | 2                 |



| Title   | Authors                   | Abstract  | Methodology and Methods          | Published Year | Journal       | Vol | Issue | Pages   | Citation Overview |
|---|---------------------------|---|----------------------------------|----------------|---------------|-----|-------|---------|-------------------|
| Climate change loss and damage policy implications for Pacific Island Countries | Nand, M.M.; Bardsley, D.K | Climate change loss and damage (L&D) presents an existential threat to the Pacific Island Countries. Having contributed least to total greenhouse gas emissions, the nations of the South Pacific are highly vulnerable to rising sea-levels, tropical cyclones and other climate-related risks. Through a narrative review of the academic and policy debate and recent media reports, this paper analyses the political nature of the L&D discussion under the United Nations Framework Convention on Climate Change. Through the analysis of the crucial roles of attribution, compensation and geopolitics in framing L&D, it becomes clear that developed Parties have provided little support to respond to the financial concerns of L&D and the policy framework remains under-developed. Efforts to address L&D in Pacific Island Countries are hindered by a lack of data for understanding, monitoring and evaluating adaptation limits. Beyond that however, developed countries have largely contested any notion of legal responsibility that would require obligatory payments to compensate L&D suffered by vulnerable countries. The review of current narratives on L&D suggest there is a consistent unwillingness by developed countries to formalise approaches to attribute climate change impacts, related governance regimes, or compensatory mechanisms. The call from developing nations for compensation and rehabilitation is partly based on the argument that developed countries have both legal and moral obligations to assist poor and vulnerable countries address the issue. Financing remains a contentious issue and will likely become increasingly problematic if a universal definition and framework for responding to L&D is not agreed upon | Conceptual and Thematic Analysis | 2020           | Local Environ | 25  | 9     | 725–740 | 13                |

| Title  | Authors                            | Abstract  | Methodology and Methods | Published Year | Journal       | Vol | Issue | Pages   | Citation Overview |
|--|------------------------------------|---|-------------------------|----------------|---------------|-----|-------|---------|-------------------|
| Climate change loss and damage governance. Where are we now? A case study from Fiji's sugar industry | Nand, M.M.; Bardsley, D.K.; Suh, J | Anthropogenic climate change loss and damage (L&D) is a key area of climate policy. Much of the L&D governance has been situated within the international climate regime. A major gap in L&D governance is the lack of understanding of how institutions are dealing with L&D policy and decision-making at national and industry scales. This study examines L&D governance with an emphasis on policy gaps, capacity constraints, availability of data, and access to climate finance in Fiji's sugar industry. Systematic policy analysis and in-depth semi-structured interviews (n = 28) are conducted to gain insights into L&D governance in Fiji's sugar industry. To date, the Ministry of Sugar Industry has been unable to develop climate change and disaster risk reduction policies and plans. Other institutional constraints in Fiji's sugar industry to avert, minimise, and address L&D include lack of human resources with technical skills as well as limited data and access to financial resources. This research recommends key policy interventions such as developing L&D policy and action plans, building capacity, and implementing a standardised practice of data management between stakeholders for urgent climate action. At the international level, the Warsaw International Mechanism and the Santiago Network for Loss and Damage could be strengthened to mobilise urgent support and action, including finance and technical assistance to avert, minimise, and address L&D in vulnerable countries. Highlights Limited national L&D policy and mechanisms in Fiji have severe implications for farming communities and could exacerbate social-ecological systems vulnerability. The Fijian Ministry of Sugar Industry has been unable to develop robust climate change and disaster risk reduction policies to avert, minimise, and address L&D. At the international level, the Santiago Network for Loss and Damage must become fully operational and provide technical assistance for L&D needs assessment and strengthen L&D governance in developing countries | Case study Analysis     | 2023           | Local Environ | 28  | 6     | 768–783 | 3                 |

| Title   | Authors   | Abstract   | Methodology and Methods          | Published Year | Journal              | Vol | Issue | Pages   | Citation Overview |
|---|---|--|----------------------------------|----------------|----------------------|-----|-------|---------|-------------------|
| Vulnerability and loss and damage following the COP27 of the UN framework convention on climate change                    | Naylor, A.W.; Ford, J                                       | The creation of a Transitional Committee to operationalise funding for loss and damage at the 27th Conference of the Parties (COP27) could prove a seminal moment for the United Nations Framework Convention on Climate Change (UNFCCC). Yet, in the context of loss and damage and wider climate financing, discourses of vulnerability and mechanisms and indices for appraising the impacts of climate change remain unfit for purpose. Establishing which Parties are the most vulnerable (and thus eligible for funding), accounting for intangible non-economic losses and making progress toward climate justice and disaster risk reduction while avoiding the issue of sociopolitical root causes remains a monumental challenge   | Conceptual and Thematic Analysis | 2023           | Reg. Environ. Change | 23  | 1     |         | 18                |
| Loss and damage from the impacts of climate change: A framework for implementation  | Ohdedar, B  | Loss and damage from the impacts of climate change affect many countries and communities across the world. In 2013, the Warsaw Mechanism on Loss and Damage, created through the United Nations Framework on Climate Change (UNFCCC), established an institutional process to respond to such impacts. This paper aims to contribute to the growing literature on climate liability by outlining a normative framework based on international law that can be used as a guiding path for the mechanism. It is argued that addressing loss and damage in line with these core principles and international law is required to develop a robust and legitimate mechanism. This framework is then used to answer critical questions regarding an international loss and damage mechanism for climate change | Conceptual and Thematic Analysis | 2016           | Nord. J. Int. Law    | 85  | 1     | 1–36    | 11                |
| The political question and litigating loss and damage: any hope for victims of climate change induced impacts in Nigeria? | Onyeabor, E.; Agu, H.U.; Anozie, M.C.; Chime, I.; Nwafor, N | There is the urgency in finding solutions to this global problem and this requires bold actions from governments, the private sector and civil societies. This paper conducts an x-ray of political questions relating to climate change issues. This can be achieved by making departure from the provisions of Sect. 6(6)(c) of the Nigerian Constitution by proactive interpretation of Sects. 13, 14(2), 20 and Item 60(a) of the Exclusive Legislative List of the said Constitution. The philosophical underpinning of this proposition is to enable the courts avoid injustice and absurdity in addressing claims for loss and damages linked to climate change induced impacts   | Case Study analysis              | 2021           | Commonw. Law Bull    | 47  | 3     | 462–478 | 0                 |

| Title  | Authors                | Abstract  | Methodology and Methods          | Published Year | Journal                | Vol | Issue | Pages   | Citation Overview |
|--|------------------------|---|----------------------------------|----------------|------------------------|-----|-------|---------|-------------------|
| Compensating for Climate Change Loss and Damage            | Page, E.A.; Heyward, C | With the adoption of the Warsaw International Mechanism in 2013, the international community recognised that anthropogenic climate change will result in a range of adverse effects despite policies of mitigation and adaptation. Addressing these climatic “losses and damages” is now a key dimension of international climate change negotiations. This article presents a normative framework for thinking about loss and damage designed to inform, and give meaning to, these negotiations. It argues that policies addressing loss and damage, particularly those targeting developing countries, should respect norms of compensatory justice which aim to make victims of unwarranted climatic disruptions “whole again”. The article develops a typology of different kinds of climate change disruption and uses it to (1) explain the differences between “losses” and “damages”, (2) assign priorities among compensatory measures seeking to address loss and damage and (3) explore a range of equitable responses to loss and damage | Conceptual and Thematic Analysis | 2017           | Polit. Stud            | 65  | 2     | 356–372 | 45                |
| Re-conceptualising climate change-driven “loss and damage” | Puig, D                | This article reviews loss-and-damage scholarship, to explore the potential impact of separating “loss” and “damage”, both in the context of research and policy. A key result presented in the article is that treating “loss” and “damage” separately would be most beneficial with regard to loss, in that the political hurdles that currently mar the loss-and-damage debate mainly derive from disagreement over financing responsibilities with regard to damages, which unduly slows progress on the urgent task of understanding how to manage loss. In this context, the article provides elements for separate definitions of “loss” and “damage”, and suggests a possible categorisation of loss-and-damage scholarship  | Conceptual and Thematic Analysis | 2022           | Int. J. Global Warming | 27  | 2     | 202–212 | 3                 |

| Title  | Authors        | Abstract  | Methodology and Methods                  | Published Year | Journal             | Vol | Issue | Pages   | Citation Overview |
|--|----------------|---|--|----------------|---------------------|-----|-------|---------|-------------------|
| A TWAIL Perspective on Loss and Damage from Climate Change: Reflections from Indira Gandhi's Speech at Stockholm   | Rao, M         | There seem to be no answers to resolve the deadlock between the Global North and the Global South on liability and compensation for loss and damage from climate change. Revisiting the original story of international environmental law from the Stockholm Conference of 1972 may help us address these historical tensions. In doing so, this article unveils the genesis of Third World Approaches to International Law (TWAIL) from the Stockholm Conference as an alternative consciousness centred around the aspirations of the Global South. Indira Gandhi's plenary address at Stockholm outlined the Global South's position on environmental issues, which greatly influenced early TWAIL scholarship in the 1980s. Locating TWAIL's origins at Stockholm allows us to: (1) chart the environmental concerns of the Global South till date; (2) infer its evolved view on the development versus environment debate; and (3) understand the role of future TWAIL scholarship in challenging the enduring and structural limitations of international environmental law, especially in future deliberations on loss and damage   | Historical overview and concept analysis | 2022           | Asian J. Int. Law   | 12  | 1     | 63–81   | 3                 |
| Grassroots involvement on Global South policy narratives and deliberative action on climate change loss and damage | Sacramento, NJ | <b>Purpose:</b> This paper investigates how power and narratives among actors relate to the process of agenda-setting and deliberation in the context of climate change loss and damage. The focus is to understand how grassroots voices manifest their concerns on intensifying economic and non-economic impacts of climate change loss and damage which affect them. <b>Design/methodology/approach:</b> This paper is based on the case of the Southeast Asia climate change loss and damage workshop in Bohol, Philippines in August 2022. It utilizes lesson drawing as a critical approach by thematic analysis in making sense of the data gathered from the perspectives of participant observers and facilitators. <b>Findings:</b> There are different levels of power and dominant narratives actors in a deliberative process propel in taking a stance over a particular issue towards agenda-setting and policy framing. The power and narratives help actors to maintain and emphasize their position, exercise authority, and to some point, suppress weak voices. Narratives associated with emotions, sentiments, ideologies, and value systems of the grassroots, community leaders, and climate justice movements tend to be devalued by those in a high level of power and authority. <b>Originality/value:</b> Techno-authoritarian domination explicitly hampers a genuine grassroots involvement in the policy process, especially towards agenda-setting of immediate concerns about climate change loss and damage which affect the public. Critiquing actors' power and narratives are productive in identifying and propagating the type of deliberative spaces that speak truth to power | Conceptual and Empirical Research        | 2023           | Public. Adm. Policy | 26  | 2     | 156–168 | 1                 |

| Title   | Authors                    | Abstract   | Methodology and Methods          | Published Year | Journal                | Vol | Issue | Pages   | Citation Overview |
|---|----------------------------|--|----------------------------------|----------------|------------------------|-----|-------|---------|-------------------|
| The Loss and Damage Fund: A Solution to Interpretive Conflicts of Responsibility for Climate Change?          | Salimi Turkamani, H        | Today, developed and developing countries, each based on their economic, political, and geographical background, have a different interpretation of the causes and consequences of climate change, so that each of them, based on different but believable and convincing statistics and principles, accuse each other of causing climate change and being responsible for its consequences. One of the most recent initiatives to reconcile the contradictory interpretations of the parties was to establish the loss and damage Fund in COP27 and its operationalization in COP28. Can the operationalization of the Fund be a decisive resolution in the field of contradictory interpretations between the parties regarding the responsibility caused by climate change? The recent study shows that due to different political and economic backgrounds, each party has contradictory interpretations regarding the causes and consequences of climate change based on different legal principles and scientific data. Although the mere establishment of the Fund is a positive step to reconcile these contradictory perceptions, the conflicting interpretations, especially regarding the finance recipients and contributors, indicate that the tragic story of the responsibility for climate change still has an open and ambiguous ending | Conceptual and Thematic Analysis | 2024           | Neth. Int. Law Rev     | 71  | 2     | 327–352 | 0                 |
| Observations on the role of the private sector in the UNFCCC's loss and damage of climate change work program | Surminski, S.; Eldridge, J | Private sector engagement, particularly in times of public budget constraints, has become a buzz word in most policy areas, yet roles and responsibilities between public and private sectors remain indistinct. We investigate this for the United Nations Framework Convention on Climate Change (UNFCCC) work stream on addressing loss and damage (L&D). This paper presents evidence of current engagement and expectations, from official submissions to the UNFCCC, L&D literature, and relates this to experiences from the fields of disaster risk reduction (DRR) and climate change adaptation (CCA). Results show a degree of 'vagueness' in outlining the role of the private sector with unclear conceptual boundaries of L&D, DRR and CCA posing challenges for stakeholders. Expectation that the private sector will support the emerging L&D framework through knowledge, skills and resource, particularly in developed countries, is apparent. Further clarity on expectations and the ability to deliver by the private sector is required  | Conceptual and Thematic Analysis | 2015           | Int. J. Global Warming | 8   | 2     | 213–230 | 5                 |



| Title   | Authors                         | Abstract  | Methodology and Methods   | Published Year | Journal                           | Vol | Issue | Pages   | Citation Overview |
|---|---------------------------------|---|---------------------------|----------------|-----------------------------------|-----|-------|---------|-------------------|
| Beyond the North–South divide: Litigation's role in resolving climate change loss and damage claims | Tigre, M.A.; Wewerinke-Singh, M | Within the international climate regime, legal aspects surrounding loss and damage (L&D) are contentious topics, implicating liability, compensation and notions of vulnerability. The attribution of responsibility and the pursuit of redress for L&D present intricate legal and governance challenges. The ongoing debates under the United Nations Framework Convention on Climate Change are characterized by a pronounced North–South divide and have done little to provide tangible support to those most affected by L&D. This apparent neglect has prompted exploration of alternative avenues for climate harm redress. The burgeoning field of litigation for liability and compensation of climate harm holds potential significance for L&D discourse, but its efficacy, especially in compensation claims relating to the adverse effects of climate change, is uncertain. There is, as yet, no precedent of plaintiffs succeeding in an L&D case, with numerous legal, evidentiary and practical barriers persisting, particularly for Global South plaintiffs aiming to hold Northern governments and actors accountable. This article scrutinizes recent advances in climate litigation and their potential to facilitate or obstruct L&D litigation. Focusing on seminal L&D cases, namely, <i>Lliuya v RWE</i> and <i>Asmania et al. v Holcim</i> , we present a novel legal critique of climate litigation's capacity to assist climate-vulnerable States, populations and communities in pursuing redress for L&D, based on pertinent case law and an examination of overarching issues of attribution and extraterritorial jurisdiction | Qualitative Case Analysis | 2023           | Rev. Eur. Comp. Int. Environ. Law | 32  | 3     | 439–452 | 2                 |

| Title  | Authors                           | Abstract  | Methodology and Methods          | Published Year | Journal      | Vol | Issue | Pages   | Citation Overview |
|--|-----------------------------------|---|----------------------------------|----------------|--------------|-----|-------|---------|-------------------|
| A human rights-based approach to loss and damage under the climate change regime | Toussaint, P.; Martínez Blanco, A | Climate change has been labelled the human rights challenge of the twenty-first century. Loss and damage resulting from climate change, in particular, poses a severe threat to the human rights of affected communities. However, the international response to climate change under the United Nations Framework Convention on Climate Change (UNFCCC) has thus far insufficiently taken human rights into account, contributing to policy outcomes inadequate to protecting communities affected by loss and damage. This article proposes the adoption of a human rights-based approach as a strategic tool for policymakers to strengthen the international response to loss and damage. The approach builds on the existing obligations of Parties under international and regional human rights treaties and provides a method for systematically integrating human rights that goes beyond mere mainstreaming of human rights. Specifically, the article identifies opportunities for anchoring such an approach under the Warsaw International Mechanism and key mechanisms for the implementation of the Paris Agreement. Conversely, it considers the integration of loss and damage in the work of relevant human rights bodies, specifically the United Nations Human Rights Council and the Office of the High Commissioner for Human Rights. Key policy insights Adopting a human rights-based approach can be an important strategic tool for policymakers to strengthen the international response on loss and damage. Although the Paris Rulebook is weak on human rights, Parties are bound by their existing obligations under international and regional human rights treaties they have ratified and should be guided by the Paris Agreement's preamble. The Paris Rulebook sidelines Article 8 of the Paris Agreement, but loss and damage still plays an important role in the Transparency Framework and Global Stocktake. There is a significant opportunity for the Warsaw International Mechanism's Executive Committee to develop human rights guidelines for loss and damage policies and actions, as well as guidelines for conducting human rights impact assessments, and to set up a specialized body to monitor compliance | Conceptual and Thematic Analysis | 2020           | Clim. Policy | 20  | 6     | 743–757 | 19                |

| Title  | Authors    | Abstract   | Methodology and Methods             | Published Year | Journal                           | Vol | Issue | Pages   | Citation Overview |
|--|------------|--|-------------------------------------|----------------|-----------------------------------|-----|-------|---------|-------------------|
| Putting the constructive ambiguity of climate change loss and damage into practice: The early work of the UNFCCC WIM ExCom | Vanhala, L | The establishment within the United Nations Framework Convention on Climate Change of the Warsaw International Mechanism on Loss and Damage associated with Climate Change Impacts (L&D) resulted from a loose consensus that emerged based on a constructively ambiguous understanding of what climate change loss and damage is and how to best address this policy problem. Different actors have understood and advocated for divergent conceptualizations of L&D: some frame it through the lens of risk and see comprehensive disaster risk management strategies, insurance schemes and post hoc humanitarian approaches as most appropriate. Others understand it through the lens of climate justice, emphasizing the harms that arise because of climate change losses and damages and advocate for compensation as an appropriate policy response. How does this ambiguity embedded within the climate regime translate into practice during the implementation stage? This research shows that ideational contestation over L&D has specific implications for institutional development, including: (i) the composition and expertise of the governing Executive Committee (ExCom); and (ii) the practices of agenda-setting and the development of the ExCom's workplan. Drawing on multi-sited ethnographic data and interviews with key stakeholders, this analysis identifies some of the ways in which constructive ambiguity can become embodied and institutionalized in L&D governance. It also points to a paradox in international climate governance that the very ambiguity that allowed for the institutional embedding of L&D is also the driver of continued contestation, facilitates the re-negotiating of issues already agreed and explains institutional delays in effectively grappling with the losses and damages that are already taking place | Contemp-tual and Empirical Research | 2023           | Rev. Eur. Comp. Int. Environ. Law | 32  | 3     | 428–438 | 6                 |

| Title   | Authors                  | Abstract  | Methodology and Methods          | Published Year | Journal                | Vol | Issue | Pages   | Citation Overview |
|---|--------------------------|---|----------------------------------|----------------|------------------------|-----|-------|---------|-------------------|
| Framing climate change loss and damage in UNFCCC negotiations                                       | Vanhala, L.; Hestbaek, C | How does an idea emerge and gain traction in the international arena when its underpinning principles are contested by powerful players? The adoption in 2013 of the Warsaw International Mechanism on Loss and Damage as part of the United Nations Framework Convention on Climate Change (UNFCCC) puzzled observers, because key state parties, such as the United States, had historically opposed the policy. This article examines the roles of frame contestation and ambiguity in accounting for the evolution and institutionalization of the "loss and damage" norm within the UNFCCC. The article applies frame analysis to the data from coverage of the negotiations and elite interviews. It reveals that two competing framings, one focused on liability and compensation and the other on risk and insurance, evolved into a single, overarching master frame. This more ambiguous framing allowed parties to attach different meanings to the policy that led to the resolution of differences among the parties and the embedding of the idea of loss and damage in international climate policy | Conceptual and Thematic Analysis | 2016           | Global Environ. Polit  | 16  | 4     | 111–129 | 97                |
| Loss and damage due to climate change: Attribution and causation—where climate science and law meet | Verheyen, R              | The short paper scrutinises the concept of legal causation in the context of 'detection and attribution' and discusses the approaches of law and climate science to causation. It looks at the issue both with respect to the climate regime's agenda item of 'loss and damage' and with respect to a specific tort-like or nuisance-based case   | Conceptual and Thematic Analysis | 2015           | Int. J. Global Warming | 8   | 2     | 158–169 | 18                |

| Title   | Authors                          | Abstract   | Methodology and Methods          | Published Year | Journal              | Vol | Issue | Pages   | Citation Overview |
|---|----------------------------------|--|----------------------------------|----------------|----------------------|-----|-------|---------|-------------------|
| Between negotiations and litigation: Vanuatu's perspective on loss and damage from climate change | Wewerinke-Singh, M.; Salili, D.H | This contribution explores how climate-vulnerable states can effectively use the law to force action in order to address loss and damage from climate change, taking the Pacific Island state of Vanuatu as an example. Vanuatu made headlines when its Minister of Foreign Affairs, International Cooperation and External Trade, the Hon. Ralph Regenvanu, announced his government's intention to explore legal action as a tool to address climate loss and damage suffered in Vanuatu. Our contribution places this announcement in the context of Vanuatu's own experience with climate loss and damage, and the state's ongoing efforts to secure compensation for loss and damage through the multilateral climate change regime. We then discuss the possibilities for legal action to seek redress for climate loss and damage, focusing on two types of action highlighted in Minister Regenvanu's statement: action against states under international law, and action against fossil fuel companies under domestic law. After concluding that the issue of compensation for climate loss and damage is best addressed at the multilateral level, we offer proposals on how the two processes of litigation and negotiation could interact with each other and inspire more far-reaching action to address loss and damage from climate change. Key policy insights The review of the Warsaw International Mechanism for Loss and Damage offers an opportunity to start putting in place a facility for loss and damage finance under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC). A climate damages tax (CDT) on fossil fuel companies seems a particularly promising option for mobilizing loss and damage finance. Such a CDT could be one revenue stream for a relevant loss and damage facility. Legal actions including cases against foreign states or fossil fuel companies could bolster the position of climate-vulnerable states in multilateral negotiations on loss and damage finance | Case Study analysis              | 2020           | Clim. Policy         | 20  | 6     | 681–692 | 33                |
| COP27 establishes loss and damage fund to respond to human cost of climate change                 | Wyns, A                          |  | Conceptual and Thematic Analysis | 2023           | Lancet Planet Health | 7   | 1     | e21–e22 | 33                |

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## References

1. Adger WN. Loss and damage from climate change: legacies from Glasgow and Sharm el-Sheikh. *Scott Geogr J.* 2023;139(1–2):142–9. <https://doi.org/10.1080/14702541.2023.2194285>.
2. Amini A, Abedi M, Nesari E, Daryadel E, Kolahi M, Mianabadi H, Fisher J. The Paris agreement's approach toward climate change loss and damage. *World Aff.* 2023;186(1):46–80. <https://doi.org/10.1177/00438200221147936>.
3. Apriandi M. Exercising no harm rule: claims for damage and loss due climate change effects. *Sriwijaya Law Rev.* 2022;6(1):174–88. <https://doi.org/10.2894/slrev.Vol6.Iss1.1646.pp174-188>.
4. Asmania et al. v. Holcim, *Climate Change Litigation Databases*, <https://climatecasechart.com/non-us-case/four-islanders-of-pari-v-holcim/> (2022).
5. Balzter H, Macul M, Delaney B, Tansey K, Espirito-Santo F, Ofoegbu C, Petrovskii S, Forchtner B, Nicholes N, Payo E, Heslop-Harrison P, Burns M, Basell L, Egberts E, Stockley E, Desorgher M, Upton C, Whelan M, Yildiz A. Loss and damage from climate change: knowledge gaps and interdisciplinary approaches. *Sustainability.* 2023;15(15):11864.
6. Boda CS, Faran T, Scown M, Dorkenoo K, Chaffin BC, Nastar M, Boyd E. Loss and damage from climate change and implicit assumptions of sustainable development. *Climatic Change.* 2021;164(1–2): 13.
7. Broberg M. State of climate law: the third pillar of international climate change law: explaining 'loss and damage' after the Paris agreement. *Clim Law.* 2020;10(2):211–23. <https://doi.org/10.1163/18786561-01002004>.
8. Bruckner A. The global pact for the environment: implications for climate change loss and damage. *Environ Plan Law J.* 2019;36(6):642–57.
9. Calliari E. Loss and damage: a critical discourse analysis of Parties' positions in climate change negotiations. *J Risk Res.* 2018;21(6):725–47. <https://doi.org/10.1080/13669877.2016.1240706>.
10. Calliari E, Vanhala L. The 'national turn' in climate change loss and damage governance research: constructing the L&D policy landscape in Tuvalu. *Clim Policy.* 2022;22(2):184–97. <https://doi.org/10.1080/14693062.2022.2027222>.
11. Calliari E, Serdeczny O, Vanhala L. Making sense of the politics in the climate change loss & damage debate. *Glob Environ Chang.* 2020;64:102133. <https://doi.org/10.1016/j.gloenvcha.2020.102133>.
12. Calvin, K., Dasgupta, D., Krinner, G., Mukherji, A., Thorne, P. W., Trisos, C., Romero, J., Aldunce, P., Barrett, K., Blanco, G., Cheung, W. W. L., Connors, S., Denton, F., Diongue-Niang, A., Dodman, D., Garschagen, M., Geden, O., Hayward, B., Jones, C., ... Péan, C. (2023). *IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland.* (First). Intergovernmental Panel on Climate Change (IPCC). <https://doi.org/10.59327/IPCC/AR6-9789291691647>
13. Cao M, Wang Q, Cheng Y. Remedies for loss and damage caused by climate change from the dimension of climate justice. *Chin J Pop Resour Environ.* 2016;14(4):253–61. <https://doi.org/10.1080/10042857.2016.1258795>.
14. Chynoweth P. Legal research. In *Advanced research methods in the built environment* (pp. 28–37). Wiley-Blackwell Publishers. 2008.
15. Dehm J. Climate change, 'slow violence' and the indefinite deferral of responsibility for 'loss and damage.' *Griffith Law Rev.* 2020;29(2):220–52. <https://doi.org/10.1080/10383441.2020.1790101>.
16. Doelle M, Seck S. Loss & damage from climate change: from concept to remedy? *Clim Policy.* 2020;20(6):669–80. <https://doi.org/10.1080/14693062.2019.1630353>.
17. Düvel E, García-Portela L. The ethics of climate change loss and damage. *Wiley Interdiscip Rev Clim Change.* 2024. <https://doi.org/10.1002/wcc.910>.
18. García J. Challenges of compensation and reparation for loss and damage related to the adverse effects of climate change. *Mexican Law Rev.* 2020;13(1):183–99. <https://doi.org/10.2220/ijj.24485306e.2020.1.14813>.
19. García-Portela L. Moral responsibility for climate change loss and damage: a response to the excusable ignorance objection. *Teorema.* 2020;39(1):7–24.
20. He X, Zhang X, Ma X, Li Y, Wang W. International mechanism for loss and damage from climate change: recommendations for related work in China. *Chin J Pop Resour Environ.* 2015;13(4):291–6. <https://doi.org/10.1080/10042857.2015.1095690>.
21. Homberg MVD, McQuistan C. Technology for climate justice: a reporting framework for loss and damage as part of key global agreements. In: Mechler R, Bouwer LM, Schinko T, Surminski S, Linnerooth-Bayer J, editors. *Loss and damage from climate change*. Cham: Springer International Publishing; 2019. p. 513–45. [https://doi.org/10.1007/978-3-319-72026-5\\_22](https://doi.org/10.1007/978-3-319-72026-5_22).
22. Huggel C, Stone D, Eicken H, Hansen G. Potential and limitations of the attribution of climate change impacts for informing loss and damage discussions and policies. *Clim Change.* 2015;133(3):453–67. <https://doi.org/10.1007/s10584-015-1441-z>.
23. Intergovernmental Panel On Climate Change (Ippc). *Climate change 2022—impacts, adaptation and vulnerability: working group ii contribution to the sixth assessment report of the intergovernmental panel on climate change*. 1st ed. Cambridge: Cambridge University Press; 2023. <https://doi.org/10.1017/9781009325844>.
24. Johnson CA. Holding polluting countries to account for climate change: is "loss and damage" up to the task? *Rev Policy Res.* 2017;34(1):50–67. <https://doi.org/10.1111/ropr.12216>.
25. Linos K, Carlson M. Qualitative methods for law review writing symposium: developing best practices for legal analysis. *Univ Chicago Law Rev.* 2017;84(1):213–38.
26. Littell JH, Corcoran J, Pillai V. Introduction. In: Littell JH, Corcoran J, Pillai V, editors. *Systematic reviews and meta-analysis*. Oxford: Oxford University Press; 2008.

27. Lowy Institute – Indo Pacific Development Centre. (2024, October). *Policy Brief: A climate loss and damage fund that works* | UNFCCC. <https://unfccc.int/documents/641439>
28. Lyster R. A fossil fuel-funded climate disaster response fund under the Warsaw international mechanism for loss and damage associated with climate change impacts. *Transnatl Environ Law*. 2015;4(1):125–51. <https://doi.org/10.1017/S2047102514000302>.
29. Ma X, Li Y, He X, Wang W, Liu S, Gao Q. Loss and damage related to climate change: connotations and response mechanism. *Chin J Pop Resour Environ*. 2015;13(1):55–60. <https://doi.org/10.1080/10042857.2015.1005341>.
30. Maly E, Suppasri A. The sendai framework for disaster risk reduction at five: lessons from the 2011 great east japan earthquake and tsunami. *Int J Disaster Risk Sci*. 2020;11(2):167–78. <https://doi.org/10.1007/s13753-020-00268-9>.
31. McConville, M. (Ed.). (2007). *Qualitative Legal Research*. In *Research Methods for Law* (1st ed). Edinburgh University Press
32. McNamara KE. Exploring loss and damage at the international climate change talks. *Int J Disaster Risk Sci*. 2014;5(3):242–6. <https://doi.org/10.1007/s13753-014-0023-4>.
33. Mechler R, Bouwer LM, Schinko T, Surminski S, Linnerooth-Bayer J, editors. *Loss and damage from climate change: concepts, methods and policy options*. Cham: Springer International Publishing; 2019. <https://doi.org/10.1007/978-3-319-72026-5>.
34. Menk L, Schinko T, Karabaczek V, Hagen I, Kienberger S. What's at stake? A human well-being based proposal for assessing risk of loss and damage from climate change. *Front Clim*. 2022. <https://doi.org/10.3389/fclim.2022.1032886>.
35. Nand MM, Bardsley DK. Climate change loss and damage policy implications for Pacific Island Countries. *Local Environ*. 2020;25(9):725–40. <https://doi.org/10.1080/13549839.2020.1825357>.
36. Nand MM, Bardsley DK, Suh J. Climate change loss and damage governance. Where are we now? A case study from Fiji's sugar industry. *Local Environ*. 2023;28(6):768–83. <https://doi.org/10.1080/13549839.2023.2173733>.
37. Naylor AW, Ford J. Vulnerability and loss and damage following the COP27 of the UN framework convention on climate change. *Reg Environ Change*. 2023. <https://doi.org/10.1007/s10113-023-02033-2>.
38. Ohdedar B. Loss and damage from the impacts of climate change: a framework for implementation. *Nord J Int Law*. 2016;85(1):1–36. <https://doi.org/10.1163/15718107-08501001>.
39. Ohdedar B. Loss and damage from the impacts of climate change: a framework for implementation. *Nordic J Int Law*. 2016;85(1):1–36. <https://doi.org/10.1163/15718107-08501001>.
40. Onyeabor E, Agu HU, Anozie MC, Chime I, Nwafor N. The political question and litigating loss and damage: Any hope for victims of climate change induced impacts in Nigeria? *Commonw Law Bull*. 2021;47(3):462–78. <https://doi.org/10.1080/03050718.2020.1774401>.
41. Page EA, Heyward C. Compensating for climate change loss and damage. *Polit Stud*. 2017;65(2):356–72. <https://doi.org/10.1177/0032321716647401>.
42. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, Moher D. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021. <https://doi.org/10.1136/bmj.n71>.
43. Pahlevan Sharif S, Mura P, Wijesinghe SNR. Systematic reviews in Asia: introducing the “PRISMA” protocol to tourism and hospitality scholars. In: Rezaei S, editor. *Quantitative tourism research in Asia*. Singapore: Springer Nature Singapore; 2019a. p. 13–33. [https://doi.org/10.1007/978-981-13-2463-5\\_2](https://doi.org/10.1007/978-981-13-2463-5_2).
44. Pahlevan Sharif S, Mura P, Wijesinghe SNR. Systematic reviews in Asia: introducing the “PRISMA” protocol to tourism and hospitality scholars. In: Rezaei S, editor. *Quantitative tourism research in Asia: current status and future directions*. Berlin: Springer Nature; 2019. p. 13–33. [https://doi.org/10.1007/978-981-13-2463-5\\_2](https://doi.org/10.1007/978-981-13-2463-5_2).
45. Pill M. Towards a funding mechanism for loss and damage from climate change impacts. *Clim Risk Manag*. 2022;35:100391. <https://doi.org/10.1016/j.crm.2021.100391>.
46. Puig, D. Loss and damage in the global stocktake. *Clim Policy*. 2022;22(2):175–183. <https://doi.org/10.1080/14693062.2021.2023452>
47. Rahman MA, Rahman MM. The impact of crowdsourcing in organizations: a systematic literature review (slr) and future research directions. *J Technol Manag Innov*. 2023;18(2):81–90. <https://doi.org/10.4067/S0718-27242023000200081>.
48. Sacramento NJ. Grassroots involvement on global South policy narratives and deliberative action on climate change loss and damage. *Public Adm Policy*. 2023;26(2):156–68. <https://doi.org/10.1108/PAP-12-2022-0146>.
49. Salimi Turkamani H. The loss and damage fund: a solution to interpretive conflicts of responsibility for climate change? *Neth Int Law Rev*. 2024;71(2):327–52. <https://doi.org/10.1007/s40802-024-00259-3>.
50. Saúl Luciano Lliuya v. RWE. 5 U 15/17 OLG Hamm / Case No. 2 O 285/15 Essen Regional Court. 2015.
51. Sendai Framework for Disaster Risk Reduction 2015 - 2030 (2015).
52. Sohrabi C, Franchi T, Mathew G, Kerwan A, Nicola M, Griffin M, Agha M, Agha R. PRISMA 2020 statement: what's new and the importance of reporting guidelines. *Int J Surg*. 2021;88:105918. <https://doi.org/10.1016/j.ijsu.2021.105918>.
53. Surminski S, Eldridge J. Observations on the role of the private sector in the UNFCCC's loss and damage of climate change work program. *Int J Global Warm*. 2015;8(2):213–30. <https://doi.org/10.1504/IJGW.2015.071955>.
54. Tigre MA, Wewerinke-Singh M. Beyond the North-South divide: litigation's role in resolving climate change loss and damage claims. *Rev Eur Comp Int Environ Law*. 2023;32(3):439–52. <https://doi.org/10.1111/reel.12517>.
55. Toussaint P, Martínez Blanco A. A human rights-based approach to loss and damage under the climate change regime. *Climate Policy*. 2020;20(6):743–57. <https://doi.org/10.1080/14693062.2019.1630354>.
56. Toussaint P, Martínez Blanco A. A human rights-based approach to loss and damage under the climate change regime. *Clim Policy*. 2020;20(6):743–57. <https://doi.org/10.1080/14693062.2019.1630354>.
57. Van Gestel R, Micklitz H-W, Maduro MP. Methodology in the new legal world (SSRN Scholarly Paper 2069872). *Soc Sci Res Netw*. 2012. <https://doi.org/10.2139/ssrn.2069872>.
58. Vanhala L. Putting the constructive ambiguity of climate change loss and damage into practice: the early work of the UNFCCC WIM ExCom. *Rev Eur, Comp Int Environ Law*. 2023;32(3):428–38. <https://doi.org/10.1111/reel.12508>.
59. Vanhala L. Putting the constructive ambiguity of climate change loss and damage into practice: the early work of the UNFCCC WIM ExCom. *Rev Eur Comp Int Environ Law*. 2023;32(3):428–38. <https://doi.org/10.1111/reel.12508>.



60. Vanhala L, Hestbaek C. Framing climate change loss and damage in UNFCCC negotiations. *Glob Environ Politics*. 2016;16(4):111–29. [https://doi.org/10.1162/GLEP\\_a\\_00379](https://doi.org/10.1162/GLEP_a_00379).
61. Verheyen R. Loss and damage due to climate change: attribution and causation-where climate science and law meet. *Int J Glob Warm*. 2015;8(2):158–69. <https://doi.org/10.1504/IJGW.2015.071968>.
62. Wallimann-Helmer I, Meyer L, Mintz-Woo K, Schinko T, Serdeczny O. The ethical challenges in the context of climate loss and damage. In: Mechler R, Bouwer LM, Schinko T, Surminski S, Linnerooth-Bayer J, editors. *Loss and damage from climate change*. Cham: Springer International Publishing; 2019. p. 39–62. [https://doi.org/10.1007/978-3-319-72026-5\\_2](https://doi.org/10.1007/978-3-319-72026-5_2).
63. Wewerinke-Singh M, Salili DH. Between negotiations and litigation: Vanuatu's perspective on loss and damage from climate change. *Clim Policy*. 2020;20(6):681–92. <https://doi.org/10.1080/14693062.2019.1623166>.
64. Wynn A. COP27 establishes loss and damage fund to respond to human cost of climate change. *Lancet Planet Health*. 2023;7(1):e21–2. [https://doi.org/10.1016/S2542-5196\(22\)00331-X](https://doi.org/10.1016/S2542-5196(22)00331-X).

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