



Non-economic Loss and Damage: Addressing the Forgotten Side of Climate Change Impacts

Summary

Non-economic loss and damage (NELD) has emerged as a new concept in the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC). It refers to the negative impacts of climate change that are difficult to measure or quantify. The value of NELD cannot easily be expressed in monetary terms, which has left them mostly neglected in climate-risk and cost estimates. As a result, although NELD are vital to those affected, they often go unnoticed by the outside world.

A focus on NELD invites engagement with the normative dimensions of the loss-and-damage debate: Whose losses and damages count and how are they counted? What losses are the global community willing to accept as a result of unmitigated climate change? At the same time, the practical aspects of NELD need to be considered: What tools and instruments are available to avoid NELD? What are appropriate ways to react to NELD that prove to be unavoidable or that have already occurred?

Instances of NELD are highly diverse. Relevant insights can be gained from a range of academic disciplines, including economics, human geography and environmental psychology. Still, few studies explicitly address NELD. Currently, 10 meta-categories of NELD can be identified: Human Life, Meaningful Places, Cultural Artefacts, Biodiversity, Ecosystem Services, Communal Sites, Production Sites, Intrinsic Values, Identity and Agency.

The diversity of NELD can be better understood through a focus on their main characteristics: context-dependence and incommensurability of value. Both attributes pose challenges to policy-making. Context-dependence is par-

ticularly problematic in an international setting in which actors will likely need to rely on universal standards for the recognition of losses.

Incommensurability means that values cannot be expressed through the use of a common unit. This renders monetary assessments as a means of valuation problematic. Monetisation may provide useful information for cost-benefit analyses of mitigation or adaptation scenarios, but it is less insightful in terms of how to avoid NELD or respond to them once they have occurred. Such conceptual clarity is key for the integration of available knowledge and the identification of effective approaches to NELD.

In order to avoid NELD at the national level, they need to be included in risk- and vulnerability assessments. Assessments need to include negative side-effects of mitigation and adaptation and be conducted in a decentralised and participatory manner. Efforts should be made to share findings with the wider public, nationally and internationally.

Addressing NELD at the international level should rely on agreed assessment rules for the recognition of NELD rather than a static set of items. The universality of standards needed for an international framework would thus shift from indicators to a process-based scheme of assessment rules under the UNFCCC. These should inform measures that avoid as well as those that react to NELD.

The emergence of NELD in the context of the UNFCCC provides an excellent opportunity to raise awareness of an oft-ignored dimension of climate impacts. An orchestrated integration of research findings from a broad range of disciplines is needed to provide a solid evidence-base for designing just and effective approaches to address NELD.

1. What are NELD and what is the challenge?

The concept of NELD is part of an emerging debate on loss and damage under the UNFCCC. It takes into focus the unavoids or unavoidable impacts of climate change that defy quantification and monetisation, but that are still deemed to be negative by those affected. NELD can occur as direct or indirect consequences of climate change, including through negative side-effects of adaptation. The concept forms part of the wider climate change discourse in three ways: (i) as an argument for more stringent climate mitigation, (ii) as an assessment lens for comprehensive adaptation planning and (iii) as an assessment lens for recording unavoids climate impacts.

Imagine the following scenario: an island community has to relocate because sea-level rise has rendered its land uninhabitable. What are the changes the community faces? At first, infrastructure is left behind, cultivated land is lost, fisheries are abandoned and income opportunities, at least temporally, are gone. Then the community resettles in some other, safer area. If all goes well, individuals diversify their skills and new income opportunities arise. Comparing *per capita* income before and after relocation may show the latter's beneficial effects. Apart from the infrastructure and a year of income, not much seems to be lost – and occurred losses may eventually be outweighed by the beneficial effects of higher earnings.

The picture changes when seen through the lens of NELD. Not only is arable land abandoned, but also landscapes. Not only are fisheries lost, but also traditions. Not only are new ways of income-generation learnt, but old ways of knowing and relating to the environment are also lost. The task of having to adapt to new realities may cause stress, a sense of loss, disorientation and it challenges social cohesion. Consider, for instance, the loss of identity in communities of fishermen and farmers that find themselves dislocated from their seas and lands.

A focus on NELD raises a series of questions: Whose losses count and how are they counted? What are adequate responses to irreversible losses? Although the knowledge base on NELD is patchy, the policy process on how to address loss and damage under the UNFCCC is steadily progressing.

We refer to instances of NELD as items that belong to both the material and the non-material spheres. Items identified in the literature (Fankhauser, Dietz, & Gradwell, 2014; Morrissey & Oliver-Smith, 2013) can be grouped into 10 meta-categories and distinguished according to their value dimensions: intrinsic/instrumental and material/non-material. The question whether a value is intrinsic or instrumental is not a scientific one but relies on cultural context and subjective judgement. Figure 1 categorises values as they are commonly reflected in the literature.

Many forms of NELD cannot be easily recorded using readily available units. Standardised measurements exist for some

Figure 1: Conceptual NELD matrix

	Intrinsic	Instrumental
Material	Places Artefacts Human Life Biodiversity	Production Sites Communal Sites Ecosystem Services
Non-material	Intrinsic Values	Agency Identity

Source: Adapted from Serdeczny, Waters, and Chan (2016)

items (e.g. health) but others have not been subject to systematic assessments. In particular, non-material NELD pose challenges to quantification.

The valuation of NELD is also a challenge. Many NELD items are the result of specific human–environment interactions; their value is context-dependent and incommensurable. It cannot be easily aggregated in climate-impact estimates.

Estimating the scale and value of NELD is a prerequisite for integrating them into decision-making concerning both preventive measures (what is to be protected and how?) and reactive measures (what has been lost and how can we respond to this?). Many of the challenges associated with NELD valuation are not new. However, the political embeddedness of the subject under the UNFCCC reinforces the challenge of integrating culturally diverse value systems under the umbrella of an international institution.

A concerted effort is needed to gather information from a broad range of research disciplines that may not have dealt with climate impacts in the past but that hold rich information on what measures are – or could be – adequate to address NELD. This would help to ensure that policies addressing NELD are designed in a just and effective manner.

2. Main attributes of NELD items and what they mean for policy-making

The highly diverse NELD items can be better understood when their main attributes are put into focus: incommensurability and context-dependence. Both of these attributes pose particular challenges to policy-making and need to be accounted for when considering instruments and an institutional setting to address NELD.

Incommensurability

The value of many NELD items is often regarded as incommensurable: there is no common unit to measure their values on the same scale. For example, it would make little sense to state that the value of place identity equals the value of x barrels of oil. In contrast, for items that are not incommensurable, their difference is one of quantity not

quality. For example, a car's value may well equal that of x barrels of oil. Incommensurability, however, is culturally contingent – some values may be perceived as incommensurable by one community but not by another. The question of what is commensurable or incommensurable thus needs to be resolved in a community-driven manner.

Box 1: Incommensurability ≠ incomparability

Incommensurability is different from incomparability. The two are often conflated. However, despite the absence of a common unit of measurement, individual items can still be ranked on a scale according to priority or importance and the values of items can be compared according to an "imprecise" unit (Chang, 2013). Any comparison of two items requires an external point of reference, in respect to which items can be compared as scoring better or worse. Two items can never be comparable between themselves, but are always comparable or incomparable with respect to something else. It would not make sense to compare a NELD item (e.g. loss of tradition) with another item (e.g. damage to infrastructure) without an external point of reference. Both can be compared, however, with respect to their effect on communal life or wellbeing. This distinction is important, as it shows that monetisation is not necessarily required for the comparability of NELD items with other economic or non-economic loss and damage, as is sometimes assumed.

The incommensurability of NELD values raises the question as to whether values can and should be monetised. In order to address the issue of monetisation, it is important to first consider what purpose an assessment of NELD is to serve. Will the information of NELD values be used to calculate cost-optimal mitigation or adaptation pathways? Will it be used to identify adaptation options with respect to their positive and negative effects on multiple indicators? Or will it be used to understand how people have been affected by climate change and how best to respond to this? The answers to these questions will determine whether monetisation is useful, despite not being conceptually compatible with the value of NELD and whether it is required at all.

Incommensurability also raises questions as to what could be adequate responses to irreplaceable losses. In order to address this question, it helps to think beyond monetary compensation as a response to loss. There is evidence, for example, that the mere acknowledgement of loss is an important first step towards achieving a sense of recognition and agency for those affected. However, a focussed effort to further explore ways of responding to incommensurable losses is still needed.

Context-dependence of value

The values of many NELD items are a result of specific human–environment interactions. As a result, these values are context-dependent: for instance, communities that have inhabited a place for many generations are likely to place a different value on a certain rural landscape than visiting urban dwellers.

Considering context-dependence will be particularly challenging if an international, centralised institution is set up to address NELD. In order for NELD to be registered and acknowledged, an international setting will likely require a set of standards defining what counts as NELD. However, the context-dependence of NELD, in principle, means that countless cases of NELD may be experienced that have not yet been accounted for and, as a result, would not be recognised.

3. Policy recommendations

NELD at the national level

In order for NELD to be incorporated into preventive measures, they need to be systematically considered in national vulnerability and risk assessments. Assessments need to be conducted in a decentralised and participatory manner, deploying methods that allow for the identification and voicing of both economic and non-economic values. Assessments of potential NELD ought to be reflected in both climate risk-assessments and in the assessment of side-effects of different adaptation options. Efforts should be made to make those findings accessible to the wider public, nationally and internationally.

Although most NELD items are difficult to quantify, value or even monetise, such quantifications will not always be necessary to avoid NELD. For example, the protection of mental health in affected communities requires insights into the conditions under which such communities can flourish, despite ongoing climate change, rather than insights into its monetary value. For other NELD items, such as cultural artefacts or meaningful places, tools other than cost-benefit analyses need to be explored to support decision-making if values are considered incommensurable.

A broad range of options for responding to unavoidable NELD needs to be considered. Lessons from planned relocation and resettlement measures and research from a variety of disciplines are likely to yield fruitful insights.

NELD in the UNFCCC

Given the transboundary nature of climate change, any national approach to NELD should be linked to the international level, where it needs to be ensured that values are adequately incorporated. In particular, given the context-dependence of their value, future institutional arrangements should not rely on a static set of NELD items.

One way of ensuring a fair and transparent handling of NELD at the international level would be to establish a common set of assessment rules. Rather than relying on a list of standard NELD items to which community members could refer, losses would be acknowledged once a community has applied a standard set of guidelines for assessment. The universality of standards needed for an international framework would thus shift from end-point indicators to a process-based scheme of assessment rules.

Furthermore, synergies with the Sustainable Development Goals ought to be explored in an ongoing dialogue involving both stakeholders and a multidisciplinary research community. This will help to harvest cross-disciplinary knowledge and to detect unnoticed at-risk items that are not yet labelled as NELD.

A sincere engagement with NELD at national and international levels should support both effective adaptation planning and implementation. Governments also need to gain insight into unavoidable climate impacts and address them on a cooperative and facilitative basis, as agreed upon in the Paris Agreement.

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NELD

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