

# Chapter 8

## Non-economic Loss and Damage and the Warsaw International Mechanism



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**Abstract** Non-economic Loss and Damage (NELD) forms a distinct theme in the documents outlining both the initial 2-year workplan that concluded in 2017 and the future work areas as outlined in the next 5-year rolling workplan of the Executive Committee of the Warsaw International Mechanism on Loss and Damage (WIM Excom). NELD refers to the climate-related losses of items both material and non-material that are not commonly traded in the market, but whose loss is still experienced as such by those affected. Examples of NELD include loss of cultural identity, sacred places, human health and lives. Within the context of the WIM the goal is to raise awareness of the kinds of NELD that occur and, for an expert group, to “develop inputs and recommendations to enhance data on and knowledge of reducing the risk of and addressing non-economic losses” (UNFCCC Secretariat 2014). Initial analysis shows that the two main characteristics of non-economic values are their context-dependence and their incommensurability. These attributes need to be preserved and respected when integrating measures to (i) avoid the risk and (ii) address NELD by a central mechanism under the UNFCCC. While (i) will rely on integrating NELD into existing comprehensive risk management approaches, (ii) requires thorough understanding of lost values and the functions they fulfilled for those affected.

**Keywords** Loss and Damage · Values · Assessment · Justice

### 8.1 Introduction

Climate change affects people and their environments in multiple adverse ways. Extreme heat waves like the Central Asian one in 2010 damage agricultural crops and undermine food security (Barriopedro et al. 2011); sea-level rise endangers coastal infrastructure and related economic activities such as tourism and transport (Wong

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et al. 2014); diseases like malaria spread into previously unaffected regions posing novel health risks (Siraj et al. 2014). Many of these impacts of climate change can and have been quantified and monetised. A common example of monetised and aggregate impact assessments is the social cost of carbon. It measures the economic effects of climate change as an aggregate of changes in net agricultural productivity, human health, property damages and wider economic effects from, e.g., increased flood risk, and changes in energy system costs per unit of emitted carbon (United States Environmental Protection Agency 2015). The social cost of carbon thus derived is used to calculate the benefits of mitigation and adaptation policies and to weigh those against the costs of climate policies to arrive at an optimal level of mitigation and adaptation.

However—as has long been recognised (e.g. IPCC 1996:9; Tol 2005)—not all the negative consequences of climate change have been captured in the assessments of the social cost of carbon, as well as other assessments that rely either on qualitative or quantified data. For example, mental distress has been observed at the individual level following forced relocation due to deteriorating rural livelihoods. The distress has been linked to such losses as loss of social networks or physical surroundings that provided for a feeling of familiarity and belonging (Tschakert et al. 2013). At the collective level, the disruption of informal networks as a consequence of migration can cause losses in the form of a population's diminished capacity to cope with continued climate impacts, further increasing the toll of climate change (Olsson et al. 2014). The effects of such often intangible losses on human wellbeing are often hard to measure and are rarely included in estimates of observed and projected climate impacts, particularly where aggregates are sought. This can be considered a serious limitation. The fact that values other than economic are of substantive importance for people is evidenced in livelihood decisions that involve trade-offs to the benefit of retaining social or cultural capital at the cost of potential economic gains. An example of such decisions are cases where migration is desisted despite its expected positive effects on income (Bebbington 1999). There is thus good reason to pay attention to non-economic values and to integrate them into policies that may lead to or prevent their losses if the overall goal is to safeguard and protect human well-being. Notably, adjustments have been made to earlier economic assessments of climate impacts in order to account for non-market losses. Nordhaus (2014), for example, reports an adjustment of 25% of the monetised damages to reflect non-monetised impacts.<sup>1</sup>

The concept of NELD takes into focus the dimensions of climate change impacts that are hard to quantify and whose value cannot easily be determined through the market. The term non-economic losses, which is often used interchangeably with non-economic losses and damages, originates from medical malpractice law. Methods for the assessment and expression of non-economic values in monetary units have been developed but remain controversial (see Box 8.1). Non-market losses might be a more adequate description, which, however, has not been adopted in the policy-

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<sup>1</sup>It should be noted, however, that his list of non-monetised impacts includes extreme events, catastrophic events that are inherently difficult to model, and some other which are not considered NELD under the UNFCCC, as explained below.

process. In the following, the term of non-economic losses is used synonymously with non-market losses. Non-economic values are understood to be the object of non-economic losses.

In recognition of the importance that non-economic values hold particularly for vulnerable developing countries, NELD has been included in the workplan of the Warsaw International Mechanism as a specific work area (UNFCCC Secretariat 2014). While not spelled out as such, the two central tasks that work under the WIM will be faced with concerning NELD are the development of instruments (i) to avoid the risk of non-economic losses occurring *ex ante* and (ii) to respond to unavoided losses *ex post*. A rich body of knowledge can be drawn upon when developing approaches to both these tasks. Avoiding or reducing the risk of non-economic losses will most likely rely on the integration of the value of potential non-economic losses into comprehensive risk management. Literature on adequate assessment methods and participatory approaches to adaptation planning is available in this regard, including on the integration of NELD into wider economic assessments and the drawbacks of such integration. Addressing unavoided losses, in turn, raises questions of justice and questions of fair remedy (Wallimann-Helmer 2015) that require further critical academic debate but whose solutions ultimately need to be politically negotiated.

## 8.2 NELD—Causal Pathways and Examples

Impacts related to NELD as reported in the literature are direct or indirect effects of climate-related changes that were experienced as adverse by those affected. While they are triggered by climate-related environmental changes, they are always mediated by social factors that drive the vulnerability of a human system to environmental stressors, and by cultural factors that provide the context in which losses are experienced as such. The social and cultural factors notwithstanding, direct and indirect causal pathways can be identified which show how NELD impacts are caused by climate change.

NELD can be a direct consequence of climate change, for example, when losses are incurred due to physical damage of natural environments or cultural sites. High coral reef mortality due to rising sea-surface temperatures, as observed at a large scale during the 2015/2016 El Nino event (Eakin et al. 2016) is one such example of how climate change may directly cause non-economic loss of biodiversity in the future, adding to the sizeable toll of economic losses associated with the loss of biodiversity and other ecological functions (e.g. TEEB 2010). Loss of territory due to sea-level rise presents another way in which climate change may lead to NELD (Albert et al. 2016). Indeed, projections over two millennia show that under 3 °C global mean warming 3–12 countries will have lost more than half of their territory due to sea-level rise (Marzeion and Levermann 2014). Non-economic losses and damages directly related to climate change are often compounded by human activity such as marine pollution and unsustainable groundwater extraction.

Examples of indirectly induced NELD change include adverse impacts on human health following the contamination of freshwater due to sea level rise or heavy flooding (Nunn 2009). Loss of sense of place, traditional knowledge or cultural identity are often indirect consequences of climate change if migration is necessary for populations or individuals to safeguard their survival (see chapter by Heslin et al. 2018). Migration is frequently framed as a form of adaptation deliberately chosen by migrants (Tacoli 2009). However, indirect non-economic losses are often incurred involuntarily as negative side-effects of adaptation. For example, following heavy flooding and submersion of informal housing in Douala, Cameroon a government official was quoted saying: “*We think the only way to put an end to such catastrophe in the future is to demolish and force people out of these risky and vulnerable zones*” (Ngalame 2015). While such decisions are certain to avoid some non-economic losses, most notably loss of human lives, it may also lead to loss of social cohesion and agency. This shows how preserving non-economic values is complicated in situations of necessary trade-offs, which often occur in the context of climate change and resource scarcity.

The first three reports that have been published on NELD yield a catalogue of diverse recorded types of NELD that are summarised and categorised in Table 8.1/Fig. 8.1. (UNFCCC 2013a—same as Fankhauser and Dietz 2014; Morrissey and Oliver-Smith 2013; Andrei et al. 2015). The studies rely either on literature review (UNFCCC 2013) expert knowledge (Morrissey and Oliver-Smith 2013) or interviews (Andrei et al. 2015).

All authors referenced in Table 8.1/Fig. 8.1 stress that presented types and related cases are often inter-related with economic losses. Further, it is stressed that the lists provided are non-exhaustive: Climate impacts in other regional settings and cultural value systems can in principle result in different and additional types of NELD than those listed here, depending on respective cultural values. Reporting bias in the literature may mean that NELD—both types and instances—go unnoticed either because they are not comprehensively investigated or because losses in regions where they occur are not assessed. This has led to calls for a stronger involvement of qualitative climate impact research (Tschakert 2015).

### 8.3 Conceptualising NELD

In order to better understand why such highly diverse NELD as displayed in Table 8.1 is grouped under one activity area under the WIM it is helpful to direct attention at the shared attributes of non-economic values: (i) context-dependence and (ii) incommensurability, i.e. the lack of a common unit of measurement (see below). These attributes also shed light on some of the challenges that NELD pose to decision- and policy-making, particularly in the centralised setting of the UNFCCC.

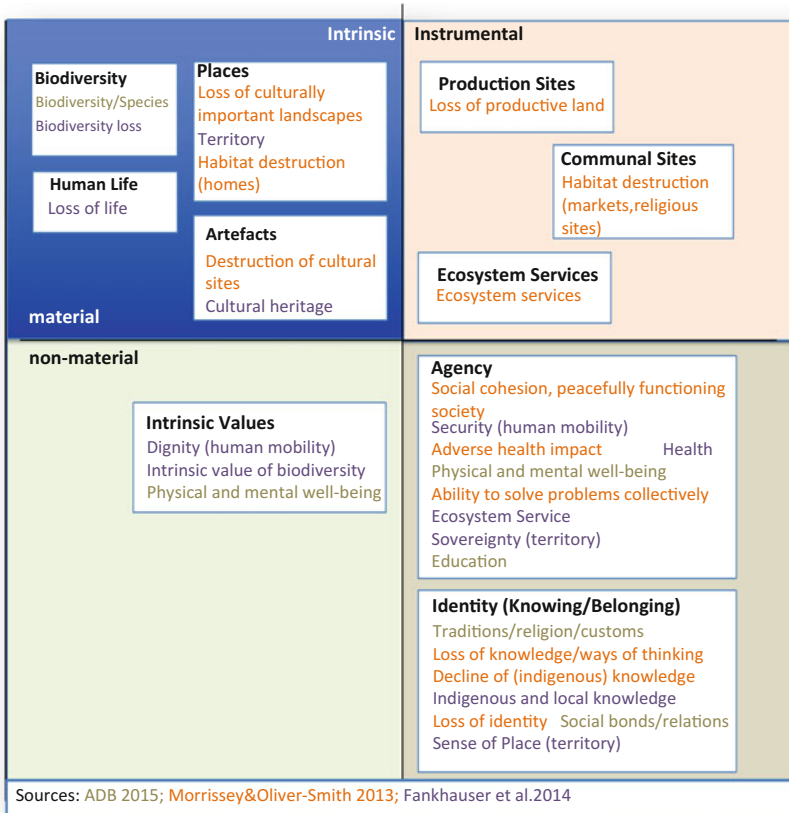
**Table 8.1** NELD impacts reported in the literature

UNFCCC (2013)/Fankhauser and Dietz 2014 (Table 2)	Morrissey and Oliver-Smith (2013) (Fig. 1)	Andrei et al. (2015)
Loss of life	Loss of life	
Health	Adverse health impacts	Physical and psychological well-being
Human mobility (Dignity; Security; Agency)		
Territory (Sovereignty; Sense of place)	Territory abandonment	
Cultural heritage (Social cohesion, Identity)		
Indigenous knowledge (Social cohesion, Identity)	Decline of indigenous knowledge	
Biodiversity	Biodiversity loss	Biodiversity/species
Ecosystem services		Ecosystem services
	Destruction of cultural sites	
	Loss of culturally important landscapes	
	Habitat destruction	
	Loss of identity and ability to solve problems collectively	
	Loss of knowledge/ways of thinking that are part of lost livelihood systems	
	Social cohesion, peacefully functioning society	
		Education
		Traditions/religion/customs
		Social bonds/relations

*Note* Terms in parentheses refer to terms listed as descriptions in UNFCCC 2013 rather than as losses themselves. *Source* Adapted from Serdeczny et al. (2016b)

### 8.3.1 Context-Dependence

Most non-economic values are the result of specific human-environment interactions. This renders them highly context-dependent. For example, the loss of biodiversity will be experienced differently by a community whose culture is built around a particular natural ecosystem than by a community that does not relate to this ecosystem. Kirsch (2001) in his analysis of the legal struggle for compensation for “culture loss” suffered by Marshall Islanders following nuclear weapons testing by the United States, reports the specific value that land holds in different contexts. Quoting



**Fig. 8.1** Cases and categories of NELD as reported in the literature published by 2015. *Source* Serdeczny et al. (2016b)

the anthropologist and Enewetak ethnographer Carucci in his testimony before the Nuclear Claims Tribunal Kirsch writes:

He [Carucci] noted that Americans move on average six times during their lifetimes and treat land as a commodity, ‘something that is used, purchased and sold.’ Relationships to place are temporary, and land is ‘something that one can buy, utilize for a short period of time, and pass on.’ Our attachment to place, in Carucci’s estimation, is ‘quite modest.’ In contrast, the Marshallese regard land as a ‘different kind of entity,’ an element ‘of one’s very person’ and an ‘integral part of who people are and how they situate themselves in the world.’ Their ‘sense of self, both personal and cultural, is deeply embedded in a piece of land,’ their weto or land parcel (Kirsch 2001:173).

Similarly, Morrissey and Oliver Smith (2013) relate the high value of glaciers to Andean villagers whose culture is composed of a system of traditional knowledge and cultural narratives around these glaciers. Such context-dependence makes

communication of the relevance of non-economic values for those affected by their potential loss particularly challenging. Instruments aimed at avoiding or responding to non-economic losses within a centralised setting like the UNFCCC need to be able to accommodate such context-dependence of non-economic values. Rather than relying on a finite set of indicators, standardised assessment rules could determine what would be officially recognized as loss of non-economic values that merits international attention and action (Serdeczny et al. 2016a).

### 8.3.2 *Incommensurability*

Most non-economic values are considered to be incommensurable. According to (Chang 2013) “[p]erhaps the most frequently recurring idea that falls under the label ‘the incommensurability of values’ is that values lack a common unit of measurement” (p. 5). This means that while individual items might be comparable in terms of priority or importance ranking or according to an imprecise unit, they cannot be measured on one unitary scale. In contrast, if all values could be expressed by one unitary unit, then the difference between them would be merely one of quantity. Chang illustrates such a case:

For example, if the value of one’s child can be measured by the same unit that measures the value of a beach vacation, then our attitudes toward the loss of value of each should be a matter of degree. Insofar as our practical attitudes are driven by the value of their objects, our attitudes toward our children should differ from our attitudes toward beach vacations only in quantity, not in quality. (Chang 2013: 6)

A standard unitary unit of value is a monetary numéraire. Monetisation, as the process of assigning monetary values, effectively puts all values on one scale and expresses their difference as one in quantity. Which values are considered incommensurable is culturally contingent and may change over time. For example, while the value of ecosystems is frequently expressed in monetary terms (Sukhdev et al. 2014), some raise objections to such valuation and question the benefits of monetisation for biodiversity conservation (e.g. Gomez-Baggethun and Ruiz-Perez 2011).

Conceptually speaking monetisation as a valuation technique is thus not compatible with the incommensurability of value. Consequently, if incommensurability of non-economic values is respected then alternative means of valuation, as well as communication and weighting of values are needed. This presents a challenge to decision-making particularly in systems where cost-benefit analyses are drawn upon as the primary method for decision-making (see Box 8.1).

### **Box 8.1 Incommensurability and economic valuation**

One way of integrating non-economic values with decision-making that is based on cost-benefit analyses is through the economic valuation or monetisation of non-economic values. Methods to do so exist, primarily through revealed preference, which trace consumer behaviour that indirectly relates to a non-economic good (e.g. health expenditures), or stated preference, where respondents are asked how much they would be willing to pay to preserve a certain good or how much they would be willing to accept in compensation for the loss of a good. The application of such methods is not without controversy and has been subject to much debate and scrutiny (UNFCCC 2013a).

Methodological issues—and moral concerns regarding cost-benefit analyses in general—aside, it is worth noting that assigning monetary value to incommensurable goods rests on a number of assumptions which themselves may be in conflict with values or interests in different cultural and political contexts. Assuming that a price can be assigned to certain goods or services may bereave them of what constitutes their value, namely the very fact that they cannot be bought or sold. The value of friendship is an example of such constitutive incommensurability (O’Neill 2001). Climate change affects livelihoods across cultures, who may have differing understandings of which values are undermined by the idea of assigning them market value; the application of economic valuation effectively imposes one interpretation, namely that there is no constitutive incommensurability, over any others. Further, the application of economic valuation masks questions of power and rights to ownership, which are often at the basis of conflicting values and are of high relevance for decision-making. While it is not the purpose of economic valuation to solve these issues, the problem is that “its application assumes that an answer has already been given” (O’Neill 2001:1868). Thus, while economic valuation may present a useful way of integrating non-economic values into cost-benefit analyses, this should be done critically and without diverting attention away from questions that require political and public deliberation.

Alternative approaches to integrating NELs into cost-benefit analyses could be further explored. For example, in analogy to attempts of incorporating a rights-based approach into cost-benefit analyses (Lowry and Peterson 2012), non-economic values could be integrated into cost-benefit analyses through the establishment of safeguards or output filters. In the case of output filters, any decisions that are based on cost-benefit analyses are excluded if they violate certain rights (or losses), e.g. the right to bodily integrity (or loss of life). However, it should be noted that this might be challenging to apply for all non-economic values in the context of climate change, resource scarcity and the virtually unavoidable risks that come with any course of action.

## **8.4 Developing Solutions**

The role of the WIM in promoting instruments to address NELD is still evolving. In order to get some orientation regarding the scope and level of implementation of instruments under the WIM it is helpful to review the three function of the WIM as outlined in Decision 3/CP.18: (a) Enhancing knowledge and understanding of com-



prehensive risk management approaches to address Loss and Damage; (b) Strengthening dialogue, coordination, coherence and synergies among relevant stakeholders; (c) Enhancing action and support, including finance, technology and capacity building (UNFCCC 2012). With regards to NELD, function (a) is being addressed through the establishment of an expert group,<sup>2</sup> which will likely also positively affect fulfilment of function (b). Function (c) has not yet been addressed. Further elaboration on this function, agreed upon according to Decision 2/CP.19 (UNFCCC 2013b), (c) can offer some insights on what might be expected in the future and is worth quoting in full length:

- i. Providing technical support and guidance on approaches to address loss and damage associated with climate change impacts, including extreme events and slow onset events;
- ii. Providing information and recommendations for consideration by the Conference of the Parties when providing guidance relevant to reducing the risks of loss and damage and, where necessary, addressing loss and damage, including to the operating entities of the financial mechanism of the Convention, as appropriate;
- iii. Facilitating the mobilization and securing of expertise, and enhancement of support, including finance, technology and capacity-building, to strengthen existing approaches and, where necessary, facilitate the development and implementation of additional approaches to address loss and damage associated with climate change impacts, including extreme weather events and slow onset events; (Decision 2/CP.19)

As is evidenced in the reference to the financial mechanism of the Convention, guidance and potential standards developed under the WIM can be expected to have consequences for countries affected by losses and damages, and by extensions NELD. Any financial mechanism is likely to rely on standardised assessment criteria for deciding which projects to fund. This is for example the case for the Green Climate Fund, where a set of criteria and sub-criteria has been developed to guide the rating of project proposals (Green Climate Fund 2014). It is open to question whether consideration of NELD will ever precipitate into concrete rules under which conditions pre-determined levels of support will be granted explicitly for addressing NELD. In either case, it is clear that recommendations developed under the WIM in the coming years are likely to be of lasting effect for the treatment of NELD under the UNFCCC.

Placed under the UNFCCC, NELD is an area of concern for the international community and responses will be guided by the principle of common but differentiated responsibility. This means that considerations of fair burden sharing need to accompany the development and implementation of both measures to avoid risks linked to NELD and measures to respond to unavoided NELD impacts. In the context of

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<sup>2</sup>See [http://unfccc.int/adaptation/groups\\_committees/loss\\_and\\_damage\\_executive\\_committee/items/9694.php](http://unfccc.int/adaptation/groups_committees/loss_and_damage_executive_committee/items/9694.php).

such considerations, questions of adequate scales and conditions for support and fair remedy will be particularly relevant. Insights into the application of comprehensive risk management and the integration of non-economic values into decision-making can guide the development of practical guidelines for implementation of preventive measures. The questions of fair responses to unavoids NELD impacts as well as fair burden sharing and appropriate scales of support for preventive measures can be further clarified academically but their response is of ultimately political nature.

### ***8.4.1 Avoiding and Reducing NELD***

The literature on comprehensive risk management and decision making offers valuable insights into means of integrating non-economic values into decision-making processes (see also Box 8.1). The technical paper on NELD commissioned by the UNFCCC lists a number of methods to valuation of non-economic values and their integration into decision-making. Proposed methods are economic valuation, multi-criteria decision analysis, composite risk indices and qualitative and semi-quantitative methods (UNFCCC 2013a). The choice of method will ultimately depend on scale and availability of resources. While the active involvement and empowerment of local communities has been suggested as the preferable mode of work with non-economic values (NELD 2015), the qualitative methods that go with such approaches often hinder large coverage and comparability between cases.

On a country-basis, some countries have started to implement policy measures safeguarding non-economic values. Faced with the prospect of losing large parts of inhabitable land, the State of Kiribati has embarked on a programme of “migration with dignity”, which entails vocational training and support for early migrants (Office of the President Republic of Kiribati 2016). In a situation of future necessity, this programme introduces an element of choice through the long-term planning horizon provided to individuals or communities, as well as institutional support. While no explicit reference is made to the preservation of agency, community ties and social cohesion, it is clear that such a programme is well suited to preserve such values that might otherwise be lost in the process of forced and unplanned migration. The example of Kiribati illustrates how knowledge and understanding of non-economic values can shape policies aimed at avoiding the risks of climate change at large: If relocation will have to be an option, then a better understanding of the values that people care for can guide policies in support of preserving these values. Notably neither quantification nor monetisation are necessary for the approach chosen by Kiribati.

Related to the question of support for the implementation of comprehensive risk management measures, it is not clear whether standards will be developed to account for the protection of NELD. While Loss and Damage is not treated under the Green Climate Fund, criteria developed to guide funding decisions show that environmen-

tal and social co-benefits, which in many cases include non-economic values, are considered alongside criteria of economic efficiency (Green Climate Fund 2014). It is, however, not clear how they are weighted with other criteria or what an appropriate weighting would be. More research is also needed on the costs that come with the integration of NELD into preventive planning. Where integration is cost-neutral, protection of NELD would be a no-regret strategy and could be implemented by default.

#### ***8.4.2 Responding to Unavoided NELD***

It needs to be expected that not all NELD can and will be avoided. This is so particularly because adaptation to climate change brings with it negative side-effects which can be considered as losses and damages (Warner and Geest 2013; see introduction by Mechler et al. 2018). Many of the negative side-effects from adaptation are non-economic in kind. The example of Kiribati is a case in point, where despite careful measures, sense of place and territory are likely to be lost: With reference to census according to which most I-Kiribati want to remain on their islands (Uan 2016), officials explicitly frame migration as a last resort (Office of the President Republic of Kiribati 2016).

Having said this, not all non-economic values will necessarily continue to be perceived as important or mourned by those affected. As people adapt to gradually or abruptly changing environments it can be expected that their value preferences may shift as well (Tschakert 2016). Fishermen, for example, losing their traditional livelihoods may find new identities in alternative means of income and social exchange: new goals and preferences in their lives will likely emerge. However, it is open to question which of the lost values will continue to be mourned by those affected in the future and which will prove to be temporary. Nor is it clear whether temporarily mourned losses, which could have been avoided had climate change been avoided, can simply be ignored or whether they too merit some form of fair remedy. After all, those affected are forced to shift to new goals rather than freely choosing to do so.

Questions of what constitutes a fair remedy to unavoidable non-economic losses touch on the means and instruments that are available as responses as well as on questions of who bears the duty to remedy. Bracketing the question of identifying the duty bearer it is helpful to approach non-economic values with Goodin's theories of compensation (Goodin 1989). Goodin distinguishes between means replacing compensation, where people are provided with the means to pursue the same ends that have been lost and ends-displacing compensation, where people are enabled "to pursue some other ends in a way that leaves them subjectively as well off overall as they would have been had they not suffered the loss at all" (Goodin 1989:60). In the case of irreplaceable losses where no substitute can be found, means replacing

compensation is not possible, leaving ends-displacing compensation as the only option. Goodin argues for the moral superiority of means replacing compensation as it does not forcibly interfere with the “unity and coherence in a person’s life” (Goodin 1989:68) and does not undermine a person’s autonomy. In contrast, in ends-displacing compensation, people are forced to shift their goals and pursue new ends, as if their preferences and goals were “one undifferentiated mass” (Goodin 1989:67).

For responses to NELD this means that ways should be sought that allow those affected to pursue the same goals as prior to the loss. Whether and how exactly this can be achieved will depend on the loss in question as some but not all incommensurable values are irreplaceable. Designing responses to unavoided NELD impacts will consequently require a thorough understanding of the function that a lost value had for those affected by its loss. For example, if a community is forced to relocate and is faced with loss of traditional knowledge then locations for relocation could be sought which allow as much of the knowledge to still be applied as possible. Granting migrants the rights needed to re-establish their livelihoods according to their own preferences would be another way of effective means-replacement in order to enable the pursuit of lost ends.

In cases where no substitute for what has been lost is conceivable, as might for example be the case with loss of lives or sacred places, it is important to acknowledge that ends-displacing compensation does not legitimise the policy that led to this loss (Goodin 1989:73). This does not imply that ends-displacing compensation, as for example monetary compensation for irreplaceable goods, should be avoided. Indeed, claims for compensation for culture loss as quoted by (Kirsch 2001) show that communities affected by such losses seek justice through the form of monetary recompense despite the perceived incommensurability of culture which conceptually prohibits its economic valuation. This might appear as conceptual inconsistency or dishonesty by those affected. However, as O’Neill (2001) argues, forward-looking economic valuations are distinct from backward-looking ones in that the latter are associated with notions of rectificatory justice whereas the former are not. Along these lines, monetary compensation for irreplaceable or incommensurable goods does not imply that those goods are replaced or that their value can be expressed on a single scale. Rather, ends-displacing compensation is an aspect of rectificatory justice and “surely better than nothing” (Goodin 1989:73), but it does not right a wrong. In the context of climate policy this translates into the clear preference that needs to be given to measures that prevent the risk of losses and damages, even if the difference between avoiding and compensating were cost-neutral. Finally, where losses are irreplaceable and require that those affected are forced to shift their goals, as will be the case with many of the non-economic values already observed and projected, it needs to be acknowledged that a residue of moral wrong will remain.

## 8.5 Conclusions

The concept of NELD spans a wide range of adverse effects of climate change that affect both human wellbeing and natural systems. Some of these effects are standardly considered in public policies on climate change (e.g. adverse effects on human health or human life) while others (e.g. loss of cultural heritage or social networks) remain less well reflected. With the particular focus now placed on NELD under the UNFCCC, the opportunity arises to widen the scope of current approaches and design comprehensive policies that accommodate the dimension of incommensurable values at risk from climate change and that are sensitive to context.

Debates on the most adequate and effective valuation methods, in particular controversies around economic valuation, are likely to continue in the context of NELD. Here, it will be important to not “jump the gun” and consider to which ends data and information on non-economic values will be needed. In cases of preventive measures, a deep understanding of the values and their functions for well-being that should be preserved despite choices that threaten these values and that are limited by resource availability, such as the choice to relocate despite high sense of place, is needed for an effective design of policies. The economic value of community ties, sense of place or traditional cultures would add little information to the design of such policies. Similarly, the identification of possibilities for means-replacing compensation will not rely on the monetary value of what has been lost but of the goals and ends that were pursued by those affected by NELD. What is, however, needed and currently lacking are economic estimates of the costs of preventing NELD impacts and risks. These will also inform the debate on adequate scales of international support and burden sharing that have not been addressed in this chapter (see chapter by Wallimann-Helmer et al. 2018).

Raising awareness on NELD and giving it appropriate weight in decision-making processes will continue to be a challenge. This is particularly the case in the international setting of the UNFCCC where different cultures are represented and where decisions on funding and support will likely rely on standardised criteria and centralised decision-making. The development of dedicated efforts to integrate NELD in the design and implementation of both preventive and reactive approaches at the national and regional level can be expected in the coming years. For these instruments to be effective it will be important to put them on a strong evidence base. Comprehensive geographical coverage of climate impact observations, including contributions from social disciplines such as human geography and environmental psychology can provide important insights in this regard. Similarly, academic discussions of the normative dimensions of NELD and adequate responses can clarify much of the debate. However, which values will count and how they will be weighed in decision-making both at the national and international level will in the end always be one of judgment and as such require political debate and deliberation.

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