SYNOPSES SERIES:

NON-ECONOMIC LOSSES IN THE CONTEXT OF THE WORK PROGRAMME ON LOSS AND DAMAGE

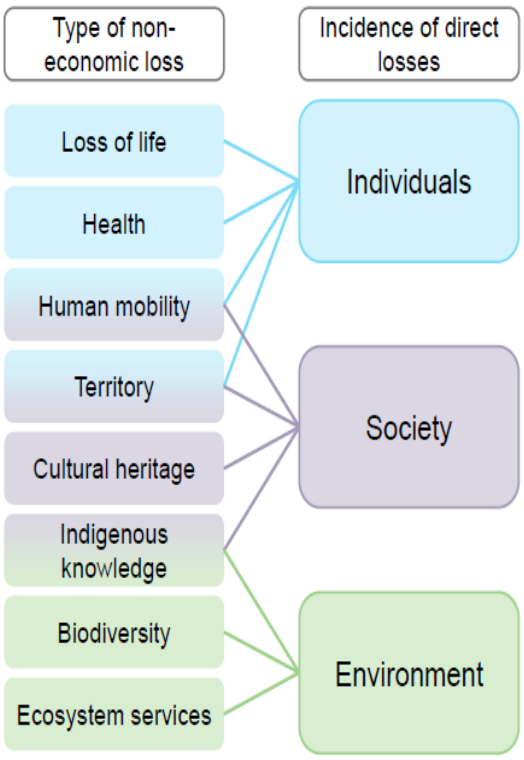
The technical paper was mandated by COP 18 (2012) under the work programme on loss and damage (L&D).

OVERVIEW

Non-economic losses may occur through many channels:

* Slow onset impacts;
* Extreme events;
* Directly linked to climate change;
* Indirectly linked to climate change.

The technical paper describes eight types of non-economic losses in three areas:



The technical paper:

* Describes the main types of non-economic losses, and their conceptual background, including how non-economic losses contribute to L&D, and the total cost of climate change;
* Discusses the various assessment techniques available to estimate non-economic losses, and what they imply for the design of practical adaptation actions;
* Focuses on developing countries that are particularly vulnerable to the adverse effects of climate change.

The term economic losses can be understood as the loss of resources, goods and services that are commonly traded in markets. **The term non-economic losses can be understood as the remainder of items that are not economic and are not commonly traded in markets**.
The absence of a market price is one of the main reasons why assessing non-economic loss is challenging, but their effect on human welfare is no less important.

Methodology:

* Review of economic literature;
* Critical analysis of reviewed literature.

Contents of the technical paper:

* Conceptual background, types of non-economic losses, assessment techniques;
* An executive summary and chapter summaries;
* Examples of the types of non-economic losses and methods for their assessment;
* Recommendations based on the key findings;
* Annex describing various frameworks for assessing non-economic losses.

This synthesis summarises the document as contained in FCCC/TP/2013/2. Access full document here

KEY FINDINGS

The technical paper identifies four broad categories of valuation techniques:

Valuation technique	*Description*	*Example*
Economic valuation	Economic valuation for CBA or wealth/capital accounting involves valuing a change in the provision of a good or service or a change in the value of an asset, respectively, by multiplying the change in the quantity in its natural unit by the price per unit: price x quantity. This valuation employs the revealed preference method (hedonic pricing, travel cost, costs of illness, etc.), the stated preference methods (hypothetical behaviour, questionnaire surveys) and benefits transfer.	Quah and Chia (2013) studied the losses from increases in particulate matter in the air in Singapore. They estimate the health costs associated with a 15 µg/m3 change in concentration at roughly USD 3.75 billion, or about 2 per cent of the gross national product in 2009. They use a benefit transfer method, where the economic valuation of health effects is estimated based on other research into the willingness to pay for reducing risk of premature mortality, and a cost-of-illness approach to value changes in morbidity. The authors note that whereas health effects due to air pollution are relatively easy to identify, placing an economic value on mortality and morbidity using the benefit transfer approach is challenging.
Multicriteria decision analysis (MCDA)	MCDA is a way of looking at complex problems that are characterized by any mixture of monetary and non-monetary objectives, of breaking the problem into more manageable pieces. MCDA employs a selection of a set of criteria against which various alternative actions are to be evaluated, the scoring of the performance of each action against each criterion using a consistent scoring scheme, and lastly and perhaps most importantly the weighting of the various criteria. In this way each alternative action can be given a single weighted score, which can be compared with the weighted scores of the other actions.	Bangladesh applies MCDA in selecting a list of priority activities in its NAPA. The NAPA notes that there is a lack of concrete, quantifiable data in some places and areas, which implies that MCDA is more appropriate than CBA. It cites community-led decision-making, stakeholder preference, expert judgment, national goals and strategies as key inputs in MCDA. The criteria used were: (a) Impacts of climate change on the lives and livelihoods; (b) Poverty reduction and sustainable income generation; (c) Enhancement of adaptive capacity in terms of capabilities at community and national level; (d) Gender equality (as a cross-cutting criteria); (e) Enhancement of environmental sustainability; (f) Complementary and synergy with national and sectoral plans and programmes; (g) Cost effectiveness.
Composite risk indices	Composite risk indices share many similarities with MCDA (including scoring vulnerability on multiple criteria and then weighting the criteria to create a single index value). Risk indices are constructed to compare vulnerability in different places, with a more indirect connection between the analysis and the actions. Consequently risk indices tend to be created by expert organizations without necessarily having the strong procedural emphasis on a 'best practice' deliberative MCDA.	The World Risk Index could be applied at multiple scales from the national to the local as a means of identifying risk hotspots and informing risk reduction strategies. The annual World Risk Report ranks 173 countries in its index. The concept underpinning the index is that the risk of becoming a victim of disasters resulting from extreme natural events depends on exposure to extreme natural events on the one hand, and vulnerability on the other hand. Vulnerability in turn depends on susceptibility, short-term coping capacities and long-term adaptive capacities, so that the World Risk Index has four components overall: 1. Exposure to natural hazards; 2. Susceptibility; 3. Coping capacities; 4. Adaptive capacities.
Qualitative/ semi-quantitative methods	According to this method, information on the multiple effects of development, existing economic activity or natural environmental phenomena is brought together in a more disaggregated form, and it is left to the decision makers in support of whom the analysis has been conducted to form their own views on the trade-offs suggested and their implications for the decision. There are many reasons for this, including institutional cultures and preferences, but one major factor is that doing so is less resource-intensive, as costly CBA/MCDA is avoided. Formal evaluation usually stops at the presentation of an impact matrix/summary table.	A climate change risk assessment (CCRA) was performed in the United Kingdom of Great Britain and Northern Ireland, through collecting, comparing and summarizing the latest evidence on the risks and opportunities presented by climate change for the United Kingdom up to 2100. This CCRA involved an assessment of hundreds of different kinds of climate risk in different sectors. Some potential risks were quantified and costed in economic terms; others, such as areas of land affected or numbers of people harmed, were quantified in natural units but not monetized, while still other estimates were based on expert elicitation or simply qualitative reviews of the evidence. In order to compare risks, this CCRA used a common qualitative/semi-quantitative scale, rating each risk "low", "medium" or "high". This rating was based in part and where possible on quantitative thresholds such as pounds of damage or lives affected, but expert judgment was required in most places, including where to set such thresholds.

Some of the relevant frameworks for assessment of the non-economic effects of human development and natural phenomena are:

Assessment framework	*What is its purpose?*	*How does it incorporate non-economic effects?*
Environmental impact assessment	Ex ante assessment of environmental impacts of local/regional development projects and of economic and social impacts as support to planning/zoning decisions.	Development projects always have non-economic effects, which should be measured and valued alongside economic effects before making decisions on whether to permit development.
Strategic environmental assessment	Ex ante assessment of environmental impacts of national/regional policies, plans and programmes, known as 'strategic actions' and of economic and social impacts as support to strategic decision-making.	Strategic actions always have non-economic effects, which should be measured and valued alongside economic effects before choosing a policy, plan or programme.
Environmental risk assessment	Ex ante assessment of human and environmental effects of hazardous production processes and products as support to planning and permitting decisions.	Hazardous production processes and products pose non-economic risks to the natural environment and human health, which environmental risk assessment aims to quantify as an input to planning and decision making.
Cost–benefit analysis	Assessment of monetary costs and benefits of policies, plans, programmes and/or projects, either ex ante to aid planning/ strategic decision-making, or ex post to inform on performance of existing measures.	Many of the benefits and costs of policies, plans, programmes and projects are non-economic; however, cost–benefit analysis aims to give them parity of esteem by putting a monetary value on them.
Wealth/capital accounting	Comprehensive wealth/capital accounting seeks to understand how (typically) nations manage their asset bases, with a view to assessing whether they are developing sustainably.	The national asset base includes not only economic capital, but also non-economic capital such as natural capital. Non-economic capital needs to be assigned a monetary value if the overall wealth/savings position is to be measured formally.
Vulnerability assessment	Assessment of the vulnerability of societies, at multiple scales, to natural environmental pressures, alongside other stressors, often as an input to disaster risk reduction initiatives.	Vulnerability is usually conceived to have multiple determinants, some of which are non-economic (e.g. nutrition levels, strength of social networks).
Disaster loss/damage assessment	Ex post assessment of the impacts of natural disasters, especially economic costs.	Natural disasters have non-economic effects that could be quantified and even monetized, although in practice this is rarely done.
Climate change impacts, adaptation and vulnerability assessment	Assessment of the impacts of climate change on societies at multiple scales, either to aid adaptation planning and decision making.	Impacts of, and vulnerability to, climate change include non-economic dimensions.

RECOMMENDATIONS BASED ON THE KEY FINDINGS

* Recognizing, assessing and managing the risk of non-economic loss should be a central aspect of climate change policy.
* Policymakers should make use of the full range of available assessment and evaluation techniques. The suitability of each depends on institutional contexts as well as the problem at hand.
* A detailed quantification of non-economic loss should rely on a number of different metrics, not just a single number representing the "total non-economic loss".
* Policymakers should make the use of non-economic evaluation techniques a requirement in project appraisal.
* Policymakers and the international community should make the removal of adaptation barriers an immediate priority for adaptation assistance in developing countries, whether the barriers are institutional, funding-related, policy-related, market-related, cognitive or due to insufficient information and skills.