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Floods in Rio Grande do Sul: a capabilities-based loss and damage analysis (COP27) (Amartya Sen)

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Abstract
Anthropogenic climate change is causing widespread loss and damage to things that people value. So far, assessments of non-economic loss and damage have generally been guided by predefined "types" of non-economic loss, as proposed by the United Nations Framework Convention on Climate Change (UNFCCC). In contrast, this paper uses the case of the floods in Rio Grande do Sul (2023/2024) to highlight the benefits of a values-based assessment approach, aiming at a context-sensitive understanding of people's lived experiences of loss and damage. First, a definition of loss and damage based on Amartya Sen's Capability Approach is proposed. This approach reinforces established categorizations and introduces a refined subcategorization of loss and damage into economic and non-economic categories. Furthermore, it advocates for a clear delineation between economic damages, non-economic losses, and non-economic damages. In addition, it proposes a range of reparative measures—both material and symbolic—that should be deployed in response to the diverse manifestations of loss and damage, with particular reference to the climate catastrophe experienced in Rio Grande do Sul (Brazil, 2023/2024). Moreover, the paper delineates a diverse array of measures for addressing loss and damage, each aligned with the distinct forms in which these manifest, encompassing reparations that span from material compensations to symbolic redress, with a focus directed toward both the affected agents and the victims.

Keywords: Capabilities Approach. Adaptation to climate change. Repairs resulting from floods.

Enchentes no Rio Grande do Sul: uma análise de perdas e danos (COP27) baseada em capacidades (Amartya Sen)

Resumo
As alterações climáticas antropogênicas estão causando perdas e danos generalizados aos elementos valorizados pelas pessoas. Até o momento, as análises relativas às perdas e danos de ordem não econômica são predominantemente guiadas por tipologias previamente estabelecidas desses prejuízos, conforme estipulado pela Convenção-Quadro

das Nações Unidas sobre a Mudança do Clima (CQNUMC). Em contrapartida, este artigo utiliza o caso das enchentes no Rio Grande do Sul (2023/2024) para enfatizar os benefícios de uma abordagem de avaliação baseada em valores, visando uma compreensão sensível do contexto das experiências vividas pelas pessoas em termos de perdas e danos. Primeiramente, propõe-se uma definição de perdas e danos fundamentada na Abordagem das Capacidades de Amartya Sen. Esta abordagem fundamenta as categorizações existentes e propõe uma nova subcategorização de perdas e danos em econômicos e não econômicos. Ademais, propõe-se a diferenciação entre danos econômicos, perdas não econômicas e danos não econômicos. Em segundo lugar, sugerem-se medidas reparativas (materiais e simbólicas) que devem ser implementadas em resposta às diversas formas de perdas e danos, com aplicação específica à catástrofe climática vivenciada pelo estado do Rio Grande do Sul (Brasil, 2023/2024). Além disso, o artigo apresenta uma variedade de medidas de perdas e danos, que correspondem às suas diferentes manifestações, abrangendo desde reparações materiais até reparações simbólicas, centradas tanto nos agentes quanto nas vítimas.

Palavras–chave: Abordagem de Capacidades. Adaptação às mudanças do clima. Reparações decorrentes das enchentes.

Inundaciones en Rio Grande do Sul: un análisis de pérdidas y daños (COP27) basado en el concepto de capacidades (Amartya Sen)

Resumen
El cambio climático antropogénico está provocando pérdidas y daños generalizados a elementos que la gente valora. Hasta el momento, las evaluaciones de pérdidas y daños no económicos generalmente se guían por "tipos" predefinidos de pérdidas no económicas, como lo propone la Convención Marco de las Naciones Unidas sobre el Cambio Climático (CMNUCC). Por el contrario, este artículo utiliza el caso de las inundaciones en Rio Grande do Sul (2023/2024) para enfatizar los beneficios de un enfoque de evaluación basado en valores, apuntando a una comprensión sensible al contexto de las experiencias vividas por las personas en términos de pérdidas y daños. En primer lugar, se propone una definición de pérdidas y daños basada en el Enfoque de Capacidades de Amartya Sen. Este enfoque fundamenta las categorizaciones existentes y propone una nueva subcategorización de pérdidas y daños en económicos y no económicos. Además, se propone diferenciar entre daños económicos, pérdidas no económicas y daños no económicos. En segundo lugar, se sugieren medidas reparadoras (materiales y simbólicas) que deberían implementarse en respuesta a las diversas formas de pérdidas y daños, con aplicación específica a la catástrofe climática vivida por el estado de Rio Grande do Sul (Brasil, 2023/2024). Adicionalmente, el artículo presenta una variedad de medidas de pérdidas y daños, que corresponden a sus diferentes manifestaciones, que van desde reparaciones materiales hasta reparaciones simbólicas, centrándose tanto en los agentes como en las víctimas.

Palabras clave: Enfoque de Capacidades. Adaptación al cambio climático. Reparaciones resultantes de inundaciones.

1 Introduction

Climate adaptation refers to the processes and strategies implemented globally to adjust and respond to the impacts of climate change. These adaptation actions differ from mitigation measures, which aim to reduce greenhouse gas emissions and, consequently, reduce the worsening of climate change. Until now,

investments directed at adaptation have been significantly lower than those directed at mitigation. However, with the increasing frequency and intensity of extreme weather events, such as storms, floods, wildfires and other natural disasters, the need to intensify adaptation efforts is becoming clear. Such efforts are essential to protect vulnerable populations and regions from the adverse impacts of climate change.

It was during the Climate Conference - COP27, held in Egypt (2024), that nations recognized that the climate impacts that have occurred, *inter alia*, can be reduced by adaptation (UNFCCC, 2022). These impacts are referred to as loss and damage, and the public policies and interventions designed to address them are classified as climate adaptation mechanisms and financing strategies. Their primary objective is to mitigate the unavoidable losses and damages arising from the adverse effects of climate change. The subject has provoked considerable contention within the sphere of policy development and climate negotiations. To date, political consensus on the significance of loss and damage has been attainable primarily through the strategic employment of imprecise and ambiguous terminology in the articulation of these concepts (Mechler *et al*., 2020). However, moving forward with the implementation of policy measures related to loss and damage requires greater clarity. In the meantime, this paper aims to deepen the knowledge of a comprehensive approach to bridge the +gaps in understanding to deal with the adverse consequences of climate change. Significantly, Page and Heyward contended that "a principal impediment to advancing further in this domain lies in the existence of several gaps in our comprehension of the definition, applicability, and rationale underlying the concept of loss and damage" (2016, p. 3).

In this context, the World Climate Change Conference (COP) established the Warsaw International Mechanism for Loss and Damage associated with the Impacts of Climate Change (Loss and Damage Mechanism) with the aim of addressing losses and damages arising from the impacts of climate change. This mechanism aims to address adverse impacts, including extreme weather events and slow-onset events, in developing countries that are particularly vulnerable. The Loss and Damage Mechanism was established during COP19, held in November 2013 - Warsaw, Poland. Losses and damages related to the adverse effects of climate change cover a range of impacts that, in some cases, exceed what can be mitigated through adaptation strategies (UNFCCC, 2014, p. 6).

With the agreement to create a specific fund for loss and damage reached in 2022 by the nations of the United Nations Framework Convention on Climate Change (UNFCCC) during COP27, the need for a clear definition of loss and damage has now become more pressing. This conceptualization carries significant implications for the operationalization of loss and damage interventions. Primarily, it dictates the allocation of financial resources to specific recipients; additionally, it will shape the nature of the measures that receive funding. This paper contributes to urgent political decisions by clarifying these points and proposing an initial and preliminary applicability to the case of the floods in Rio Grande do Sul (2023/2024).

The UNFCCC has defined loss and damage as "the realized and/or anticipated manifestation of climate change-induced impacts in developing nations that detrimentally affect both human and natural systems" (2012, p. 4). Nevertheless, this definition is often critiqued for its lack of conceptual precision. One of the key

issues lies in the fact that, within the UNFCCC discourse, loss and damage are broadly framed as "the adverse impacts of climate change" (Page; Heyward, 2016, p. 3). However, there remains ambiguity regarding whether the impacts classified as loss and damage refer to the tangible, physical repercussions of climate change (e.g., the destruction of a house by flooding or land submergence) or the broader social consequences (e.g., insufficient shelter or food insecurity). Moreover, no comprehensive analysis has been undertaken to delineate the distinction between the concepts of loss and damage, nor has there been adequate exploration of how corresponding policy interventions should diverge accordingly. Additionally, it remains unclear why such a definition is selectively applied to disadvantaged areas within urban settings.

This paper contends that loss and damage arise, at a minimum, when climate change disrupts individuals' lives, diminishing their access to adequate opportunities to pursue and enjoy essential dimensions of a valued existence (or capabilities). This capabilities-based framework for evaluating loss and damage is grounded in the seminal contributions of Amartya Sen (1999, 2009). Furthermore, the paper situates loss and damage measures within the broader context of climate change-related interventions, proposing reparative strategies to address the various manifestations of these impacts. The study also offers a significant contribution to the advancement of the climate justice literature. First, while predominant theories of climate justice tend to emphasize mitigation and adaptation, there has been comparatively limited scholarly work on articulating justice specifically in relation to loss and damage. Second, although the Capabilities Approach has been employed in addressing issues related to climate change mitigation and adaptation, there remains a notable gap in explicating how this approach connects to central concepts within the loss and damage discourse, such as disruptions to a valued life and the implications of climate-related harm.

Firstly, losses and damages are conceptualized as adverse disruptions to individuals' lives, presenting a challenge in their articulation with climate-induced harm, particularly in relation to the so-called "non-identity" problem. A resolution to this issue is advanced by restricting the concept of losses and damages to disruptions that undermine individuals' opportunities to attain and maintain a sufficient standard of living - a standard they value. This boundary establishes a minimal yet robust definition of losses and damages. Subsequently, the paper details how such losses and damages manifest through the lens of the Capability Approach. In essence, it is argued that losses and damages minimally occur when any of an individual's capabilities falls below a threshold of adequacy (a standard deemed worthy of human flourishing). Furthermore, the evaluation of losses and damages is framed as an ex post assessment of climate events in Rio Grande do Sul (2023 and 2024), addressing certain critiques regarding the retrospective nature of this analysis. Finally, the study concludes by proposing a nuanced distinction between loss and damage within the framework of the Capability Approach, alongside outlining distinct remedial measures tailored to each case.

2 Life disorders as damages and the minimum understanding of loss and damage

In order to address certain ambiguities, Page and Heyward define loss and damage as "unwarranted disruptions to the lives of individuals and communities, whether enduring or temporary, directly attributable to anthropogenic climate change and persisting despite the implementation of mitigation and adaptation efforts" (Page; Heyward, 2016, p. 3).

First, for an impact to be classified as loss and damage, and thereby addressed under climate loss and damage frameworks, it is essential to establish a causal link between the impact and climate change (García-Portela, 2023, p. 374). However, any assessment of this causality must be anchored in the latest and ongoing advancements in attribution science (Otto, 2015; Lloyd; Shepherd, 2021; García-Portela, 2023), while also considering non-climatic factors that may play a role in the occurrence of loss and damage (Raju, Boyd; Otto, 2022).

Second, and arguably most critically, Page and Heyward posit that the normatively significant "disruption currency" in the context of loss and damage should be framed in terms of "human ends," as opposed to the material and physical consequences of climate change. This approach aligns with Amartya Sen's principle that resources hold normative significance to the extent that they enable individuals to achieve certain functionings or states of being (Sen, 1999). Thus, from a normative standpoint, loss and damage should be interpreted as disruptions to what individuals are capable of doing or becoming, as this is what fundamentally matters. The present study adopts this overarching framework, grounded in the Capability Approach. Nonetheless, additional conceptual refinement is required to delineate and specify the nature of disruptions and human ends in the context of loss and damage, along with the diverse forms these disruptions may assume.

In this regard, it is important to acknowledge that life disruptions can manifest in various ways. A person's life may be altered through positive changes; for instance, becoming a parent constitutes a significant, though often positively perceived, disruption in one's life. However, the term "disruption" is most frequently associated with negative impacts on an individual's existence.

In other words, an individual's life is considered disrupted by a particular event when they suffer harm as a result, meaning they are left in a worse situation than they would have been in the absence of that event. This understanding is precisely how "disruptions" are employed in the discourse surrounding losses and damages related to climate change. Therefore, the concept of loss and damage is fundamentally rooted in the idea of life disruptions, which, in turn, are derived from the broader concept of climate-related harm. Nevertheless, the concept of harm, particularly in intergenerational contexts like climate change, remains a subject of debate due to the complexities posed by the non-identity problem (Parfit, 1984).

Climate change is the cumulative result of carbon emissions over time, with its effects manifesting several decades after these emissions occur. Consequently, climate change is at least partially, though significantly, driven by historical emissions (Meyer; Roser, 2010). Past activities that have contributed to climate change - such as the widespread use of automobiles, air travel, and the reliance of global energy systems on fossil fuels - continue to influence the standard of living

for individuals today. Additionally, by shaping social dynamics, these activities indirectly affect who will exist in the future.

However, it is difficult to argue that the very activities responsible for the existence of individuals also cause them harm, in the sense of rendering them worse off than they otherwise would have been (i.e., the counterfactual notion of harm). Individuals currently alive, whose lives are impacted by the consequences of past climate change-inducing activities, are not in a worse position than they would have been otherwise; rather, in the absence of those activities, they simply would not exist. If this is true, it follows that members of the current generation have not been harmed by climate change in a counterfactual sense (Page; Heyward, 2016; Meyer; Roser, 2010).

Does this suggest that individuals are incapable of experiencing harm in the form of life disruptions due to climate change? Not necessarily. It is crucial to understand that the non-identity problem is grounded in a counterfactual conception of harm. However, an alternative interpretation of harm could address the notion that our actions can indeed inflict harm on future generations or that currently living individuals may suffer from the actions of prior generations. Some scholars have proposed a "sufficient threshold" approach to harm, which may bypass the non-identity problem. Under this view, harm occurs when an individual is pushed below the threshold necessary for leading a flourishing, dignified, and decent life, resulting in inherently adverse conditions (Meyer; Roser, 2010).

This formulation of harm circumvents the non-identity problem by being non-comparative; it does not necessitate comparing an individual's condition to a counterfactual scenario. For harm to occur, it is sufficient that a person falls below a threshold of sufficiency. This framework arguably applies to at least some individuals affected by the negative consequences of climate change.

One might dismiss the non-identity problem as a purely philosophical puzzle with minimal practical relevance (Butt, 2009). However, even in such cases, examining loss and damage through the lens of a sufficient threshold of harm can provide valuable insights. Even if one disregards the non-identity problem and maintains that harm can manifest in intergenerational contexts in a counterfactual manner, there remains room to question whether all adverse impacts of climate change should be included under loss and damage policies, or whether they merit equivalent normative consideration.

Consider, for example, a wealthy individual who loses one of their vacation properties in Gramado, located in the Serra Gaúcha region, due to floods and landslides in 2023/2024. In this hypothetical scenario, this individual may suffer counterfactual harm, setting aside the non-identity issue. However, compensating for such losses may not be a priority, as it does not significantly impair the quality of life for someone with considerable financial resources. It may also be argued that it is inequitable for society to bear this financial burden, as the funds could be better allocated to other climate-related purposes, such as additional mitigation or adaptation projects, or even broader social initiatives. In light of this, one might reasonably question whether such impacts should be addressed through loss and damage policies, or if they should hold priority within the public policy agenda.

In this context, the notion of a "sufficient threshold" of harm is seen as a way to establish at least a minimal framework for identifying loss and damage, and

for determining the types of climate-related harms that should be prioritized in emerging policy frameworks. It is also plausible that stakeholders could reach consensus that loss and damage occur, at a minimum, when individuals are involuntarily pushed below the level required to lead a decent, dignified, and prosperous life, and that policy measures should prioritize addressing these forms of harm.

Moreover, the concept of a damage threshold inherent in this minimal framework justifies focusing specifically on vulnerable regions - such as the outskirts of Canoas-RS, which were severely affected by flooding following the collapse of dikes[1] - in the discourse on loss and damage, even if such references are not explicitly included in the broader definition.

In these regions, the adverse effects of climate change are likely to significantly impair people's ability to maintain the minimum conditions necessary for living a sufficiently decent life. In other words, while it may be unjustifiable to limit the definition of loss and damage to impacts occurring exclusively in economically disadvantaged areas, losses and damages, as conceptualized through the Capabilities Approach, are more likely to manifest in such regions, thereby justifying a specific policy focus on them.

3 A Capabilities-Based Loss and Damage Account

According to the concept of a sufficient threshold of harm, an individual is considered harmed when they are pushed below the threshold necessary to sustain a successful, dignified, and decent life, thereby leading a life characterized by intrinsically detrimental conditions. When climate change causes harm in this manner, individuals experience losses and damages. However, to render this definition more precise, it is essential to delineate what these intrinsically harmful conditions entail. In this context, an interpretation grounded in the Capability Approach is proposed to conceptualize the nature of such losses and harms.

The Capability Approach asserts that there are specific objective and universally fundamental components essential to human flourishing (functionings), and the opportunities to realize these components (capabilities) must be protected and preserved, rather than compromised, in the pursuit of social justice (Sen, 2009; Nussbaum, 2007, 2011; Muller, 2017, 2023). It is important to emphasize that the focus is on the "opportunities" (i.e., capabilities) to achieve specific functionings, rather than the actual realization of these functionings. A person can lead an adequately fulfilling life without necessarily achieving all functionings, as long as they possess the genuine opportunity to do so. Sen's (2009) well-known example illustrates this point through the case of an individual who voluntarily fasts; even if one does not achieve the level of functioning of adequate nourishment, the ability to voluntarily fast demonstrates that the person's capabilities remain intact.

Within this proposed framework, individuals are deemed to have suffered harm, in the threshold sense, when they are reduced to a state of inadequacy in at

[1] Information extracted from the website of the City Hall of Canoas/RS. Available at: *https://www.canoas.rs.gov.br/noticias/forca-das-aguas-causou-rompimento-dos-diques-mathias-velho-e-rio-branco/*. Accessed on: June 24, 2024.

least one of their core capabilities. The negative consequences involved in losses and damages can thus be interpreted in these terms. Notably, Nussbaum (2007, 2011) has provided a comprehensive list of core capabilities, which is outlined in Table 1.

Table 1. Nussbaum's list of capabilities (2007-2011).

- Life: [...] not to die prematurely, or before life is so reduced that it is no longer worth living.
- Bodily health: Being able to have good health [...]; being adequately nourished; having adequate shelter.
- Body integrity: Being able to move freely from one place to another. [...]
- Senses, imagination and thought: [...] To be able to use imagination and thought in connection with the experience and production of works and events of one's choice. [...]
- Emotions. Being able to have attachments to things and people; [...] loving, suffering, feeling longing, gratitude and justified anger. Not having emotional development impaired by fear and anxiety. [...]
- Practical reason. Being able to form a conception of the good and to engage in critical reflection on the planning of one's own life. [...]
- Affiliation. Being able [...] to participate in various forms of social interaction; [...]
- To have the social foundations of self-respect [...]; to be able to be treated as a dignified being whose value is equal to that of others. [...]
- Play: Being able to laugh, play, and enjoy recreational activities.
- Other species: Being able to live [...] in relation to animals, plants and the natural world.
- Control over the environment.
- Political. Being able to participate effectively in the political choices that govern one's own life; [...]
- Material. To be able to own property [and] to have the right to seek employment on an equal basis with others.

Source: Nussbaum (2007, 2011)

When an individual's capacity falls below a sufficient threshold, this constitutes an intrinsically detrimental condition for that person's life, as it impedes their ability to enjoy a dignified and prosperous existence, or, as Nussbaum (2007) articulates, a truly human life - a life imbued with dignity. Possessing one or more capacities that fall below this threshold is intrinsically harmful, as it represents a harmful breach of sufficiency. Consequently, losses and damages are said to occur when, as a result of the adverse effects of climate change, individuals experience disruptions that push them beneath the sufficient level of certain essential capacities.

From this standpoint, a clear distinction can be made between mitigation and adaptation policies, which are anticipatory or prospective in nature, and loss and damage policies, which are ex post or retrospective. Mitigation policies are designed to prevent climate change from eroding individuals' capabilities below a sufficiency threshold by reducing overall emissions and enhancing carbon sequestration. Similarly, adaptation policies seek to avert a decline in capabilities due to the detrimental effects of climate change by adjusting populations to the observable impacts of climate change or imminent threats.

In contrast, loss and damage policies aim to redress the harm caused by climate change, where individuals' capabilities have already been diminished below

the sufficiency threshold. These policies focus on both material and symbolic reparations, thus serving a fundamentally reparative function.

These temporal distinctions are framed with respect to the impact of climate change on individuals' levels of sufficiency in various capacities. Table 2 provides a clear illustration of these distinctions:

Table 2. Typology of measures relating to climate change.

Temporal dimension	***Ex ante***		***Ex post***
Climate policies	**Mitigation**	**Adaptation**	**Losses and Damages**
Focus	Prevent climate change from pushing people's capabilities below a sufficiency threshold		Redressing the negative effects of climate change on people's capacity sufficiency threshold
Method	CO_2 emissions or improve carbon sinks	Reduce vulnerabilities or improve coping mechanisms	Material reparations and symbolic reparations

Source: Elaborated by the author.

In this context, it is important to recall that the decisions outlined in Paper 8 of the Paris Agreement (1/CP.21) explicitly state that "the Agreement does not involve, nor provide a basis for, any liability or compensation" (UNFCCC, 2015). Consequently, some may argue that the terminology of "reparations" is uncomfortably aligned with the concept of "compensation," potentially creating challenges for political feasibility. In other words, the framing of loss and damage measures as reparations may deter the necessary support to render such measures viable for addressing loss and damage.

However, it is crucial to keep two considerations in mind:

First, motivational constraints represent just one aspect of the broader feasibility challenge. This challenge suggests that attention should be directed toward strategies that could transform the motivational structures of the relevant stakeholders (Gilabert; Lawford-Smith, 2012).

Secondly, and arguably of greater importance, the use of reparations terminology in this context should be regarded as impartial with respect to the principles of burden-sharing in addressing loss and damage. It is critical to recognize that the concept of "compensation" was excluded from the Paris Agreement due to its implications - specifically, that it would attribute legal liability for loss and damage to those countries historically most responsible for climate change, namely, the highly industrialized nations. By omitting references to "compensation" and "liability," developed nations aim to circumvent being held legally accountable for their historical emissions.

However, it is essential to understand that reparation obligations do not necessarily presuppose historical responsibility. Reparations, in this context, should be conceived as measures to address harm, irrespective of the normative distributive principles underlying the rectification of such harm. Here, reparations should simply be interpreted as "doing something beneficial" or "rectifying a wrong." When decoupled from burden-sharing principles, the use of reparations terminology need not compromise the political viability of these measures.

4 Response to some challenges for a prospective categorization of losses and damages

The prospective categorization of loss and damage could face objections on at least two significant fronts. These challenges stem from a potential discord between the proposed conceptual framework and the manner in which loss and damage measures have been traditionally delineated within both political and academic discourse. Addressing these issues is critical to justifying the retrospective nature of loss and damage and refining the Capability-Based Approach.

The initial challenge concerns the incorporation of risk management measures within the ambit of loss and damage. Numerous scholars have contended that loss and damage should encompass at least certain elements of risk management in response to climate change. They distinguish between acceptable, tolerable, and intolerable risks (Dow et al., 2013), asserting that loss and damage measures must address intolerable risks (Mechler et al., 2020).

However, managing intolerable risks is an ex ante process, occurring prior to the actualization of climate change impacts. If such risk management measures are preemptive and are nevertheless included within the loss and damage framework, this would challenge the characterization of loss and damage measures as entirely ex post.

To address this concern, it can be argued that the Capability-Based Approach is fully compatible with the inclusion of intolerable risk management within the loss and damage framework, without undermining the classification of loss and damage as forward-looking measures. The reasoning behind this is that intolerable risks are characterized as those that already hinder individuals' ability (or functionings) to attain a sufficient level of capabilities.

The literature lacks a clear and precise definition of "intolerable risks." One of the most persuasive efforts comes from Wallimann-Helmer, who describes intolerable risks as those "emerging when a human system is incapable of adapting to anticipated adverse climate impacts" (Wallimann-Helmer, 2015, p. 472). However, this definition is somewhat redundant, as loss and damage measures are precisely designed for situations where adaptation is no longer feasible. Defining intolerable risks in relation to adaptation implies that the key distinction between adaptation measures and loss and damage measures is that the latter pertains to intolerable risks - those that adaptation cannot address. The challenge that remains is how to specifically characterize the risks that exceed the limits of adaptation, that is, intolerable risks.

Wallimann-Helmer offers two insights that may provide clarity on this issue. First, he contends that "the limits of adaptation are reached when risks become intolerable" (Wallimann-Helmer, 2015, p. 472). Second, he posits that "the limits of adaptation are reached when a human system is no longer capable of securing valuable goals" (ibid.). These assertions imply that a risk becomes intolerable when a human system is unable to safeguard significant objectives. This naturally raises the question of what constitutes these "valuable goals." While Wallimann-Helmer does not provide an explicit definition, his reference to the work of Dow et al. (2013) offers further insight. These scholars provide illustrative examples of adaptation limits and intolerable risks as follows:

> A farmer seeking to grow a specific crop under increasingly stressed water resources will invest in [...] increasing adaptation effort as access to water resources becomes more limited [...]. But at a certain point, either no new adaptation options are available to respond to the increasing risks, or the level of adaptive effort required to maintain valued objectives becomes unfeasible. Formerly, the farmer may, for example, choose to abandon agriculture altogether (Dow *et al*., 2013, 306).

In this example, it becomes apparent that the farmer's valued goals are intrinsically tied to his identity and way of life as a farmer. These goals likely encompass not only his agricultural work but also the forms of social affiliation and interaction inherent in farming, as well as his profound connection with the natural environment. However, due to increasing water scarcity, the continuation of his farming life, despite being a cherished objective, becomes excessively risky and costly. For instance, his livelihood as a farmer may be endangered by the prospect of significant financial loss or the inability to harvest enough food to sustain himself in the coming months. Such risks are undeniably severe, rendering them intolerable, as the farmer is no longer able to secure his valued goals. In the face of these risks, he may be compelled to abandon farming, thereby forfeiting one of these central objectives. Furthermore, he will likely be forced to seek alternative employment, potentially in a different region.

It is important to recognize that this scenario can also be interpreted within the framework of the Capability Approach and through an ex post lens of losses and harms. These valued goals likely represent the fundamental elements of the farmer's flourishing life or functionings. Indeed, the goals mentioned above align closely with several capabilities as outlined in the Capability Approach, such as the ability to engage with other species and the natural world, to form affiliations, to exercise practical reason, and to have control over one's material and political environment (as detailed in Table 1). Thus, due to the risk of bankruptcy or food insecurity, the farmer is compelled to abandon his livelihood, meaning he no longer possesses the genuine opportunity to realize some of these core aspects of a flourishing life to a sufficient degree. These real opportunities for flourishing represent his capabilities. Consequently, the inability to realize at least some of these capabilities results in losses and harms.

In other words, the farmer incurs loss and damage specifically when he is no longer able to exercise his capabilities (i.e., his valued goals or functionings) to a sufficient level due to the risks he faces. Therefore, incorporating the management of intolerable risks within loss and damage measures does not undermine the ex post conceptualization of loss and damage. Rather, such measures should be understood as ex post interventions that address risks already impeding individuals' ability to enjoy their capabilities at a sufficient level.

The second challenge concerns the capacity-building initiatives required for the effective implementation of loss and damage measures. It is plausible to argue that the capacity to respond to loss and damage must be established before such losses and damages materialize. This suggests that at least some loss and damage measures should be initiated ex ante, well in advance of the actual manifestation of climate impacts (Wallimann-Helmer, 2015, p. 471). For example, loss and damage

measures could include insurance schemes that must be set up prior to the occurrence of climate change impacts (Mechler; Schinko, 2016).

Nevertheless, it is essential to note that the proposed framework accommodates the inclusion of insurance mechanisms within the domain of loss and damage without compromising the prospective categorization. Here, one can distinguish between the creation of certain mechanisms, such as insurance policies, and the actual loss and damage measures themselves.

While capacities may be established, and resources (e.g., financial assets) pooled in advance, the relevant loss and damage measures pertain to the subsequent provision of cash, training opportunities, or relocation support. These measures are not enacted until loss and damage have occurred. Though the capacities to implement these actions may be prepared in advance, the restoration of capabilities takes place ex post.

It is, therefore, not the insurance mechanism itself that constitutes the loss and damage measure but rather the specific actions funded by the insurance policy to address the losses and damages. This is most accurately characterized as an ex post loss and damage measure enabled through an insurance mechanism.

5 The notions of “loss” and “damage” in loss and damage

It is common in the scholarly discourse on loss and damage to encounter the terms "loss" and "damage" used interchangeably. However, the UNFCCC delineates a nuanced distinction between the two: "loss" is defined as referring to negative impacts for which redress or restoration is not feasible, whereas "damage" pertains to negative impacts that can be rectified or restored (UNFCCC, 2012). Several scholars have construed this distinction to imply that "loss" denotes a permanent disruption to human lives, whereas "damage" signifies a disruption that is reversible (Huq, Roberts; Fenton, 2013).

The capabilities-based framework further refines and expands upon this distinction. According to this framework, losses are understood as permanent disruptions to the sufficient enjoyment of a core capability, whereas damages represent temporary impediments to the sufficient realization of such capabilities. For instance, consider the case of a house severely damaged by a storm or flood. The capability impacted in this context is bodily health, which includes access to sufficient shelter. If the residents of the house can be relocated without other capabilities, such as affiliation or practical reason, being compromised, this situation would constitute a temporary impairment to the sufficient enjoyment of their bodily health capability.

However, if relocation entails detrimental effects on other capabilities, this temporary damage to their bodily health may be accompanied by a permanent loss, impacting their ability to enjoy another core capability at a sufficient level. For example, if they are relocated to a shelter where they are unable to engage in meaningful social interactions due to significant cultural differences, this would constitute a permanent loss of their capacity for affiliation or their capacity for control over their political environment.

In this way, the capabilities-based framework allows for a deeper understanding of the distinctions between losses and damages by framing them in

terms of permanent and temporary disruptions to the enjoyment of fundamental human capabilities.

6 Reparations for Economic Damages, Non-Economic Losses and Non-Economic Damages

We now turn our attention to examining the concepts of economic and non-economic loss and damage. While the UNFCCC traditionally distinguishes between economic and non-economic loss, it is argued here that a capability-based framework of loss and damage should focus on the notions of damage, non-economic loss, and non-economic harm. Though this approach may appear unconventional, it provides a more coherent explanation of loss and damage as phenomena that adversely affect individuals' sufficient levels of capabilities. Furthermore, this classification facilitates a more refined analysis, not only of the adverse impacts of climate change but also of the diverse forms of reparations owed to those affected by loss and damage.

The UNFCCC (2013) defines economic and non-economic losses as follows:

- Economic loss refers to "the loss of resources, goods, and services that are normally traded in markets" (UNFCCC, 2013, p. 3).

- Non-economic losses pertain to "items that are not customarily traded in markets" (UNFCCC, 2013, p. 4).

In the previous discussion, it was proposed that the terms "loss" and "damage" should be applied to capabilities rather than objects. However, for the purposes of the current argument, we will set aside this framework and consider loss and damage in relation to objects. The definitions provided by the UNFCCC appear to conflict with their own description of loss, which they define as "negative impacts for which reparation or restoration is impossible." If loss refers to irreparable impacts, it is difficult to reconcile this with the notion of economic loss, which pertains to market-tradable goods. Since economic losses can be restored by quantifying their monetary value and compensating the affected party, they are not truly irreparable and, thus, should not be considered permanent. This inconsistency suggests that the term "economic loss" should be avoided.

Notably, the UNFCCC employs the term "economic loss" but refrains from using "economic damage." Here, we propose adopting the term "economic damage" to describe what the UNFCCC refers to as "economic loss." Economic damage should be conceptualized as the temporary unavailability of assets that can, at least partially, be restored or repaired through economic means. However, in light of the usage of the terms "loss" and "damage" within the framework of the Capability Approach, this definition requires further refinement. Thus, economic damage can be defined as the temporary impairment in the enjoyment of capabilities, which can be remedied through economic interventions. Importantly, the notion of "economic damage" aligns more coherently with both the UNFCCC's definition of loss and damage and the Capability Approach articulated here.

Within this framework, economic damage is addressed through material reparations. These reparations are designed to alleviate the economic damages resulting from climate change, focusing on restoring individuals' capabilities to a sufficient level through economic resources. For example, material reparations

might be employed to mitigate the detrimental impacts of climate change on housing infrastructure. Take, for instance, severe rainfall that causes extensive damage to homes, depriving individuals of adequate shelter. This event would compromise the capability for bodily health, as this capability encompasses access to appropriate housing. Such a situation would constitute economic damage, as the impairment is temporary and can be addressed through economic remedies. Therefore, material reparations for economic damages would aim to restore the capability for bodily health to an adequate level. It is essential to note, however, that not all losses and damages in such events are economic in nature; nevertheless, material reparations would address at least the economic aspects of the damage.

Regarding non-economic losses, the UNFCCC defines them as pertaining to "items that are not customarily traded in markets." Within the framework advanced here, non-economic losses are interpreted as the permanent impairment of individuals' capabilities to a degree that cannot be fully restored through economic means. This interpretation is consistent with the UNFCCC's definition, as the central premise is that such losses involve non-market items that cannot be reduced to mere economic value. The key distinction in this framework, however, is that the term "loss" is applied not to goods or objects but to individuals' capabilities.

The 2013 UNFCCC technical paper, Non-economic losses in the context of the work programme on loss and damage (UNFCCC, 2013), offers a comprehensive overview of the various types of non-economic losses and damages attributable to climate change and the profound effects they have on human lives. Many of these forms of loss and damage correspond directly with the capabilities outlined in the capability framework discussed earlier.

Table 3 illustrates the relationship between non-economic losses, damages, and capabilities.

Table 3. Relationship between non-economic losses and damages and capabilities.

Non-economic losses (UNFCCC, 2013)	**Nussbaum (2007; 2011)**
Life: loss of life	Life
Health: loss of physical and psychological health associated with respiratory diseases, cholera, heat stroke, etc.	Body health
Human displacement and mobility: associated with loss of security and agency	Body integrity Control over the environment (material and political) Practical reason
Territory: loss of sovereignty and sense of place	Affiliation Emotions Senses, imagination and thought Practical reason Control over the environment
Cultural heritage: associated with loss of social cohesion and identity	Affiliation Emotions Senses, imagination and thought Practical reason
Indigenous knowledge and other social capital: associated with loss of social cohesion and control over the environment	Affiliation Emotions Senses, imagination and thought Practical reason

Biodiversity and ecosystem services: loss of diversity of living organisms and supporting, provisioning, regulatory and cultural services provided by ecosystems	Other species Body health

Source: UNFCCC, 2013; Nussbaum (2007; 2011)

It is not feasible to offer an exhaustive analysis of the interrelations between these elements, nor to compile a comprehensive list of non-economic losses associated with core capabilities. However, a paradigmatic case of how non-economic losses correspond to impairments in people's fundamental capabilities can be observed in the flooding events that occurred in Rio Grande do Sul during the latter half of 2023, which were repeated in the first half of 2024.

The population of Rio Grande do Sul, particularly those residing in different regions and cities, has endured significant losses and damages attributed to global warming. Prolonged periods of rainfall, combined with shifts in seasonal precipitation patterns, have led to unprecedented flooding and inundation, phenomena not witnessed in over 60 years, thereby severely undermining the core capabilities of the Gaucho people. The empirical evidence suggests that climate change has profoundly affected the lives of many Gauchos, compromising their ability to maintain their way of life and impacting key areas such as health, safety, subsistence farming, transportation, and social and cultural affiliations.

The most recent and devastating rainfall episode began on April 27, 2024, intensifying by April 29 and culminating in a historic flood. For instance, the water level of the Taquari River surpassed 30 meters, setting a new historical record. The most severely affected areas included the valleys of the Taquari, Caí, Pardo, Jacuí, Sinos, and Gravataí rivers, along with Guaíba in Porto Alegre, and Lagoa dos Patos in Pelotas and Rio Grande. This catastrophic climate disaster, unparalleled in this century, impacted 471 cities, claimed more than 170 lives, and displaced 600,000 people from their homes[2].

Excessive atmospheric precipitation overwhelmed the river basins of Taquari, Caí, Pardo, Jacuí, Sinos, and Gravataí, leading to their overflow and inundation of adjacent municipalities, devastating cities, regions, and livelihoods. The interconnected nature of these water systems caused the floodwaters to reach Guaíba in Porto Alegre and Lagoa dos Patos in Pelotas and Rio Grande, which also overflowed, submerging municipalities and forcing families to evacuate areas previously untouched by flooding. The mountainous regions were equally impacted, experiencing landslides, bridge collapses, and substantial damage to transportation infrastructure.

These climate-induced effects have resulted in what can be described as both damages - such as the disruption of access to food and shelter - and non-economic losses, as entire regions' survival has been threatened, as seen in

[2] As widely announced by the media. Available at: https://g1.globo.com/rs/rio-grande-do-sul/noticia/2024/05/29/um-mes-de-enchentes-no-rs-veja -chronology-of-the-disaster.ghtml. Accessed on: July 29, 2024. See also MUP RS: Single Map of the Rio Grande Plan. Available at: https://mup.rs.gov.br/. Accessed on: Jul 29, 2024.

municipalities like Cruzeiro do Sul[3], Muçum[4], Santa Tereza[5], and Roca Sales[6]. The changes in rainfall intensity and distribution have not only affected urban infrastructure but also disrupted cultural and social practices related to food preservation, housing construction, and traditional farming and livestock activities - key aspects of the Gaucho identity. Unlike economic damages, the loss of these activities, integral to the group's cultural identity, constitutes permanent and irreversible impairments in the enjoyment of core capabilities, such as affiliation and practical reason (as outlined in Table 1). These impairments represent non-economic losses because the affected capabilities cannot be restored through economic or material means (see Tables 2-4).

The Taquari Valley region was particularly devastated by rising river levels, which triggered severe flooding, washed away roads and bridges, destroyed crops, and drowned livestock. The inundation, exacerbated by climate change, threatened human settlements and infrastructure, while severely reducing the availability of potable water. Low-lying areas, such as the metropolitan region of Porto Alegre surrounding Guaíba Lake, faced the risk of complete submersion[7]. Some neighborhoods, including those near Salgado Filho International Airport in Porto Alegre, were entirely submerged as the Guaíba waters flooded the entire airport.

The deterioration of living conditions post-flooding - through the loss of material possessions and the ongoing threat of future flooding - will likely lead to territorial abandonment and the forced migration of many residents. The loss of territory has economic implications, representing damage to individuals' core capabilities, which can be remedied through material reparations. However, the loss of territory also carries non-economic consequences, particularly with regard to community existence and political control over their land (Dallabrida, 2000; Muller et al., 2021, 2023). Migration to a new territory would entail a non-economic loss of capabilities, including control over political environments and social membership.

The examples from Rio Grande do Sul vividly illustrate the non-economic losses that people suffer as a result of climate change. These are categorized as losses because, in at least one respect, core capabilities are permanently impaired, and they are deemed non-economic because they cannot be rectified through economic means.

In such cases, appropriate reparations may take the form of victim-centered symbolic reparations. As elaborated in this paper, victim-centered symbolic reparations aim to preserve the history and cultural identity of victims while

[3] As widely announced by the media. Available at: https://gauchazh.clicrbs.com.br/geral/noticia/2024/05/e-um-tsunami-nao-tem-como-usar-outra-palavra-descreve-morador-da-devastada-cidade-de-cruzeiro-do-sul-clvuselxd00070152bbtetdbz.html. Accessed on: July 29, 2024.

[4] As widely announced by the media. Available at: https://apublica.org/2024/05/nao-temos-mais-lagrimas-pra-chorar-a-cidade-gaucha-destruida-pela-3a-vez-por-enchentes/. Accessed on: July 29, 2024.

[5] As widely announced by the media. Available at: https://apublica.org/2024/05/nao-temos-mais-lagrimas-pra-chorar-a-cidade-gaucha-destruida-pela-3a-vez-por-enchentes/. Accessed on: July 29, 2024.

[6] As widely announced by the media. Available at: https://agenciabrasil.ebc.com.br/geral/noticia/2024-06/devastada-pela-agua-roca-sales-vive-entre-migracao-e-reconstrucao. Accessed on: July 29, 2024.

[7] According to information from the Civil Defense of the Government of the State of Rio Grande do Sul. See MUP RS: Single Map of the Rio Grande Plan. Available at: https://mup.rs.gov.br/. Accessed on: July 29, 2024.

affirming the value of what has been lost. These reparations also include remembrance initiatives and commemorative measures that "allow victims of climate change injustice to document their stories, recount what was lost, and describe its impacts on their lives" (Heyward, 2012, p. 163). Additionally, provisions should be made for the preservation of aspects of the affected group's cultural heritage, including arts, technology, crafts, and other culturally significant practices (Heyward, 2010, p. 269). In a similar vein, Serdeczny, Bauer, and Huq (2018) propose that such measures should draw upon historical precedents of loss and memorialization. As Barnett et al. (2016) argue, the ultimate objective of these practices is to manage collective grief and sustain cultural ties to what might otherwise be forgotten. Museums and memorials serve as prominent examples of victim-centered symbolic reparations. Although these measures cannot fully restore the loss of capabilities, such as affiliation and practical reason, to a sufficient level, they are instrumental in preserving the sense of identity of affected communities and mitigating their suffering.

The objectives of remembrance and commemoration are to preserve cultural values that have been eroded as a result of forced migration and the detrimental impacts of climate change. However, forced migration also results in the loss of political self-determination, which adversely impacts individuals' capacity to exercise control over their political environment. To address this, additional reparative measures can be implemented, not only to mitigate the loss of political self-determination but also to reaffirm its significance.

For instance, an emergency housing initiative could be proposed to assist those willing to relocate in rebuilding their homes in a new territory, to the extent that this is feasible. By allowing individuals to choose where they wish to rebuild their cultural and political identity, these reparations affirm the value of their lost political self-determination, thereby serving as a component of a victim-centered symbolic reparations strategy. A discussion in line with this perspective can be found in Dallabrida's (2020) body of work, particularly his papers published from 2020 to 2024, which address the concept of "Territorial Heritage". This heritage comprises both tangible and intangible assets and resources accumulated over time through historical processes of socioeconomic and cultural construction and reconstruction, shaped by the environmental landscape. It is manifested across various dimensions - productive, cultural, institutional, natural, social, and human-intellectual.

Victim-centered symbolic reparations should be distinguished from agent-centered symbolic reparations, which may also play a role, albeit to varying degrees, depending on the normative framework of loss and damage adopted (Heyward, 2010; García-Portela, 2023). Agent-centered symbolic reparations address non-economic harms stemming from the disruption of relations of respect between differently responsible parties in the context of climate change. Although the UNFCCC does not explicitly reference "non-economic harms," the concept has theoretical relevance in this discourse.

Non-economic harms, in this context, can be understood as arising from the relationship between those most responsible for climate-related harms and those who suffer their consequences. Various normative theories suggest that such harms exist and, consequently, that responsible agents have an obligation to provide

reparative measures. Some argue that non-economic harms occur when polluters inflict wrongs on climate victims, particularly if the polluters were aware of the detrimental effects of their actions (Heyward, 2010, 2012; Page; Heyward, 2016). Others contend that human rights violations alone suffice to establish a damaged relationship requiring reparation (García-Portela, 2023).

In contrast to economic damages and non-economic losses, non-economic harms do not directly diminish the sufficient level of a particular capability. Instead, they manifest at a more abstract level when any capability is compromised as a result of climate change. The disruption to the relationship of respect between victims and responsible parties may be temporary, contingent on the reparative actions taken. In theory, this relationship can be restored through agent-centered symbolic reparations.

Agent-centered reparative measures may include apologies, formal acknowledgements, expressions of regret, and commitments to non-repetition. In the context of the UNFCCC, these measures are especially pertinent for states whose industrial development has historically been dependent on emissions-intensive practices, thus significantly contributing to climate change. Such reparations would be directed at those communities most adversely affected by the resulting climate impacts. These measures also reflect the self-perception of the state implementing them, as they involve recognizing the consequences of past actions and incorporating this acknowledgment into the state's historical narrative. The overarching aim is to acknowledge the role of responsible parties in climate harm and, ultimately, to restore relations of respect between those who have caused and those who have suffered climate change impacts.

Thus, agent-centered symbolic reparations encompass two key dimensions: the retrospective recognition of wrongs committed by responsible agents and the forward-looking development of their contemporary self-understanding through a commitment to non-repetition and the repudiation of those past wrongs.

It is important to recognize that agent-centered measures will not fulfill their intended purpose unless they are implemented by the responsible parties themselves. In other words, agent-centered symbolic reparations presuppose that some degree of responsibility for causing climate change is relevant in the allocation of certain loss and damage tasks. This approach contrasts with other forms of reparations for loss and damage, which could be allocated according to principles other than those based on responsibility.

At this point, we leave open the question of which normative principles should guide most reparations. If one rejects the notion that responsibility for causing climate change should influence the distribution of reparative duties, it would follow that agent-centered symbolic reparations should also be excluded from the suite of loss and damage measures. However, the primary aim here is to clarify which categories of loss and damage are plausible and to identify the corresponding reparative measures.

It is important to highlight that economic and non-economic losses and damages are frequently interconnected. Losses and damages induced by climate change often produce both economic and non-economic ramifications. Individuals affected by extreme rainfall, flooding, and inundation—such as those who lose their

homes—are forced below the threshold of their bodily health capacity due to the loss of shelter and access to clean water.

Beyond bodily health and practical reason, other capabilities were also severely impacted by the flooding in Rio Grande do Sul. Bodily integrity was compromised, as the floods restricted people's ability to move freely between locations. Additionally, the political capacity to engage meaningfully in the decision-making processes governing their lives, as well as the material capacity to own and manage property, were both significantly affected by this climatic catastrophe.

Moreover, the Gauchos have endured substantial non-economic losses. The severity of the climate event forced many to abandon their homes, resulting in a loss of control over their political environment and disrupting their social affiliations. Furthermore, the disaster has strained their relationships with those most responsible for contributing to climate change. By being pushed below a critical threshold of capabilities, individuals have been disrespected in ways that deeply damage their relationships with those accountable for these changes. These losses and harms are interconnected, frequently manifesting together in individual cases of loss and damage.

Additionally, the supra-regional impacts of the floods in Rio Grande do Sul are particularly noteworthy. The Observatory of Socioeconomic Development and Innovation at the University of the Extreme South of Santa Catarina (UNESC, 2024) presented data highlighting the flood's impact on the state's rice production. It was found that, in addition to the damage directly caused by flooding, losses were incurred at warehouses storing already harvested rice. This indicates that the excessive rains not only damaged crops submerged in water but also compromised the quality of grains that were not directly flooded but exposed to excessive humidity. Furthermore, significant logistical challenges arose in transporting the remaining crops to supply markets due to damaged highways and vehicles rendered unusable by the floods. As a result, the impact extends beyond the regional level, as Rio Grande do Sul, which produces more than 70% of Brazil's rice, plays a critical role in national supply chains (CONAB, 2024)[8].

The following table offers an overview of the various types of loss and damage, along with their corresponding remedial measures:

Table 4. Types of losses and damages and corresponding repairs.

***Ex post* measures**				
Policy	**Losses and Damages**			
Focus	Redressing the negative effects of climate change on people's capacity sufficiency threshold			
Method	Repairs	Material repairs	Economic damages	Remedy the material effects of climate change related to the use of people's capabilities to a

[8] CONAB. Grain Harvest Bulletin. Brazilian Supply and Demand. 2023. Available at: https://www.conab.gov.br/info-agro. Accessed on: May 31, 2024.

					sufficient level
		Symbolic reparations	Victim-centered	Non-economic losses	Commemoration of Memory
			Agent-centric	Non-economic damages (affecting respectful relationships)	Public apologies Statements of regret (from the agent) Commitment to non-repetition

Source: Elaborated by the author.

7 Conclusion

In light of the agreement reached at COP27 in Egypt (2022) to create a dedicated fund for addressing loss and damage, the need for a clear and comprehensive definition of this concept has become a pivotal issue in climate policy formulation. It can be argued that such a definition will play a crucial role in guiding the allocation of financial resources and shaping the scope of measures to be implemented. This paper endeavors to provide a preliminary definition, grounded in the Capabilities Approach, thus bridging the gap between philosophical discourse and the practicalities of policymaking.

According to this approach, loss and damage are understood as the detrimental disruptions caused by climate change, which hinder individuals' ability to enjoy at least a sufficient level of their core capabilities. Furthermore, the Capabilities Approach underpins the existing distinctions between permanent and temporary disruptions and introduces a refined subcategorization of economic and non-economic loss and damage. The paper has further delineated a range of reparative measures corresponding to the diverse manifestations of loss and damage, encompassing material reparations as well as agent-centered and victim-centered symbolic reparations.

Anthropogenic climate change is generating widespread loss and damage to things that individuals and communities value. To date, assessments of non-economic loss and damage have predominantly adhered to predefined "types" of non-economic losses, similar to those proposed by the UNFCCC. In contrast, this paper employs the case of the floods in Rio Grande do Sul (2023/2024) to underscore the merits of a values-based assessment approach, which seeks a context-sensitive understanding of people's lived experiences of loss and damage. This approach yields several novel insights.

First, prioritizing local values in the assessment of loss and damage ensures that individuals' experiences and perspectives are acknowledged and afforded due importance. Second, it highlights how the impacts of climate change - including what is deemed tolerable and intolerable - differ in their effects on various groups. The intolerable impacts in the case of Rio Grande do Sul concern critical areas such as regional development, urban and transportation infrastructure, and grain production, all of which are inextricably linked with other important values.

Finally, this values-based approach demonstrates how it is possible to unify economic and non-economic losses and damages, which are often treated as

distinct categories, thereby offering a more holistic view of the climate-related impacts. This comprehensive perspective enables decision-makers to engage more consciously with the realities of individuals' daily lives, ensuring that policy responses are better aligned with the lived experiences of those most affected by climate change.

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