VOLUME 39

Big Oil, Coal and Gas Producers Paying for their Climate Damage

A discussion paper by **Julie-Anne Richards** and **Keely Boom**

HEINRICH BÖLL STIFTUNG
ECOLOGY

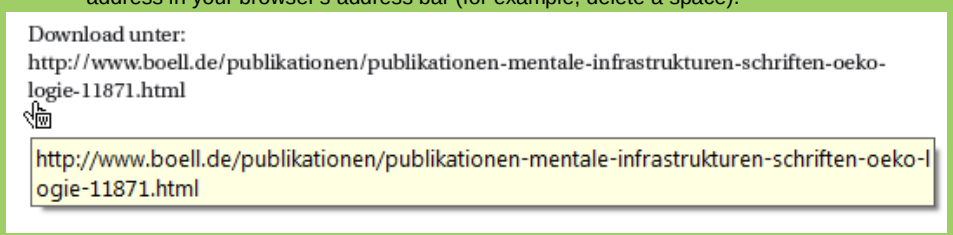
CJP
CLIMATE JUSTICE

Zoom
Fit Width
Search
TOC
2-pages Full-Screen-Mode

Note on web links

Based on technical changes caused by typesetting some links in this document may have gotten altered, for example through the addition of a separator, and may thus be faulty. Others may have become invalid due to changes on the respective websites.
To verify whether a link is complete, place the mouse pointer on the link and compare the displayed address with the one in the document.

In the document the link may appear to be complete, yet technically its validity may be compromised by a delimiter. You can correct such errors by simply editing the address in your browser's address bar (for example, delete a space).



In other cases it will be easier to locate the document through web search by entering the document's title and, if necessary, the name of the website and the file type. To do this, copy the document's title into your search window, for example the brochure "mental infrastructure", and, to narrow your search, add ñsite:nameofsite.orgòand ñfiletype:pdfò

We apologize that we are not always able to provide accurate links.
Your editorial team

BIG OIL, COAL AND GAS PRODUCERS PAYING FOR THEIR CLIMATE DAMAGE

Zoom Fit Width Search TOC 2-pages Full-Screen-Mode

HEINRICH BÖLL STIFTUNG
PUBLICATION SERIES ECOLOGY

VOLUME 39

Big Oil, Coal and Gas Producers Paying for their Climate Damage

A discussion paper by Julie-Anne Richards and Keely Boom

Edited by the Heinrich Böll Foundation

About the Authors

Julie-Anne Richards, Manager International Policy of the Climate Justice Programme, has more than a decade experience in climate change campaigning and policy development. She was responsible for coordinating international policy and lobbying campaigns across the Climate Action Network International, an organization with more than 700 member organisations in 90 countries. As Advocacy Coordinator for Oxfam Australia she played a key role in establishing Oxfam in the policy and campaigning climate change space within Australia, and co-authored a key Oxfam International paper on equity and climate change. At Climate Action Network Australia she successfully expanded climate change outside of the environment sector and facilitated a new approach to campaigning leading to a shift in awareness and increased concern about climate change. Her campaign and communication success draws from her previous career in marketing in the private sector. jar@jarclimate.net

Dr Keely Boom is Executive Officer of the Climate Justice Programme, a Research Associate at the Institute for Sustainable Futures (University of Technology, Sydney) and a practising lawyer. She has over a decade of experience in research, legal and advocacy work within academia and the non-profit sector. Her PhD thesis examined exposure to legal risk for climate change damage under the international climate change regime and UN Law of the Sea Convention, with a case study on Tuvalu and Australia. Keely has a number of leading publications on international climate law and has convened national and international workshops on climate litigation. She has managed a number of projects, including the Carbon Majors Project. keely@climatejustice.org.au

Published under the following Creative Commons License:
http://creativecommons.org/licenses/by-nc-nd/3.0/. Attribution — You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work). Noncommercial — You may not use this work for commercial purposes. Share Alike — If you alter, transform, or build upon this work, you may distribute the resulting work only under the same or similar license to this one.

Big Oil, Coal and Gas Producers Paying for their Climate Damage
A discussion paper by Julie-Anne Richards and Keely Boom
Edited by the Heinrich Böll Foundation (2nd, revised edition 2014)
Volume 39 of the Publication Series Ecology

Design: feinkost Designnetzwerk, Sebastian Langer (predesigned by blotto design)
Printing: Druckerei Arnold, Großbeeren
Cover photo: Pio Arce/Genesis Photos - World Vision (flickr)
ISBN 978-3-86928-130-8

This publication can be ordered from: Heinrich-Böll-Stiftung, Schumannstr. 8, 10117 Berlin
T +49 30 28534-0 **F** +49 30 28534-109 **E** buchversand@boell.de **W** www.boell.de

CONTENTS

Preface 7

Executive summary **11**

1. Introduction **13**

2. Who and what are the Big Oil, Coal and Gas Producers? **15**

3. What is loss and damage? **21**

3.1 Scale of loss and damage 23

4. Legal responsibility for loss and damage **27**

4.1 Legal responsibility (liability) for loss and damage under international law 27

4.2 Legal responsibility (liability) for loss and damage under national, transnational, and supranational law 30

4.3 Precedents from other fields 32

4.3.1 Oil spill compensation 33

4.3.2 Nuclear damage regime 35

4.3.3 Biosafety liability 35

5. How might the UN loss and damage mechanism work? **37**

5.1 History of the UN loss and damage negotiations 37

5.2 What will the Warsaw International Mechanism for Loss and Damage do? 39

5.3 Why do we need loss and damage finance? 41

6. How Big Oil, Coal and Gas Producers could help fund loss and damage **45**

6.1 Key considerations 48

6.1.1 Fossil fuel phase-out 48

6.1.2 Why focus on Big Oil, Coal and Gas Producers? 49

6.1.3 Differentiation between developed and developing countries 50

6.1.4 When to begin historical responsibility? 52

6.1.5 What should the levies be set at? 52

6.1.6 Interaction with other climate change programmes 54

6.1.7 Opportunities to progress within the UNFCCC 54

7. Next steps including further areas of research and discussion **55**

Bibliography and resources **57**

Abbreviations **63**

PREFACE

When the Deepwater Horizon drilling platform exploded in 2010, an estimated 800 million litres of oil flowed into the sea for almost 90 days in one of the most serious environmental disasters of its kind. The resulting damage to nature – flora and fauna – and the fishing industry was immense. Up to 2012, BP had to reimburse a total of US$43 billion for the consequential damage; an example of how important it can be to monetise loss. Could a similar calculation be done for the loss of the Arctic, the loss of livelihoods of millions of people in the coastal areas of Bangladesh, or for the farmers in the Sahel who have no harvest due to drought caused by climate change?

Climate change is causing loss and damage – and will cause even more in the future. The impact will hit those hardest who have contributed the least to the causes and have profited the least from the extraction and burning of fossil fuels. In Germany, the very idea of compensation for destruction and loss of nature was born as a responsibility principle – responsibility of the destructor or polluter – but was later translated and inherently understood as the polluter-pays principle. Money cannot bring back that which is irreplaceable, nor can it provide justice. However, if we direct attention to those who have contributed to causing the climate crisis and who have profited from it at the same time, can we not hold them accountable for it, stop them from doing further harm in the future, and force them to pay their fair share of the financial burden?

Climate change has been on the global agenda for more than 20 years, but international cooperation has shown mixed results. While many actors are backing away from further serious engagement in the United Nations Framework Convention on Climate Change (UNFCCC) process, we believe that it is the only existing and, in the near term, conceivable international forum to coherently address climate change as an ethical and political problem. That is why the UNFCCC process is a central, but not the only, forum for our diverse activities. We do, however, realise that staying within the climate bubble and the UNFCCC framework will not allow us to understand and address the underlying causes and structures that prevent negotiators and governments from reaching agreement on a fair, ambitious, and binding global climate regime. A much broader perspective and fresh strategy is needed to tackle inequity and achieve a truly sustainable socio-ecological transformation of our economies and societies.

In this context, we very much welcome the analysis provided in the groundbreaking peer-reviewed report by Richard Heede that was published in November 2013. His research offers the most complete picture to date of which institutions have extracted the fossil fuels that have been the root cause of global warming since the Industrial Revolution. Rather than attribute emissions to nations, the study aggre-

gates historical emissions according to carbon producing entities themselves. Heede concludes that nearly two-thirds of carbon dioxide emitted since the 1750s can be traced to the 90 largest fossil fuel and cement producers, most of which still operate today (dubbed by Heede as the «Carbon Majors»).

Inspired by Heede's conclusion, this report outlines the case for those main fossil fuel producers – the «Big Oil, Coal and Gas Producers» – to provide funding via the Warsaw International Mechanism for Loss and Damage for communities suffering loss and damage from climate change. We would like to thank Julie-Anne Richards of the Climate Justice Programme, who authored the report and did a great job in reaching out to various people in the process of drafting it to incorporate a broad range of comments and perspectives. We are grateful to all those who provided these valuable insights and comments and express our hope to be able to continue these discussions in the future. We would also like to thank and congratulate Keely Boom and the rest of the Climate Justice Programme team for their tireless efforts over many years culminating in the launch of the Carbon Majors work – we are happy and excited to be on board now!

This report is not meant to provide definitive answers to all of the questions arising from it. It is rather meant to be a contribution to a discussion that we need to have if we are serious about moving the international climate agenda forward. We hope it offers both inspiration and hope and look forward to receiving your feedback and comments!

Berlin, June 2015

Lili Fuhr and Barbara Unmüßig
Heinrich Böll Foundation

Stephen Leonard
Climate Justice Programme

ACKNOWLEDGEMENTS

The authors would like to thank: Stephen Leonard for his long-term vision for the Climate Justice Programme and Carbon Majors work, conceptual ideas contained in this paper, and support; Lili Fuhr for her input in general and specifically for drafting the text boxes; Rick Heede for his many years of work culminating in the Carbon Majors report and for his review of this paper; Peter Roderick and Roda Verheyen for conceptualizing the Carbon Majors project many years ago and providing input to this paper. The authors would also like to acknowledge the conceptual work that Gita Parihar has done in this area. The authors thank Professor Meinhard Doelle for his innovative thinking around differentiated responsibility and our levy proposal.

In addition, thanks go to the many people who helped this paper come to fruition and offered input for the ideas contained in this paper, including: Kristin Funke; Liane Schalatek; Sandeep Chamling Rai; Sven Harmeling; Sönke Kreft; Harjeet Singh; Asad Rehman; Malia Talakai; Yeb Sano; Mark Lutes; Alix Mazounie; Jan Kowalzig; Alyssa Johl; Niranjali Amerasinghe; Ulriikka Aarnio; Kristin Casper; Claire Stockwell; Jasper Inventor; Johnny West; Sumaya Zakieldeen; Tove Ryding. We would like to acknowledge the excellent work done by many in the areas of loss and damage, finance, and fossil fuel campaigning.

Dedicated to the memory of Morrow Gaines Campbell III: generous of spirit and a true champion for the planet.

THE CLIMATE JUSTICE PROGRAMME

The Climate Justice Programme (CJP) pursues climate justice through the development of climate law and policy.

CJP began in 2001 as a collaboration of lawyers and campaigners around the world encouraging, supporting, and tracking enforcement of the law to combat climate change.

The two key drivers of climate change are the production and use of fossil fuels and the destruction of forests. The CJP has prioritised these with the Carbon Majors Project (CMP) and Ecosystems Climate Justice Project (ECJP).

Through the ECJP and our work on reducing emissions through decreased deforestation and forest degradation (REDD+), we have carried out legal analysis of international law developments and opportunities for national and international dispute-resolution mechanisms. We have played a central role in joint efforts by civil society on the REDD+ negotiations at the UNFCCC, including writing discussion papers and generating media. Our work includes a major research project involving fieldwork in Indonesia.

In November 2013 the CJP reached a significant milestone with the release of an eight-year project known as the Carbon Majors Project. Researcher and scientist Richard Heede's extensive analyses of the production of fossil fuels and the companies involved received widespread international media coverage and has been seen as ground-breaking by policy makers, lawyers, scientists, and campaigners. Initial stages of the CMP report were supported by Friends of the Earth International, Greenpeace International, Climate Action Network Australia and others. The final stage of the CMP report was supported by Greenpeace International.

Executive summary

This discussion paper outlines the case for fossil fuel producers («Big Oil, Coal and Gas Producers» resp. «Carbon Majors») to provide funding via the Warsaw International Mechanism for Loss and Damage for communities suffering loss and damage from climate change.

Billions of people in poor communities are innocent victims in the climate change equation. They are amongst the lowest polluters in the world, yet they are already suffering from loss and damage caused by climate change.

Impacts such as drought and changing rainfall patterns in the Sahel region; sea-level rise and coastal erosion in small islands; the double challenge of rising sea levels and severe cyclones in Bangladesh; and the devastating effect of super-Typhoon Haiyan on the Philippines have already gone beyond the ability of communities to adapt. It is expected that loss and damage from climate change will increase dramatically in the poorest parts of the world.

The climate change already being experienced is the result of the emissions that have been released into the atmosphere since the start of the Industrial Revolution. A groundbreaking report released in 2013, the *Carbon Majors* report, established that 63% of carbon emissions in the atmosphere have come from the coal, oil, and gas extracted and cement manufactured by only 90 entities – the «Big Oil, Coal and Gas Producers», which include Chevron, ExxonMobil, Saudi Aramco, BP, Gazprom, and Shell. In 2014, Richard Heede updated his results to find that 65% of historic carbon emissions could be attributed to these entities. These entities have made massive profits from extracting and selling the fossil fuels that cause climate change without paying for any of the damage from climate change that their products are causing.

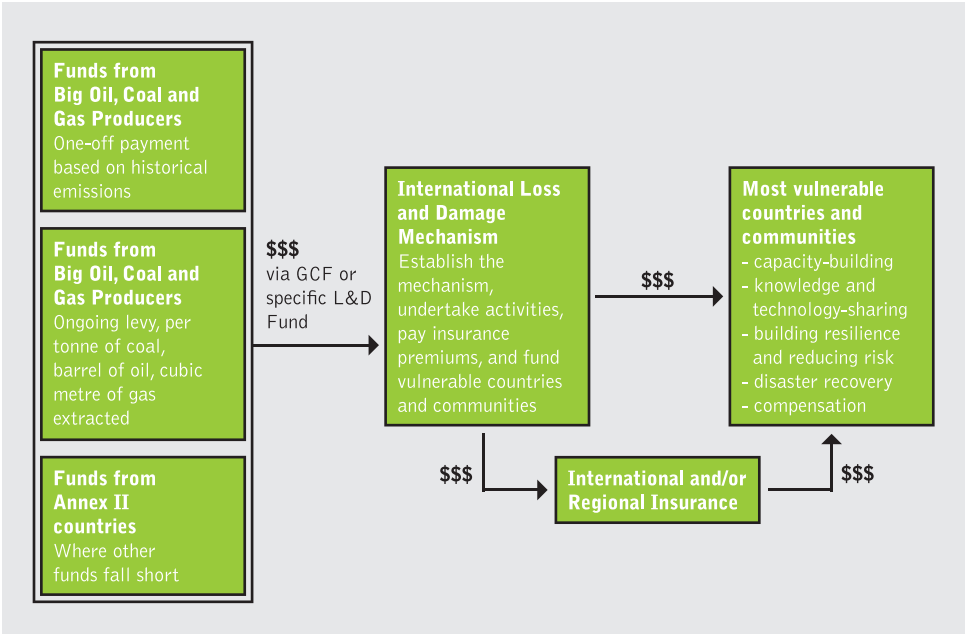
To safeguard the climate for all of us, we must phase out fossil fuels. In the meantime, these entities have a moral and legal responsibility to provide redress for the loss and damage arising from the emissions their products have caused. Adding a levy to the extraction of fossil fuels can help meet these goals.

The international community has taken initial steps to address loss and damage from climate change. In November 2013 the United Nations Framework Convention on Climate Change (UNFCCC) agreed to establish the Warsaw International Mechanism for Loss and Damage to: enhance knowledge and understanding of comprehensive risk-management approaches to address loss and damage; strengthen dialogue, coordination, coherence, and synergies; and enhance action and support, including technical support and mobilising finance.

These functions of the International Mechanism for Loss and Damage will clearly require funding. Unfortunately, the current level of climate finance under discussion by the international community is grossly inadequate for mitigation and adaptation

efforts, without taking loss and damage into consideration. Therefore, a new source of finance is needed.

This paper proposes that these major polluting companies pay a levy – based on their emissions to date and on future extraction of fossil fuels – to the International Mechanism for Loss and Damage to provide funding to the poorest and most vulnerable communities suffering the worst impacts of climate change, as outlined in the graphic below.



This approach is based on the «no harm» principle in international law and the principles of transboundary harm. It is consistent with the UNFCCC and is informed by precedents from other fields developed in line with the Rio Declaration on Environment and Development (1992), including the oil spill compensation regime, the nuclear damage regime, and the biosafety regime.

This proposal has many advantages including:

- providing a new and predictable source of finance for the most vulnerable countries and communities;
- adding cost to the extraction and use of fossil fuels, and thereby discouraging their use;
- ensuring that the entities whose products are responsible for causing climate change – the big fossil fuel-extracting entities – meet the costs of loss and damage inflicted on the poorest and most vulnerable; and
- being consistent with international law, precedents from other areas, and compatible with existing national systems such as emissions trading schemes, levies, royalties, etc.

1. Introduction

This discussion paper is born out of a number of key elements.

First, that poor people with little or no resources are suffering the worst of climate change, and their need is growing. Billions of people in poor communities are innocent victims in the climate change equation. They are amongst the lowest polluters in the world, yet they are already suffering from loss and damage caused by climate change. Section 3 of this paper documents the scale of the challenge and also personal stories of people who are already facing loss and damage from climate change.

Second, the current levels of climate finance are grossly inadequate. The international community pledged US$100 billion annually by 2020 at Copenhagen, which is largely failing to materialise. The poorest and most vulnerable countries need substantial and predictable levels of finance so they can plan their responses to climate change; section 3 offers more details on this.

Third, the fossil fuel business model does not take into account the costs of climate change. Fossil fuel entities have made massive profits from extracting and selling fossil fuels such as coal, oil and gas, and manufacturing cement. Yet, the costs of their business practices – the impacts of climate change – are completely external to their business model. See sections 2 and 6 for more detail.

Fourth, the international climate negotiations have offered a way to address these imbalances in a way that will also help to reinvigorate the negotiations with fresh ideas and renewed public engagement. The establishment of the Warsaw International Mechanism for Loss and Damage in November 2013 and the work that has been put in towards a 2015 comprehensive agreement offer an opportunity for new momentum. The ideas contained within this paper provide fresh approaches that could shake up existing stalemates and garner public support. See section 5 for more detail.

Fifth, international law establishes the basis for this approach. In fact, there are existing examples that can be learnt from in other fields that put such an approach into practice, including in the oil spill compensation regime, the nuclear damage regime, and the biosafety liability protocols. This approach is entirely compatible with the UNFCCC. See section 4 for details.

Finally, the opportunity provided by the release of the ground-breaking *Carbon Majors* report in November 2013, which shows that a small number – fewer than 100 – entities have a significant responsibility for the climate change currently being experienced. Section 2 outlines this research, which allows us to «think outside the box» and present the idea contained within this discussion paper: that the major fossil fuel entities provide funds for the poorest and most vulnerable people facing the worst of climate change via a levy to the International Mechanism for Loss and Damage.

In this context, the ideas contained in this paper – although not complete and offered in a spirit of seeking further engagement – offer opportunities to move forward

positively in all of these areas. The authors look forward to engagement and further work with government and civil society stakeholders on the concept introduced in this paper.[1]

Billows of smoke over a refinery

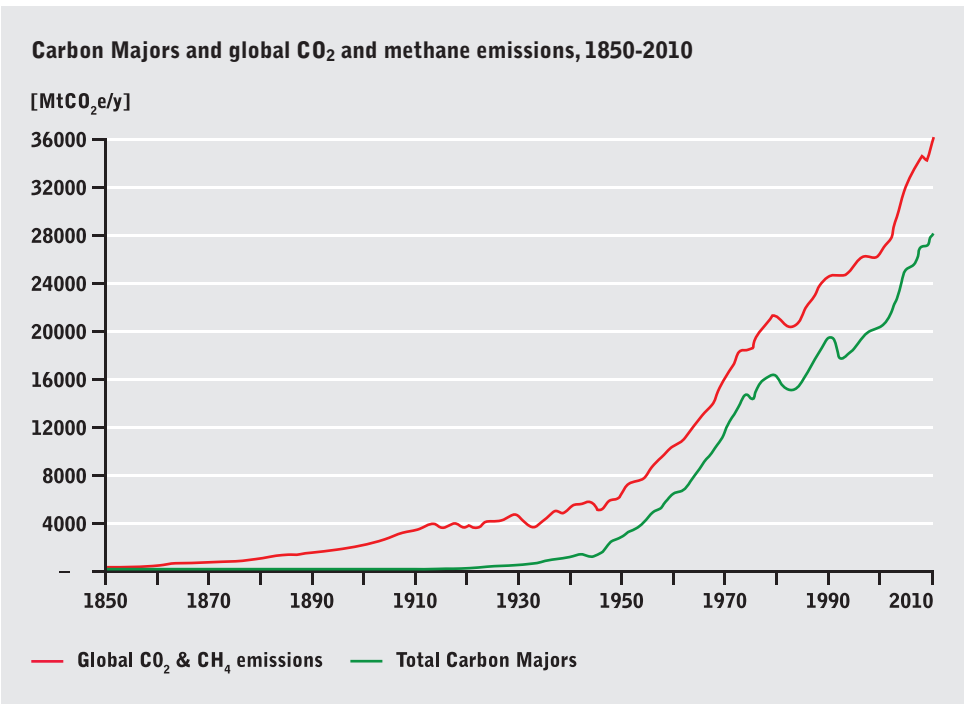
© davis - Fotolia.com

1 If you are interested in engaging further please let us know via this short form: http://goo.gl/7Dbdfs

2. Who and what are the Big Oil, Coal and Gas Producers?

The *Carbon Majors* report (Heede 2013, 2014)[2] was released in November 2013. This ground-breaking report is the result of eight years of work by Rick Heede that aggregates the historical emissions of the 90 biggest oil, gas, and coal producers and cement manufacturers and demonstrates that the fossil fuels they have extracted and the concrete manufactured is responsible for 63% of global emissions. It attributes 3.52% of greenhouse gas emissions to ChevronTexaco, 3.22% to ExxonMobil, 3.17% to Saudi Aramco, 2.47% to BP, 2.22% to Gazprom, 2.12% to Shell, and 2.01% to the National Iranian Oil Company. The full list of entities is in the tables below.

These 90 «Big Oil, Coal and Gas Producers» are responsible for extracting the fossil fuels and manufacturing the concrete that has led to 63% of total global emissions since the Industrial Revolution began (1751–2010). Their products are therefore also responsible for the majority of climate change being felt today.



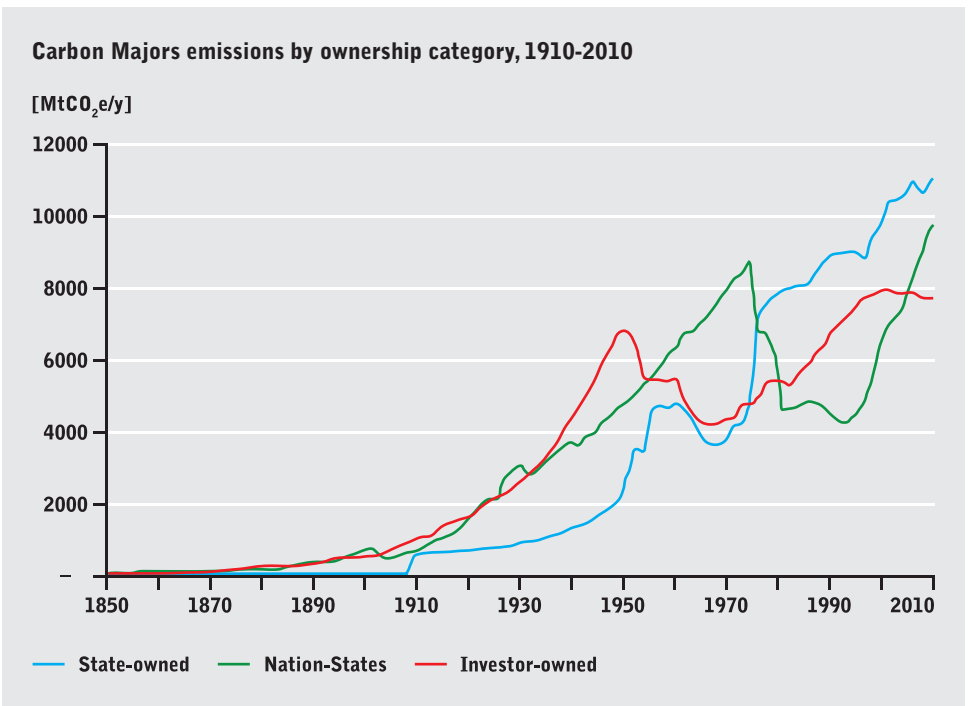
2 See http://carbonmajors.org/.

The full list of Carbon Majors examined in Heede's original report follows; 56 of them are crude oil and natural gas producers, 37 are coal extractors (including subsidiaries of oil and gas companies), and 7 are cement producers.

Of the entities still in existence, 54 are headquartered in Annex I countries, and 31 in non-Annex I nations.

As demonstrated in the graph below 315 Gt CO_2e (gigatonnes carbon dioxide equivalent) can be attributed to 50 investor-owned entities, 288 Gt CO_2e to 31 state-owned entities, and 312 Gt CO_2e to nine nation-states (Heede 2013). The geographic spread of investor-owned companies is as follows: USA 21; Europe 17: of which five are in the United Kingdom, three in Germany, two each in France, Italy, and Switzerland, one each in the Netherlands, Spain, Austria; Canada has 6; Russia 2; and one each in Australia, Japan, Mexico, and South Africa (Heede 2013).

One half of the emissions from Carbon Major entities have occurred since 1986 (Heede 2013).



«This study (the Carbon Majors) is a crucial step forward. Those who are historically responsible for polluting our atmosphere have a clear obligation to be part of the solution.»

Al Gore

All 81 investor- & state-owned carbon & cement entities and cumulative emissions

Entity		Products Flaring, own fuel, Fugitive			Total emissions $GtCO_2e$	Percent of global 1751-2010
		fuel, cement $GtCO_2$	vented CO_2 $GTCO_2$	methane $GtCO_2e$		
1.	Chevron Texaco, USA	46.28	1.48	3.34	51.10	3.51%
2.	Exxon Mobil, USA	41.60	1.54	3.53	46.67	3.21%
3.	Saudi Aramco, Saudi Arabia	42.81	1.03	2.18	46.03	3.17%
4.	BP, UK	32.51	1.02	2.31	35.84	2.47%
5.	Gazprom, Russian Federation	25.09	2.13	4.92	32.14	2.22%
6.	Shell, The Netherlands	27.57	0.99	2.19	30.75	2.12%
7.	National Iranian Oil Company	26.71	0.76	1.62	29.08	2.01%
8.	Pemex, Mexico	18.14	0.59	1.29	20.03	1.38%
9.	British Coal Corporation, UK*	17.74	0.00	1.50	19.25	1.33%
10.	ConocPhilips, USA	14.70	0.67	1.50	16.87	1.16%
11.	Petroleos de Venezuela	14.77	0.44	0.95	16.16	1.11%
12.	Coal India	14.28	0.00	1.21	15.49	1.07%
13.	Peabody Energy, USA	11.46	0.00	0.97	12.43	0.86%
14.	Total, France	10.79	0.35	0.77	11.91	0.82%
15.	PetroChina, China	9.67	0.28	0.61	10.56	0.73%
16.	Kuwait Petroleum Corp.	9.80	0.23	0.48	10.50	0.72%
17.	Abu Dhabi NOC, UAE	8.84	0.26	0.57	9.67	0.67%
18.	Sonatrach, Algeria	7.96	0.40	0.91	9.26	0.64%
19.	Consol Energy, Inc., USA	8.38	0.00	0.71	9.10	0.63%
20.	BHP Biliton, Australia	6.97	0.06	0.58	7.61	0.52%
21.	Anglo American, UK	6.68	0.00	0.57	7.24	0.50%
22.	Iraq National Oil Company	6.70	0.14	0.29	7.14	0.49%
23.	RWE, Germany	6.31	0.00	0.54	6.84	0.47%
24.	Pertamina, Indonesia	6.16	0.21	0.46	6.83	0.47%
25.	Lybia National Oil Company	6.22	0.15	0.32	6.69	0.46%
26.	Nigerian National Petroleum	6.06	0.15	0.33	6.54	0.45%
27.	Petrobras, Brazil	5.49	0.16	0.34	5.99	0.41%
28.	ENI, Italy	5.20	0.24	0.54	5.97	0.41%
29.	Rio Tinto, UK	5.50	0.00	0.47	5.96	0.41%
30.	Arch Coal, USA	5.43	0.00	0.46	5.89	0.41%
31.	Petronas, Malaysia	4.56	0.22	0.50	5.27	0.36%
32.	Anadarko, USA	4.56	0.18	0.46	5.20	0.36%
33.	Occidental, USA	4.63	0.09	0.34	5.06	0.35%
34.	Statoil, Norway	3.89	0.15	0.33	4.37	0.30%
35.	Oil & Gas Corporation, India	3.71	0.14	0.31	4.16	0.29%

Entity		Products Flaring, own fuel, Fugitive fuel, cement $GtCO_2$	vented CO_2 $GTCO_2$	methane $GtCO_2e$	Total emissions $GtCO_2e$	Percent of global 1751-2010
36.	Lukoil, Russian Federation	3.60	0.09	0.19	3.87	0.27%
37.	Sasol, South Africa	3.24	0.00	0.27	3.52	0.24%
38.	Qatar Petroleum	3.00	0.13	0.29	3.41	0.24%
39.	Repsol, Spain	2.96	0.13	0.29	3.38	0.23%
40.	Marathon, USA	2.64	0.11	0.24	2.99	0.21%
41	Yukos, Russian Federation*	2.69	0.06	0.12	2.86	0.20%
42.	Egyptian General Petroleum	2.48	0.09	0.20	2.77	0.19%
43.	Rosneft, Russian Federation	2.50	0.07	0.15	2.72	0.19%
44.	Petroleum Development Oman	2.40	0.08	0.18	2.66	0.18%
45.	Hess, USA	2.09	0.08	0.19	2.36	0.16%
46.	Xstrata, Switzerland	2.05	0.00	0.17	2.22	0.15%
47.	Massey Energy, USA	2.03	0.00	0.17	2.20	0.15%
48.	Alpha Natural Resources, USA	1.98	0.00	0.17	2.15	0.15%
49.	Singareni Collieries, India	1.74	0.00	0.15	1.88	0.13%
50.	Ecopetrol, Colombia	1.66	0.05	0.10	1.81	0.12%
51.	Sonangol, Angola	1.69	0.03	0.07	1.79	0.12%
52.	Cyprus Amax, USA*	1.61	0.00	0.14	1.75	0.12%
53.	EnCana, Canada	1.40	0.09	0.20	1.69	0.12%
54.	Devon Energy, USA	1.41	0.08	0.19	1.69	0.12%
55.	BG Group, UK	1.24	0.09	0.21	1.54	0.11%
56.	Sinopec, China	1.41	0.04	0.08	1.53	0.11%
57.	Westmoreland Mining, USA	1.41	0.00	0.12	1.53	0.11%
58.	Suncor, Canada	1.24	0.05	0.11	1.41	0.10%
59.	Syrian Petroleum	1.29	0.04	0.08	1.40	0.10%
60.	Kiewit Mining, USA	1.19	0.00	0.10	1.29	0.09%
61.	North American Coal, USA	1.09	0.00	0.09	1.18	0.08%
62.	RAG, Germany	1.05	0.00	0.09	1.14	0.08%
63.	China National Offshore Oil Co.	1.03	0.03	0.06	1.12	0.08%
64.	Luminant, USA	0.97	0.00	0.08	1.05	0.07%
65.	Lafarge, France	1.04	0.00	0.00	1.04	0.07%
66.	Holcim, Switzerland	1.01	0.00	0.00	1.01	0.07%
67.	Canadian Natural Resources	0.83	0.04	0.09	0.96	0.07%
68.	Apache, USA	0.81	0.04	0.10	0.95	0.07%
69.	Bahrain Petroleum	0.78	0.05	0.11	0.93	0.06%
70.	Talisman, Canada	0.79	0.04	0.09	0.92	0.06%
71.	Murray Coal, USA	0.73	0.00	0.06	0.80	0.05%

Entity		Products Flaring, own fuel, Fugitive fuel, cement $GtCO_2$	vented CO_2 $GTCO_2$	methane $GtCO_2e$	Total emissions $GtCO_2e$	Percent of global 1751-2010
72.	UK Coal, UK	0.73	0.00	0.06	0.79	0.05%
73.	Husky Energy, Canada	0.59	0.02	0.05	0.66	0.05%
74.	Nexen, Canada**	0.59	0.02	0.04	0.65	0.04%
75.	HeidelbergCement, Germany	0.59	0.00	0.00	0.59	0.04%
76.	Cemex, Mexico	0.55	0.00	0.00	0.55	0.04%
77.	Polish Oil & Gas	0.42	0.02	0.03	0.47	0.03%
78.	Italcimenti, Italy	0.46	0.00	0.00	0.46	0.03%
79.	Murphy Oil, USA	0.37	0.02	0.03	0.42	0.03%
80.	Taiheiyo, Japan	0.40	0.00	0.00	0.40	0.03%
81.	OMV Group, Austria	0.30	0.01	0.03	0.35	0.02%
Total IOC & SOE producers		543.23	15.68	43.58	602.49	41.54%
Total CDIAC, 1751-2010		1323.09	na	114.65	1450.33	
Percent this study of CDIAC		41.06%	na	38.01%	41.54%	

This table includes each entity`s estimated emissions from fuel combustion (net of non-energy uses), flaring, own fuel use, and ancillary emissions of CO_2 and CH_4 (in CO_2e units). Emissions from cement manufacturing are listed under product emissions, but are vented process emissions from the calcium carbonate. *Not extant; production and emission quantified for these entities but not attributed to extant entities. **Nexen was acquired by CNOOC in 2012.

Source: Heede 2013, pp. 27-28

2010 and cumulative emissions of Nation-State producers

Entity		Products Flaring, own fuel, Fugitive fuel, cement $GtCO_2$	vented CO_2 $GTCO_2$	methane $GtCO_2e$	Total emissions $GtCO_2e$	Percent of global 1751-2010
1.	Former Soviet Union (oil, gas, coal)	116.88	2.31	10.53	129.72	8.94%
2.	China (coal and cement)	115.11	0.00	8.98	124.09	8.56%
3.	Poland (coal)	24.66	0.00	2.09	26.75	1.84%
4.	Russian Federation (coal)	10.36	0.00	0.88	11.24	0.78%
5.	Czechoslovakia (coal)	6.77	0.00	0.57	7.35	0.51%
6.	Kazakhstan (coal)	4.09	0.00	0.35	4.44	0.31%
7.	Ukraine (coal)	3.11	0.00	0.26	3.37	0.23%
8.	North Korea (coal)	2.58	0.00	0.22	2.80	0.19%
9.	Czech Republic & Slovakia (coal)	1.84	0.00	0.16	2.00	0.14%
Total		285.42	2.31	24.04	311.76	21.50%

Source: Heede 2013, pp. 27–28

The Big Oil, Coal and Gas Producers have made – and continue to make – a profit from selling fossil fuels. They have made this profit by externalising one of the key costs of their business – climate change – for which all of us, but especially the world's poor, are paying.

Taxpayers for Common Sense have calculated that, in the decade to 2012, the top five oil and gas companies alone made more than US**$1 trillion** in profits (see the table below). In 2013 Chevron's profit was US$21.4 billion (Chevron 2014); ExxonMobil's profit in 2013 was US$32.6 billion (ExxonMobil 2014); BP's profit in 2013 was US$23.5 billion (BP 2014), and Saudi Aramco generates more than US$1 billion per day in revenues (Forbes 2013).

Big Oil total profits over past decade (US$ billions)

Company	Total profits (2003–2012)
ExxonMobil	344.0
Shell	220.8
Chevron	176.9
BP	154.2
ConocoPhillips	125.2
Total Profits	$ 1,021.1

Source: Taxpayers for Common Sense 2013

Many of these fossil fuel entities have made it clear that they plan to continue with business as usual and profit from extracting and selling fossil fuels (Yeo 2014). Many of these fossil fuel entities have been behind extensive campaigns to deny and obfuscate the science of climate change – deliberately planting false doubt about the effects of burning fossil fuels and climate change (Greenpeace USA 2013).

3. What is loss and damage?

Loss and damage are the adverse effects of climate change that go beyond people's capacity to cope and adapt to climate change impacts (Warner, van der Geest, and Kreft 2013; LDC 2012). Loss and damage impacts range from extreme events, for example, weather-related natural hazards, to slow-onset events, including sea-level rise; increasing temperatures; ocean acidification; glacial retreat and related impacts; salinisation; land and forest degradation; loss of biodiversity; and desertification (UNFCCC 2012).

Communities are already experiencing significant loss and damage to quality of life, livelihoods, food, and livelihood security as well as secondary loss and damage in the form of stress on the social fabric essential for adaptive capacity and resilience (LDC 2012).

Loss and damage are related to mitigation and adaptation (UNFCCC 2013b, p. 8). The most effective way to address loss and damage is to reduce greenhouse gas emissions. The sooner greenhouse gas emissions are phased out, the less loss and damage there will be. A net phase-out of greenhouse gas emissions by 2050 would ensure a very high likelihood of keeping global warming below 2°C, and give a 50% chance of staying below 1.5°C of warming (Höhne et al. 2013, p. 16).

However, even though a 1.5°C rise would prevent some of the worst impacts of climate change, it still poses serious challenges, especially for least-developed countries, small island developing states, and African countries, including with drought, ocean acidification, and sea-level rise (Schaeffer et al. 2013, pp. 3–4). Hence, even with the best possible future mitigation efforts, vulnerable countries will still have to deal with loss and damage (LDC 2012; Verheyen and Roderick 2008, pp. 10–11). Even worse, current mitigation ambitions are consistent with 3.7–4.8°C of warming by the end of this century (IPCC WGIII 2014, p. 8). This level of warming may be beyond the limits of adaptation for a large number of countries (Schaeffer et al. 2013, p. 4).

Effective and timely adaptation approaches – such as integrating disaster risk-reduction; climate change adaptation and sustainable development; ecosystem-based approaches for building resilience; sector-specific measures and tools (UNFCCC 2012); and community-based adaptation – can be utilised to reduce loss and damage by increasing resilience to climate change impacts. The international community lags well behind what is necessary to provide support for adaptation,[3] hence increasing the expected burden of loss and damage upon the most vulnerable.

3 Estimates of adaptation needs include US$100–450 billion per year (Montes 2012 and CFU 2012 in Schalatek et al. 2012), and funds pledged to multilateral and bilateral funds tracked by http://www.climatefundsupdate.org are in the order of US$2.6 billion (Schalatek et al. 2012). An IIED briefing (2012) shows that for the fast-start finance period 2010–2012, less than US$5 billion was committed to adaptation – across multilateral and bilateral funds.

Loss and damage example:

Traditional livelihood no longer viable in Sahel

«I am Harouna Diallo Hamadou Mamoudou and am 81 years old. I see many changes in the climate here. Rainfall is decreasing, the sun becomes stronger, and certain plants and animals are disappearing. My troubles began with the 1984 drought. At that time, I had 117 cattle and 160 small ruminants. I had only six people to take care of. That year, there were only two rains, and because of the drought there was no good pasture for our animals. We were forced to move our cattle to the province of Gourma in the southeast of the country, where the rains had been a bit better. However, there was also lack of pasture due to the arrival of so many herders coming from different regions and countries. Almost all of my cattle died. I returned to the village with only six heads. Of the small ruminants that I left with my first wife and children, only 20 remained. The others died due to lack of fodder and water. It was a situation of extreme distress and dismay that I had never experienced before. Today, I only have one cow and a dozen small ruminants. I have turned to crop cultivation instead of being a pure pastoralist, as Fulani tradition prescribes. My needs are increasing day by day, meanwhile my income sources dry up. Until a few years ago, my children used to migrate to Ivory Coast, Niger, and Togo. This brought a little support, but they no longer go because of political tensions in these countries. My wives used to cover some household needs by selling milk, but since the loss of my cattle, they only take care of the housework. Nowadays, the things we used to do to make a living are no longer a guarantee of putting food in the bowls. I think that irrigation agriculture in the dry season, animal fattening, and trade could liberate the region from its precarious state of food insecurity, but unfortunately most of us do not have the means to take up these activities and become less dependent on rain. The future for our next generation is dark and full of uncertainties with the shrinking of pastures, erratic and declining rainfall, malnutrition, and multiple human and animal diseases. I'd like to end with a local proverb that might give you something to think about. We say: ‹If you tell a hungry man to wait for the meal to cool down, he will die before his first bite.› »

Harouna Diallo Hamadou Mamoudou (born 1931), *Village of Titabé, rural commune of Titabé, Yagha Province, Burkina Faso* (13 Oct. 2012) (Warner, van der Geest, Kreft 2013)

3.1 Scale of loss and damage

Whilst it is clear that the monetary and non-economic costs of loss and damage will be substantial, it is difficult to produce an exact estimate of what the costs of loss and damage from climate change will be.

Firstly, it is not clear how much countries will reduce their emissions, and therefore reduce the loss and damage from climate change. Reducing emissions requires countries to set targets and identify mitigation actions they will take, and it also requires finance from developed countries to enable mitigation action in developing countries. It is also not clear how much funding will be provided for adaptation in vulnerable countries – good adaptation programmes reduce the loss and damage that remains.

Secondly, loss and damage from climate change will result in both economic and non-economic losses. In many developing countries, non-economic losses may well be more significant than economic losses (UNFCCC 2013b, pp. 3–4). There are dangers in trying to quantify, or monetise, the non-economic losses associated with loss and damage, in part due to the value judgements inherent in trying to assign monetary value to life, health, culture, society, and nature (UNFCCC 2013b, pp. 5, 12). What should be the «value» of watching your child swept away in a typhoon? Is the loss of an entire nation, and its culture, able to be monetised at all? Money cannot bring back the irreplaceable, and financial compensation, whilst necessary, should not be considered of equal «value».

Finally, for the purposes of the International Mechanism for Loss and Damage, it is not clear exactly what will be counted as loss and damage. Will only the most vulnerable developing countries have access to this mechanism? Certainly the least-developed countries, small island developing states,[4] and African countries should have preferential access to the International Mechanism for Loss and Damage. These questions, and others, must be determined by the International Mechanism for Loss and Damage and parties to the UNFCCC.

However, not having an exact figure should not diminish our understanding that significant funding will be required. For the purposes of providing an idea of the scale of loss and damage, some examples and estimates of overall costs are provided below.

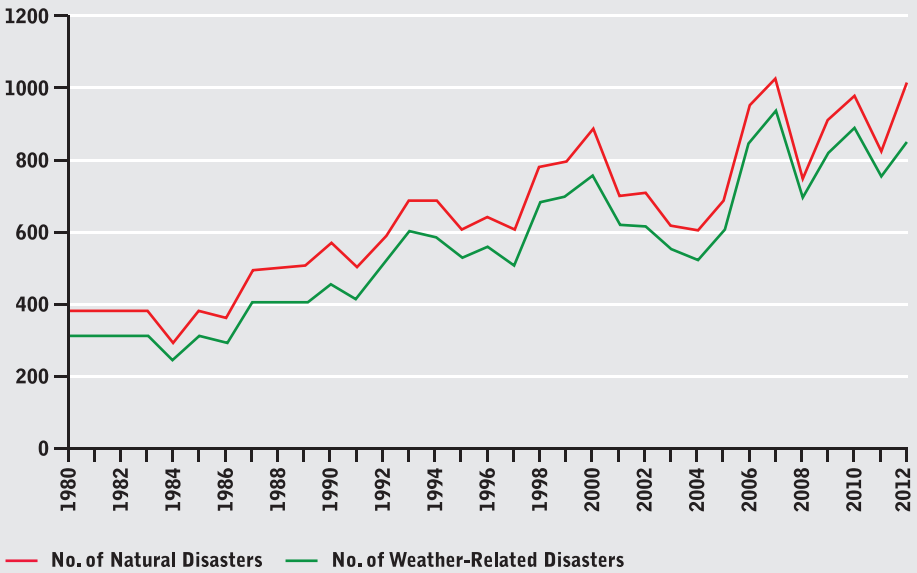
Worldwide disasters have been on an upward trend since the 1980s. During the 1980–2012 period, estimated total reported losses due to disasters amounted to US$3.8 trillion, of which 74% (US$2.6 trillion) were weather-related, as demonstrated in the graph that follows (Munich Re 2013a and 2013b in World Bank 2013, p. 5). It is very likely that this is an under-estimate of the costs faced, as small-scale losses are often not included, and cumulatively they can have a significantly higher impact than large-scale disasters. If included, it is estimated they would increase costs by at least 50% (UNISDR 2013 in World Bank 2013, p. 6). And none of these figures include the cost of indirect and non-quantifiable losses, such as loss of culture (World Bank 2013, p. 6).

4 Not including Singapore.

Number of disasters worldwide (1980-2012)

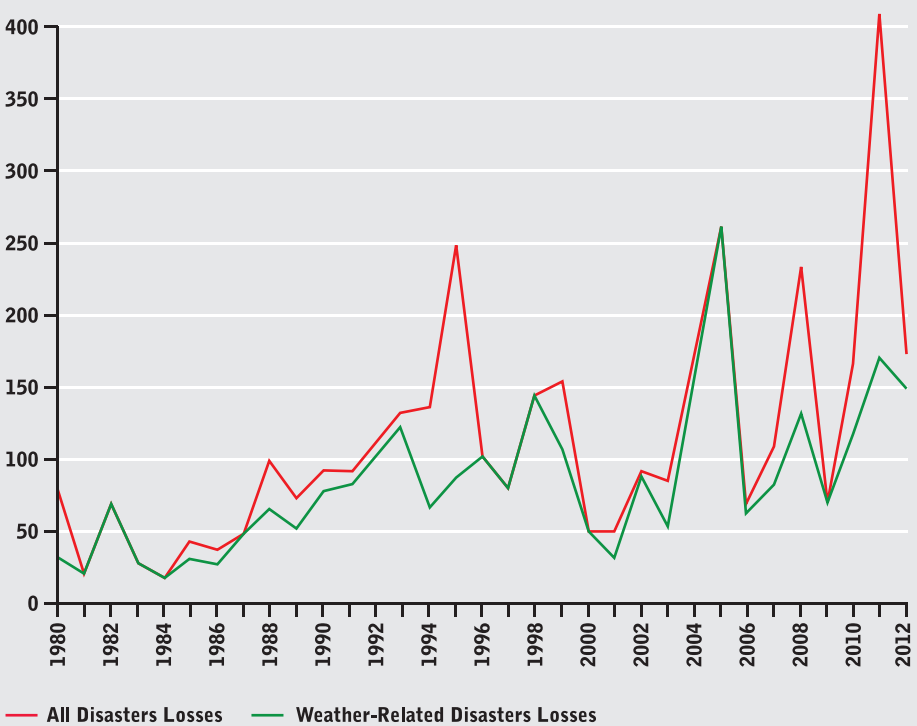
Weather-related disasters averaged 87% of all disasters

Source: World Bank 2013, p. 5.



Losses due to disasters worldwide (1980-2012)

Weather-related losses averaged 74% of all disasters losses (Billions of Dollars)



Three specific recent examples of loss and damage costs include:

- Hurricane Tomas devastated Saint Lucia in 2010 and wiped out the equivalent of 43% of its GDP (World Bank 2013, p. 6).
- In the Horn of Africa, a prolonged drought that ended in 2011 and which, at its peak, left 13.3 million people with food shortages, caused total losses of $12.1 billion in Kenya alone (Government of Kenya 2012 in World Bank 2013, p. 6).
- 2013 Typhoon Yolanda (Haiyan) displaced 4 million people, destroyed or damaged 1 million houses, killed at least 6,300 people, and caused approximately US$2 billion in damage[5] in the Philippines. In the five preceding years the Philippines had six typhoons with combined damages of US$2.8 billion (NDRRMC in Wikipedia).

Dr Chris Hope (Parry et al. 2009, pp. 100–111) has provided an overall estimate of the costs of climate change, taking into account various amounts of mitigation and adaptation efforts, which gives an indication of loss and damage costs in the future. If strong mitigation and adaptation action is taken, he estimates that the residual cost of climate change will be in the order of US$275 trillion between 2000 and 2200 for all countries. See the table below.

Cost estimates of global loss and damage under a business-as-usual versus mitigation scenario, and with and without adaptation using the PAGE2002 model

	Trillion US$ (2000-2200 cumulative costs, NPV)					
	Business as usual			450 ppm scenario		
	Lower end	Mean	Higher end	Lower end	Mean	Higher end
Cost of impacts (without adaptation)	270	**1240**	3290	100	**410**	1070
Cost of impacts (with adaptation)	170	890	2340	60	**275**	760
Adaptation costs	4	**6**	9	4	**6**	9
Mitigation costs				50	**110**	170

Source: ActionAid 2010, p. 12, drawing on Hope in Parry et al. 2009

For the single year 2060, Hope estimates residual costs at about US$1.2 trillion (measured in US dollars from 2000) with a range of US$0.3 to $2.8 trillion (Hope in Parry et al. 2009, p. 108). This would be approximately 1% of the world's total output in 2060 (Hope in ActionAid 2010, pp. 11–12).

5 Early estimates of damage to residential, commercial, and agricultural properties from Haiyan were between US$6.5 and $14.5 billion, of which only US$300–700 million is likely to be covered by insurance (Hemenway 2013; Rupp 2013) and between US$12 and $15 billion, which is about 5% of Philippines economic output (Tsang and Frey 2013). Later assessments of damage from the Philippines Government are US$2 billion/89,598,068,634 Philippine Peso (NDRRMC 2014).

Excursus: Is there a «true cost» of loss and damage due to climate change? On the merits and perils of financialisation

In the run-up to the Rio+20 conference, the term «natural capital» cropped up in countless documents that were based on the concept of «green economy». This led to a debate in which many developing countries and critical NGOs expressed fears of an economic truncation of «sustainable development» and deplored the danger inherent in «monetising» or «financialising» nature. Since then, the concept has entered the mainstream political discourse. It is becoming the basic assumption of numerous political, scientific, and civil society initiatives that the economic services of nature and its contributions to value creation for the economy can be captured in monetary terms. Dangerously, this has been extrapolated to the concept that destruction in one place can be offset in another through market-based instruments.

The idea of valuing nature and its «ecosystem services» is good at first glance, since it offers a way to calculate compensation for destruction caused, and some compensation is better than none. Economists calculate monetary values for everything, if need be. But these monetary values are based on complex and often debatable assumptions – which can no longer be identified from the calculated figure. The apparent objectivity of such a figure masks the often controversial assumptions used in generating it: How can environmental damage or mitigation payments be calculated? How can the options and alternatives be quantified in order to arrive at political decisions? Who establishes the societal consensus about this and who organises the democratic legitimisation of such economic «value judgements»?

Bound up with this rhetoric is the diminishment of regulatory policy. Regulations and prohibitions have always provoked resistance but have also proved highly effective. However, without political majorities, heavier taxation of the emissions of traffic or industry is barely capable of attracting political buy-in. This is the crux – and not any presumed ineffectiveness of regulatory policy measures.

What this means for the debate around loss and damage due to climate change? Climate change destroys ecosystems, which has severe economic consequences for human beings. Calculating the monetary value of that destruction is important when talking about compensation. However, any attempt to capture the value of intact nature and its «ecosystem services» to turn them into tradable certificates to offset destruction caused in other places or to compensate for any planned future destruction needs to be strongly rejected. This kind of approach ignores the fact that the struggle is a political one that can only be resolved by putting politics that serve the public interest into the driver's seat. Markets alone will never be able to solve this crisis.[6]

6 For sources and further recommended reading on the topic, please see: http://www.boell.de/sites/default/files/on_value_of_nature.pdf; http://www.boell.de/en/2014/05/09/new-economy-nature; http://www.fern.org/sites/fern.org/files/Biodiversity3_EN.pdf

4. Legal responsibility for loss and damage

4.1 Legal responsibility (liability) for loss and damage under international law

Two forms of responsibility, or liability, are relevant for considering legal responsibility for loss and damage associated with climate change. State responsibility refers to the establishment of accountability of a State for a breach of international law. International civil liability refers to «liability of any legal or natural person under the rules of national law adopted pursuant to international treaty obligations establishing harmonized minimum standards» (Sands 1995, p. 629). Such liability reflects the polluter-pays principle, or the notion that those in control of a polluting activity should be held liable for any harms caused by the activity. In relation to private entities, the rationale is to ensure that operators internalise the costs of pollution brought about by their operations.[7] This approach has been codified by the International Law Commission's (ILC) *2001 Draft Articles on Prevention of Transboundary Harm from Hazardous Activities* (Verheyen and Roderick 2008, p. 16).

It is a general rule of international law that States have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or to areas beyond the limits of their national jurisdiction («no harm rule»). The no-harm rule was reaffirmed in Principle 21 of the Stockholm Declaration, and Principle 2 of the Rio Declaration. The no-harm rule is repeated in the preamble to the UNFCCC (Linnerooth-Bayer, Mace, and Verheyen 2003, p. 31) and forms the basis for the UNFCCC and Kyoto Protocol.

The no-harm rule includes an obligation to minimise risk, meaning that States must prevent harm when the harm is foreseeable.[8] Where a breach of international law occurs, and harm is caused, there is an obligation to cease wrongful conduct[9] and to make full reparation for any injury caused.[10] Full reparation includes restitution, compensation, and satisfaction, either singly or in combination.[11]

The UNFCCC provides authority for the provision of funding for loss and damage caused by climate change. Article 4.8 of the UNFCCC states that in the implementation of the UNFCCC commitments that the Parties shall give «full consideration to what actions are necessary under the Convention, including actions related to funding,

7 See Lefeber 2012, p. 4.
8 Also see Tol and Verheyen 2004.
9 ILC Draft Articles on State Responsibility, Art. 30.
10 ILC Draft Articles on State Responsibility, Art. 31.
11 ILC Draft Articles on State Responsibility, Art. 34.

insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change.»[12]

In general, States are responsible for their own acts or omissions.[13] States also have an obligation to exercise due diligence in the control of private persons (in this case the Big Oil, Coal and Gas Producers) and if a State fails to do so, it will be responsible for the resulting acts. The International Law Association's 2014 draft articles on Legal Principles Relating to Climate Change highlight the importance of due diligence under international law.[14] ILC Special Rapporteur Pemmaraju Sreenivasa Rao observed that, although it is not always possible to prohibit risky activities that are important for economic development, States are under an obligation to authorise them only under controlled conditions and under strict monitoring while discharging their duty to prevent transboundary harm (Rao 2004, p. 14).

Increasingly, there is political recognition that corporations have international responsibilities to protect the environment directly, and not to only rely on States being responsible. There is growing support for the notion that these political statements should be translated into the direct legal regulation and responsibility of transnational corporations (Faure and Nollkaemper 1999).[15] The ILC has developed the *Draft Principles on Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities* to support the conversion of these political statements into international law. Principle 4 of the Draft Principles sets out the elements of compensation to be provided in the event of transboundary harm.

Principle 4: Prompt and adequate compensation (UN General Assembly 2006):

- Each State should take all necessary measures to ensure that prompt and adequate compensation is available for victims of transboundary damage caused by hazardous activities located within its territory or otherwise under its jurisdiction or control.
- These measures should include the imposition of liability on the operator or, where appropriate, other person or entity. Such liability should not require proof of fault. Any conditions, limitations or exceptions to such liability shall be consistent with draft principle 3.
- These measures should also include the requirement on the operator or, where appropriate, other person or entity, to establish and maintain financial security such as insurance, bonds or other financial guarantees to cover claims of compensation.
- In appropriate cases, these measures should include the requirement for the establishment of industry-wide funds at the national level.

12 Also see Article 4.4.

13 Janes Claim (US v Mexico) [1926] IV RIAA 82, 208 ff.

14 International Law Association, Declaration of Legal Principles Relating to Climate Change (Resolution 2/2014, Committee on Legal Principles Relating to Climate Change), Draft Article 7A.

15 See also Joseph 1999 and also UN Subcommission on the Promotion and Protection of Human Rights 2003, p. 52.

- In the event that the measures under the preceding paragraphs are insufficient to provide adequate compensation, the State of origin should also ensure that additional financial resources are made available.

Clearly, the main emphasis of Draft Principle 4 is upon operator liability – relevant for the Carbon Majors. However, Draft Principle 4(5) also provides for additional financial resources in cases where the compensation available from operators is insufficient. Draft Principle 4(5) reflects the complementary notions of State responsibility and

international civil liability, as reflected in the polluter-pays principle (Foster 2005, pp. 265, 277).

Thus, there is a strong basis under international law for States and operators such as the Big Oil, Coal and Gas Producers to be held liable for transboundary harm caused by the activities of the Big Oil, Coal and Gas Producers. State responsibility for transboundary harms is a key element of international customary law, and it is further supported by emerging international legal principles holding corporations directly responsible for harms.

4.2 Legal responsibility (liability) for loss and damage under national, transnational, and supranational law

Private entities such as the Big Oil, Coal and Gas Producers may be targeted in litigation under national, transnational, and supranational law. The majority of climate litigation brought to date has been under national private and public law, primarily in the United States, Australia, and Europe. Cases have included challenges under environmental planning legislation, tort law (such as negligence and nuisance) and human rights law.[16] The International Bar Association has identified human rights law as a key area of law where liability for climate change may eventually emerge.[17] Currently, youth have cases before United States courts alleging that governments hold the atmosphere in public trust for future generations and that climate change is a violation of the duty to protect that trust (the «atmospheric trust doctrine»).[18]

Some jurisdictions provide scope for transnational litigation, which allows plaintiffs and defendants to be from alternate jurisdictions. For example, the Alien Torts Claims Act of the United States allows «aliens» or people from other countries to bring litigation.[19] Transnational litigation has already been brought by Micronesia in the Czech Republic to challenge the approval of a coal-fired power station.[20] In addition, a Peruvian farmer has announced that he intends to bring litigation against RWE in Germany for climate impacts.[21] The farmer identified RWE based upon its listing in the Carbon Majors research.

In the absence of a comprehensive loss and damage mechanism, it is inevitable that plaintiffs from developing countries will bring litigation against corporations from developed countries, including the Big Oil, Coal and Gas Producers. However, there are a range of hurdles facing plaintiffs in transnational litigation, including obtaining jurisdiction over foreign entities, extra-territorial service of process, and enforcement

16 See http://www.climatelaw.org and http://web.law.columbia.edu/climate-change.

17 International Bar Association, ‹Achieving Justice and Human Rights in an Era of Climate Disruption› (Climate Change Justice and Human Rights Task Force Report, July 2014).

18 See http://www.ourchildrenstrust.org.

19 Alien Tort Claims Act 28 U.S.C. § 1350.

20 *Federated States of Micronesia v Prunerov*.

21 The Guardian, Peruvian farmer demands climate compensation from German company http://www.theguardian.com/environment/2015/mar/16/peruvian-farmer-demands-climate-compensation-from-german-company.

of judgment (Sachs 2007–2008, pp. 837, 848). In addition, the people most severely impacted by loss and damage face significant problems in attaining access to justice. People living in extreme poverty will have no opportunity to obtain legal advice or bring complex and expensive transnational litigation over the impacts of climate change.

Whilst there are considerable hurdles facing people seeking climate justice in national, transnational, and supranational litigation, the situation is not unlike that faced previously by those impacted by asbestos and tobacco. After many years of unsuccessful litigation against the largest corporations contributing to these harms, litigants began to win cases and established liability. Within this context, it is essential that States create an international scheme to manage this disparate issue.

Loss and damage example:

Survivor of Typhoon Haiyan (Yolanda) in Philippines: When our roof started to fly

Rowena Bajado-Alcober, 33, lost her mother, father, and brother in the storm surge after Typhoon Haiyan tore through Leyte:

«The typhoon started about 7 o'clock in the morning and the wind kept getting stronger and we saw the trees starting to fall and the roofs starting to fly. It was very strong that we almost couldn't see the other houses because of the wind and rain. It was really foggy so nothing could be seen outside, only we hear the strong rains and the sound of the wind. It was horrible, we just stayed inside of the house.»

«Our roof started to fly and fall and a different part of the house started to be destroyed, so we stayed inside together with the other families who stayed with us. Nine families were all here during the typhoon. Young and old, we all stayed there inside, looking outside at all the debris flying.»

«Some of us were praying, some of us were crying. The children, they didn't know what was happening, they were still enjoying just like they're having a birthday party, but (not) the old ones – all of us were worried. We were thinking it was the end of our lives. I was worrying about my family because my family were living near the shore. My parents and brothers, they were living in Santa Cruz, the barangay (village) near the town proper of Tanauan.»

«The morning after, I thought me and my niece would be the ones left in our family. So we were both crying. She was thinking of her mama and her papa. In the afternoon there was big water that hit the shorelines or the town proper and that's the time that I was worried because our place was low-lying and it

would be really hit by water. During typhoons, even just little rain there would be floods, so with that really strong typhoon I knew something would happen with my family. My father and my mother died and also one of my brothers. They died, they drowned. They were found Friday afternoon but we were able to bury them Saturday, and my brother we were able to bury on Sunday. He was the last to be found. But in our place there are still many dead who are not yet found. They are still missing until now.»

«We were left homeless, parent-less, we were only left with few things from our house, we have nothing to return to.»[22]

4.3 Precedents from other fields

Principle 13 of the Rio Declaration on Environment and Development called upon States «in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage.»[23] Many liability and compensation regimes have been established on this basis that typically impose civil liability on private and public actors responsible for damage resulting from a dangerous activity. Liability is strict – meaning that liability is tied to the conduct of the dangerous activity giving rise to damage, rather than to the actual fault of the operator (Linnerooth-Bayer, Mace, and Verheyen 2003, p. 31; Verheyen and Roderick 2008 p. 16). Liability is generally limited to a fixed amount, based on the risk posed by an operator's specific activities. If operator liability proves insufficient, these regimes fall back upon agreed state and global collective loss-sharing arrangements to address uncompensated damage (Linnerooth-Bayer, Mace, and Verheyen 2003, p. 31).

Liability and compensation regimes deter transboundary environmental harm from domestic industries by creating financial repercussions for economic activities that may have significant cross-border impacts. They also serve a reparative function by identifying or creating funding sources to compensate for transboundary damage caused by domestic industries. This is a way of implementing the polluter-pays principle, by shifting the costs of transboundary environmental harm that might otherwise be borne by society at large directly to the person or entity responsible for the activity causing damage. The majority of such agreements deal with issues where private parties have the greatest control over the activities (Duall 2004, pp. 173, 196).

There are a multitude of examples of regimes agreed to by States to address liability and compensation arising from pollution damage. It is normal practice for States to manage issues of liability through such schemes. Hence, it is appropriate to

22 Rowena shared her story with Oxfam's Anne Wright.

23 Rio Declaration on Environment and Development, adopted 16 June 1992, UN Doc. A/CONF.151/26/Rev.1, Vol. I (1992).

consider such a regime, as outlined in this paper, that would levy the Carbon Majors to fund the International Mechanism for Loss and Damage.

Two of these schemes exist in the fields of oil spills and nuclear damage. Arguably, there are a number of factors that are common to these schemes and the present problem of loss and damage from climate change. These factors can act as severe limits for access to justice if an international liability scheme is not created and implemented. These factors are:

- a multitude of victims;
- enormous pollution with expensive transboundary loss and damage;
- absence of a secure and sufficient source of compensation; and
- absence of a prior international scheme for managing claims (Verheyen and Roderick 2008, p. 25).

However, there are also differences between these precedents and climate change. First, most of the existing regimes address pollution «accidents» rather than cumulative pollution (Verheyen and Roderick 2008, p. 25). Individual operator liability is most appropriate in cases where there are accidents, whereas in climate change every operator will have contributed to a certain extent. Second, the mechanisms outlined below are not embedded within an overall plan to phase out the use of a product, as must be the case for fossil fuels. In the following examples, the international liability schemes are used to compensate victims within the context of ongoing operations in these dangerous activities. However, in climate change the use of fossil fuels must be phased out. To some extent, the oil spill scheme provides an important example, as it was designed to discourage the continuing increases in the size of oil tankers. This issue and others are addressed below.

4.3.1 Oil spill compensation

The international scheme that governs liability for oil spill pollution has been one of the most widely accepted international liability schemes (Xue 2003, p. 60). Oil spill pollution became a serious concern to the international community during the 1950s, when there was a major expansion in movement of oil by sea. The international community adopted a number of treaties establishing duties to prevent pollution, and eventually a liability scheme.[24] The initial regime, with instruments from 1967, 1969, 1971, and 1977,[25] was amended in 1992 by two protocols, which broadened the

24 See e.g. the International Convention for the Prevention of Pollution of the Sea by Oil (London, 12 May 1954), 327 UNTS 3, and its amendments of 1962 and 1969. These instruments were superseded by the International Convention for the Prevention of Pollution from Ships (London, 2 November 1973), 1340 UNTS 184.

25 1969 International Convention on Civil Liability for Oil Pollution Damage (Brussels, 29 November 1969), 973 UNTS 3. Entered into force 19 June 1975. 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Brussels, 1971) 1110 UNTS 57. Entered into force 16 October 1978. 1977 Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources (London, 17 December 1976) 16 ILM 1450.

scope of the original treaties and increased compensation limits (1992 Civil Liability Convention (CLC 92) and the 1992 Fund Convention).[26]

The 1977 Liability Convention sought to ensure that adequate compensation was available to those who had suffered damage due to oil spills, and to adopt uniform international rules and procedures for determining questions of compensation and liability. In addition, the 1977 Liability Convention had an implied goal of encouraging operators to cease further increases in the size of oil tankers, since it provided a limitation of liability based upon the tonnage of the oil cargo (Xue 2003, p. 54). A similar limit is found in the 1992 Liability Convention. This provides a precedent that should be examined in the context of the International Mechanism for Loss and Damage, as there may be methods of encouraging the phasing-out of fossil fuels through carefully constructed limitations of liability.

The 1969 Oil Pollution Liability Convention provided that the shipowner held international liability for damage caused by oil spills. This remains the first tier of compensation under the current scheme, where the owner of the ship that causes the pollution is held liable under strict liability.[27] Liability is limited, and shipowners are required to have insurance to cover damage up to the agreed limit of liability.

However, holding shipowners liable individually was inadequate on its own, partly because victims did not receive full compensation in all cases, and the imposition of liability of shipowners was seen as an undue burden on the shipping industry (Xue 2003, p. 55). To address this problem, the Fund Convention was established so that any shortfalls are provided from International Oil Pollution Compensation Funds (IOPC Funds). The IOPC funds are financed by levies on entities that receive more than 150,000 tonnes of oil per year. Governments are obliged to monitor and submit this information annually to the IOPC Secretariat (Verheyen and Roderick 2008, p.25).[28] Corporate entities have contributed at a rate of 99.8% (Jacobsson 2007, p. 7).

Under the current regime, damage must result from oil pollution and have caused a quantifiable economic loss including: property damage; costs of clean-up operations; economic losses by fishermen or those engaged in mariculture; economic losses in the tourism sector; and costs for reinstatement of the environment.[29] Anyone may bring a claim for compensation within the courts of a Contracting State or States,[30] which provides a useful precedent for allowing communities to directly access the International Mechanism for Loss and Damage.

The oil spill liability schemes provide the most practical example of an active international liability scheme that compensates victims of environmental damage (Daniel n.d., pp. 225, 227).

---

26 Both are available here: http://www.iopcfunds.org/uploads/tx_iopcpublications/Text_of_Conventions_e.pdf.

27 International Convention on Civil Liability for Oil Pollution Damage 1992, Art. III.

28 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1992, Art. 15.

29 See definition of «pollution damage»: International Convention on Civil Liability for Oil Pollution Damage, 1992, Art. 1.

30 International Convention on Civil Liability for Oil Pollution Damage, 1992, Art. IX.

4.3.2 Nuclear damage regime

The nuclear damage conventions[31] address risks arising from the use of nuclear energy. The damage caused by nuclear accidents is potentially limitless. These conventions attempt to address this issue by limiting owner liability and distributing responsibility for compensation to a number of stakeholders.

Under this scheme, a first tier of compensation is provided by an operator's compulsory financial security (insurance to €700 million). The second tier is sourced from public funds of the State in whose territory the nuclear installation is located, up to €500 million. A third tier is a collective State contribution (the Brussels Supplementary Convention) of €300 million. All State Parties collectively make contributions to the Brussels Supplementary Convention in proportion to their GDP and their nuclear power as a percentage of the total nuclear power of Parties (Verheyen and Roderick 2008, p. 26).[32]

The nuclear accident regime has been criticised for providing insufficient compensation, well below the true cost of a nuclear accident, and hence protecting companies involved in the construction and operation of reactors. Nuclear liability laws have also been criticised for allowing an inherently risky business to continue to operate, whilst socialising the risk (Froggatt et al. 2013, pp. 5–9). It is important that these shortcomings not be replicated in the scheme to ensure Big Oil, Coal and Gas Producers provide funding to the International Mechanism for Loss and Damage, and that the scale of loss and damage from climate change is incorporated into the design of the scheme and the need to phase out fossil fuels is clearly placed at the centre of the scheme.

Another shortcoming with the nuclear liability regime is that several States with a significant current or planned nuclear capacity, such as Japan, China, and India, are not yet party to any international nuclear liability convention, rather relying on their own arrangements.[33]

4.3.3 Biosafety liability

The Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety (Supplementary Protocol) was adopted in 2010 to provide international rules and procedures on liability and redress relating to living modified organisms. The Supplementary Protocol differs from previous liability schemes by adopting the «administrative approach» (Shibata 2014). Although it has not entered into force yet, the Supplementary Protocol provides a recent example of a liability scheme negotiated by the international community.

The inclusion of a provision on the financial liability of operators – including a limit on liabilities – was a controversial and complex issue in the negotiations of the Supplementary Protocol. The Supplementary Protocol does not directly oblige the liable operator to pay compensation for biodiversity damage (Shibata 2014, p. 11). However,

31 Including the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (1998) are available at: http://www.oecd-nea.org/law/legal-documents.html.

32 See also OECD Nuclear Energy Agency.

33 See World Nuclear Association, Liability for Nuclear Damage webpage.

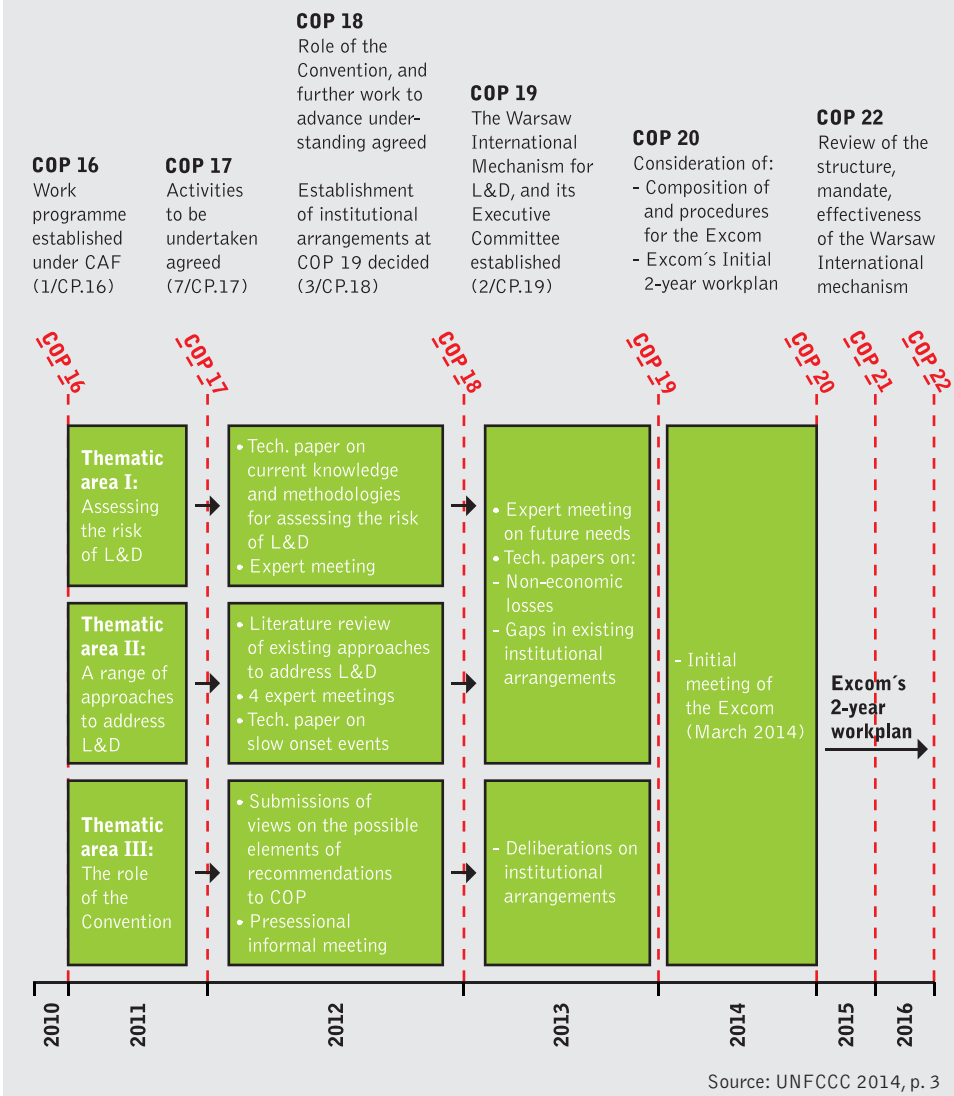
it obliges the liable operator to take reasonable response measures. The operator may be financially liable to reimburse the «costs and expenses of, and incidental to, the evaluation of the damage and the implementation of any such appropriate response measures» (Article 3(4), Article 3(5) and Article 8). This provision amounts to a form of indirect liability for operators. Furthermore, the Supplementary Protocol provides that Parties «retain the right to provide, in their domestic law, for financial security» (Article 10(1)). This provision varies from the usual provision of other international liability schemes, which generally oblige the operators to establish financial security.

Taking into account the growing body of relevant international law, and the precedents in other fields discussed above - in particular the oil spill regime - it is feasible to establish an international scheme that would see the Big Oil, Coal and Gas Producers provide compensation for the damage that their product is causing on the poorest and most vulnerable.

5. How might the UN loss and damage mechanism work?

5.1 History of the UN loss and damage negotiations

Milestones in development of the Warsaw International Mechanism for Loss and Damage



Source: UNFCCC 2014, p. 3

The history of the discussions on a loss and damage mechanism can be traced as far back as 1991, when the Association of Small Island States called for the establishment of an international insurance pool to compensate victims of sea-level rise (Siegele 2012; Verheyen and Roderick 2008). The UNFCCC negotiations began to seriously address the issue of loss and damage with the establishment of a work programme at the Cancun COP in December 2010. This work programme resulted in the Warsaw International Mechanism for Loss and Damage agreed in November 2013. The timeline and process of these negotiations is outlined on the previous page.

Deepwater Horizon on Fire

US Coast Guard - 100421-G-XXXXL

5.2 What will the Warsaw International Mechanism for Loss and Damage do?

Very broad functions of the Warsaw International Mechanism for Loss and Damage were agreed at Warsaw:

- Enhance knowledge and understanding of comprehensive risk-management approaches to address loss and damage associated with the adverse effects of climate change, including slow-onset impacts;
- Strengthen dialogue, coordination, coherence, and synergies among relevant stakeholders;
- Enhance action and support, including finance, technology, and capacity-building, to address loss and damage associated with the adverse effects of climate change, so as to enable countries to:
  - Assess the risk of loss and damage; systematically collect and share data on climate impacts;
  - Design and implement country-driven risk-management strategies and approaches, including risk-reduction, risk-transfer, and risk-sharing mechanisms;
  - Implement comprehensive climate risk-management approaches;
  - Promote an environment that encourages investment and involvement of stakeholders;
  - Involve vulnerable communities and populations, civil society, the private sector, and others in the assessment of and response to loss and damage (UNFCCC 2014, p. 6).[34]

An Executive Committee (Excom) for the International Mechanism for Loss and Damage was also established at Warsaw. Its function is to determine a work programme towards achieving those functions. The Excom held its first meeting in March 2014, and tensions were already very apparent. Developed-country delegates took extraordinary steps to avoid discussions on enhancing support, including finance.[35]

It is clear that, like the rest of the climate change negotiations, finance will be a key sticking point for the Warsaw International Mechanism for Loss and Damage.

34 The actions are described in Doha Decision 3/CP.18, paragraph 6; available at: http://unfccc.int/meetings/doha_nov_2012/session/7049/php/view/decisions.php.

35 Steps included denying that the Warsaw International Mechanism for Loss and Damage had a mandate to consider finance/support, personal attacks on facilitators, and general delaying and stalling tactics, as witnessed by one of the authors. Also see Harmeling 2014.

Loss and damage example:

Struggle to recover after floods in Nepal

Mishri Lal Chaudhary says: «We have lived in Udayapur from the time of our fathers and forefathers. I am 59 years old and have two daughters, one son, and a wife. We moved to this place, Dhanti Tol, in 2052 BS (1995 AD). A big flood had swept our family home away. I had a house and two cattle sheds before this flood. I used to make tiles and put up roofs all around Udayapur. I earned about Rs 9,000 per month. Also, I used to work my fields. My two brothers and I jointly own 2.5 bigha, but the flood took all that land. It was Asar. The paddy was fully grown and about to fruit. The rain had been falling continuously for six or seven days. The river started to swell and the flood came at 7 o'clock. Water entered all the houses in the village. The water reached up to waist level in my house. My wife and I gathered up all the livestock (two oxen, three cows, six goats) and then moved upstairs with our two children. We also carried our clothes and food upstairs. The river slowed down after 10 o'clock. We spent the next two nights sleeping and eating upstairs. We were then relocated to Hadiya Higher Secondary School with 12 other families. The VDC provided us with 2 kg of rice, 2 litres of kerosene, and a lantern. The Red Cross distributed tents, blankets, cooking utensils, cloth, cooking oil, beaten rice, and lentils. We spent 15 days in the school and had to leave after the school reopened. After that, we started to construct huts of bamboo and straw in the Dhanti jungle. Six forest guards arrived and told us to stop building. They arrested us and took us to the forest office. We put all our grief and problems before them. All of our assets and houses had been swept away by the river. We had to settle somewhere. We negotiated with the Ilaka Range Post for a full day without even eating. The forest officer gave us some assurances after talking with our VDC Chairperson. He said, ‹Go back to Dhanti jungle. I will visit shortly and make a decision.› When he visited, the forest officer warned us that we could live here for only one year then we had to leave. After six months, the forest office again warned us to leave the place and gave us seven days› notice to return to our own place. But we had no house; we were living in tents provided by the Red Cross. We then organised a group meeting and had intense discussions. We visited the District Administration Office with our Member of Parliament. The Chief District Officer gave us each Rs 1,000 and permitted us to live at Dhanti Tol so long as we didn't encroach on the jungle. After one year, the District Forest Officer once again tried to move us from this place. We went to Bed Prasad Pokhrel, President of CPN UML [a political party] in Udaypur and he protected us. We 12 families have lived here since that time; now it is our permanent residence» (Warner, van der Geest, Kreft 2013).

5.3 Why do we need loss and damage finance?

Whilst the financial needs for the International Mechanism for Loss and Damage are not yet fully defined, as demonstrated in section 3.1 significant costs are already being incurred by vulnerable communities. The current need for funds on loss and damage from climate change is urgent and will be significant. At the moment, the cost is being borne disproportionately by the poorest and most vulnerable.

In order to undertake the functions agreed at Warsaw, the Warsaw International Mechanism for Loss and Damage will need funding for a number of specific elements – some of which are foreshadowed below, and all of which are within the remit of the Warsaw International Mechanism for Loss and Damage.

The Excom had its first meeting in March 2014. There will need to be many more meetings, and further meetings of experts will also be required. It seems likely that a bureaucracy will need to be established (even if it is housed within the UNFCCC) to manage the Warsaw International Mechanism for Loss and Damage and to facilitate cooperation across the many bodies that have a role to play in dealing with loss and damage.

Capacity-building for governments and communities in most vulnerable countries will be an essential element in dealing with loss and damage effectively, as will technology cooperation and technology transfer.

There is a need to support vulnerable developing countries in developing national-level institutions to assess and address loss and damage; to develop and implement long-term policies, plans, and programmes; and to undertake pilot projects that develop and implement innovative approaches to address loss and damage. Support will be required for information-gathering and sharing about the success of various approaches, and the replication of best practices, appropriate for each country's circumstances (Roberts et al. 2013, p. 12).

Increasing resources will be required to monitor and forecast both slow-onset and extreme events from climate change so that countries can build their programmes on the best understanding of future events and expected climate change.

It is recognised that there is a need for support to develop and implement risk-management options appropriate to addressing loss and damage associated with slow-onset events (UNFCCC 2012, p. 3). One frequently proposed approach to managing risk from loss and damage is insurance[36] – individual, local, national, regional, or international schemes. Insurance is most relevant for events of a relatively low frequency and high severity, as insuring climate risks becomes less tenable when events become more frequent, as premiums will rise accordingly. An example of an innovative approach to insurance is the Caribbean Catastrophe Risk Insurance Facility. It is a regional fund, capitalised via a multi-donor trust fund and membership

36 The Alliance of Small Island States (AOSIS) proposed the creation of an insurance fund when the UNFCCC was initially being negotiated in 1991 (Mace 2008). For more recent references to insurance, see country submissions in UNFCCC SBI 2012, where a wide range of countries refer to insurance. For further information on insurance, see MCII 2012.

fees by participating governments, and provides short-term liquidity when a policy is triggered by an earthquake or hurricane catastrophe.[37]

Another example is the African Risk Capacity (ARC) project, a pan-African disaster risk-pool managed by the African Union that addresses the increased risk of hunger and malnutrition. It includes an early warning system and a risk pool that provides automatic payouts in case of drought. The payout is dependent on contingency plans being in place before the disaster. By pooling risk across African countries, substantial savings are made on both administrative costs and the capital required (UNFCCC 2012, p. 22).

Particularly in the case of slow-onset loss and damage, but also in instances where extreme events become too frequent and destructive, where land is no longer habitable, compensation and relocation may be the only option.[38] See, for example, the personal story from Ursula Rakova of the Carteret Islands.

Loss and damage example:

Relocating from the Carteret Islands

«My name is Ursula. I was born on the Carteret Islands. My family has lived there for many generations. Now I live in Boka, on mainland Bougainville [Papua New Guinea]. I set up an organisation to help my people relocate. It's called Tulele Peisa.

There are six islands in this group. My island is Huene, it is small. Only 20 people live on this island. This is my home. In the Carterets, land is traditionally owned by women. My grandmother passed land to my mother and then to me. I own Huene, I would like to be able to pass this island to my daughter, but I will not be able to do that.

Previously, it was just one island. But now you can see it has been cut in two (by the sea). And the sea just keeps moving in. Coconut trees and Pandanus trees keep falling down. There is nothing to stop the current from eroding the island further. Last year the island was here, but you can see that it has gone further inland. It is going fast.

It makes me really angry because this is an island that belongs to us. It belongs to us as a clan and we know we are losing it. And having to move away, basically breaks us. It feels that we are divided people. We feel half already because we know that we will have to move.

The central aim of Tulele Peisa is to coordinate the movement of Carteret Islanders because we have been waiting for the government to start relocating

37 Caribbean Catastrophe Risk Insurance Facility website; available at: http://www.ccrif.org/content/about-us.

38 See the AOSIS submission in UNFCCC SBI 2012.

our people, but it has not done that. Our best option now is some land that the church has allowed us to use in the Tinputz district of Bougainville.
We are hoping to support our school by building four classrooms, two teachers houses, one student hall and library to cater for children who will be coming from the Carterets into the school. We have managed to secure 81 hectares in Tinputz for five families to come in and resettle. The boys are building a transit house that will be used by women who will come to sew sago leaves to use as roofing for the five homes that will be used for five Carteret families. Because we have a population of 3320 people, we are looking at 300 to 400 more families. The older people and some of the younger generation continue to say that they do not want to move. Why? For them to move to another location is basically leaving their livelihoods and leaving their values and cultures behind.

We know that we are not alone in this fight on climate change. I met people from Kiribati, from Tuvalu, and the Marshall Islands who are also experiencing rising sea levels. Despite the fact that people are building sea walls, they can't stop the erosion from eating away at the shorelines. We have lost our staple food crop, which is swamp taro. We can grow a bit of bananas, but that is also going.

Climate change is not just about statistics. Climate change is not just about science. Climate change is about human rights and vulnerability of people who live on small atolls in the Pacific. Where is human rights when it comes to them being displaced from their communities to another location, not of their choice, but they have to move because they are being affected and they are being forced to leave?»[39]

At present, these activities are funded on an ad hoc process by funders, or directly by affected communities and governments, or they are not being undertaken due to lack of funds. There is clearly a need for a predictable and substantial source of funds to allow communities to prepare for and deal with loss and damage from climate change. It is not acceptable to expect that affected communities will fund these activities themselves. Those responsible for causing climate change have the responsibility to pay for the loss and damage arising from it.

Excursus: Private vs. public finance – lessons learnt from mitigation and adaptation finance

In Copenhagen in 2009 and Cancún in 2010 industrialised countries committed to mobilising US$100 billion by 2020 annually for supporting climate mitigation and adaptation in developing countries. However, they have not yet agreed any clear plans for meeting this commitment. Furthermore, there is likely to be a need for far more than the US$100 billion per year. At the same time, governments in industrial-

39 This is based on an interview with Ursula Rakova of Tulele Peisa by Oxfam Australia (2008). The full interview is available here: https://www.oxfam.org.au/explore/climate-change/what-oxfam-is-doing/sisters-on-the-planet/

ised countries consider that their budgets are constrained by the financial crisis and austerity policies. There is little clarity about when and how public financial flows will be scaled-up to meet the promise.

In light of this challenge, attracting more private sector finance is seen as a way to close the financing gap. However, Article 4 of the UNFCCC obliges Annex 1 (developed countries) to pay for the full incremental costs – exactly that part that the private sector is unwilling to pay due to the associated economic risks.

Problems associated with leveraging private sector finance:

- High leveraging ratios are often inflated and could be better labelled as subsidies for private activities that would have happened anyway, without public involvement.
- Significant leveraging means that the private sector has a greater influence over the project or activity being funded. This could result in trade-offs between the objective of maximising profit and others such as mitigation or poverty.
- Practice shows that projects that work with leveraging private finance very often do not reach the poorest of the poor.
- The use of private finance instruments is often accompanied by a greater reliance on financial intermediaries, which weakens transparency, disclosure, and accountability reporting standards.
- There is no available data to prove that leveraged private climate finance provides additional funds or development impacts.
- Overall policy makers are focusing more on leveraging private sector finance for climate action instead of reducing subsidies for the industry that is causing the problem in the first place.

Private sector involvement focuses on climate actions, primarily mitigation-focused, with expected return-on-investment. However, most of the activities required under adaptation and to address loss and damage are not profit-bearing. In the Green Climate Fund (GCF), private sector finance leverage is to be spearheaded by a Private Sector Facility. Although its details have not yet been articulated, it is expected to focus on reducing the risks of private sector investments, for example by providing first-loss guarantees. While most of its focus will be on mitigation, the Private Sector Facility could support private insurance schemes and climate-resilient infrastructure investment under its adaptation priorities.

There is currently a lack of clarity as to what exactly will be counted as public and private finance. Should, for example, money paid into a financial mechanism by governments – but derived through a levy paid by private companies – be considered private or public finance? (Grießhaber 2012; Reyes n.d.)

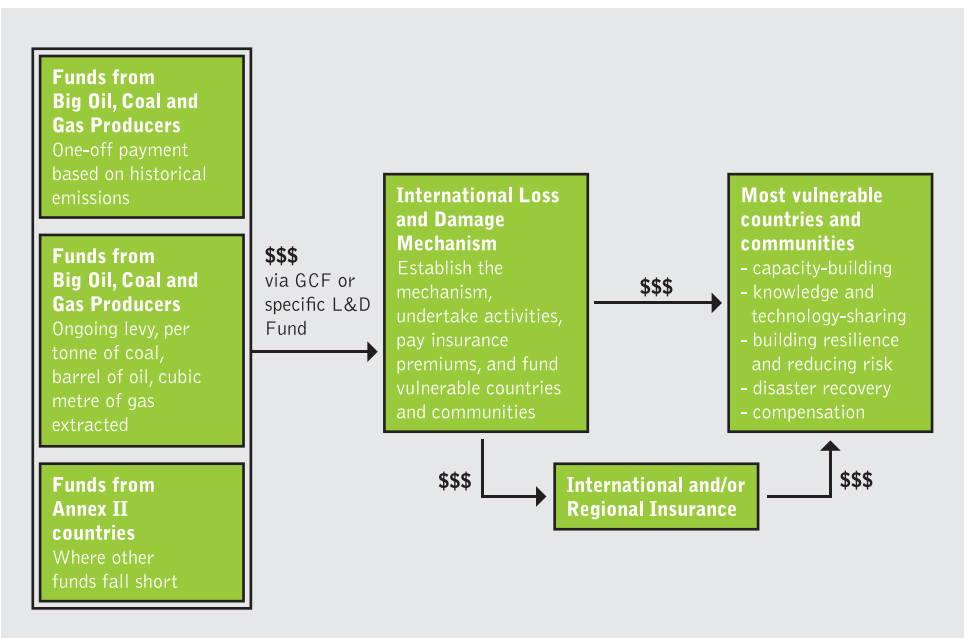
6. How Big Oil, Coal and Gas Producers could help fund loss and damage

As demonstrated already, Big Oil, Coal and Gas Producers have a legal and moral obligation to contribute funds for loss and damage inflicted on the most vulnerable by climate change. Not only are the fossil fuels they have extracted, and the cement manufactured, responsible for two-thirds of historical emissions, they continue to extract and profit from selling fossil fuels.

The principles of international law and precedents from other fields should be used to design an international system that holds the major fossil fuel entities responsible for the emissions their products have caused and the subsequent climate change. The establishment of such a scheme is an essential element in States meeting their obligations under international law to prevent harm to other States.

We propose that the fossil fuel entities make contributions to the International Mechanism for Loss and Damage in two ways. Firstly, that they provide a one-off payment, calculated on the basis of the historical emissions for which they are responsible. Secondly an ongoing levy on each tonne of coal, barrel of oil, cubic metre of gas extracted.

We propose that all fossil fuel entities be captured by this scheme, not just the



top 90 identified in the Carbon Majors report in order to establish a level playing field and capture all relevant emissions in the scheme. For simplicity, we still refer to this expanded list as «Big Oil, Coal and Gas Producers».
An agreement should be made within the UNFCCC to establish such a scheme, learning from the precedents in other fields identified in section 4.3.

The reporting and collecting of levy contributions should be done at a national level, with governments having an obligation to: require entities to report their extractions of fossil fuels; calculate and extract the levy from entities; and transfer it to the International Mechanism for Loss and Damage. Governments may be able to utilise existing information systems (e.g. tax and royalty systems) to minimise any administrative burden. An alternative could be for governments to monitor and report on the extractions of fossil fuels, and Big Oil, Coal and Gas Producers to be compelled (via international and domestic laws) to directly deposit the levies into the international mechanism.

All entities extracting coal, oil, and gas should be responsible for paying the levy. Consideration could be given to phasing-in various entities, taking into account historical responsibility and other equity principles. For instance, it might be considered desirable to prioritise, or weight more heavily, historical emissions made in developed countries (which are more likely to have been «luxury emissions», rather than emissions to sustain the basics of life (Baer et al. 2008, p. 47; Rajamani 2010, pp. 416–417)). A practical way to do this might be to allow state owned companies and states to apply for a temporary exemption which would allow qualifying developing states direct access to the loss and damage levy that they or their state owned companies contribute, for a limited time, to support the transition of their economies away from fossil fuels and other high emissions industries. This would acknowledge a higher responsibility for corporations, who have made a profit from extracting and selling fossil fuels. But it would also allow qualifying fossil fuel producers to contribute to a domestic fund to support the transformation of their economy in place of the international loss and damage fund. For further discussion, see section 6.1.3.

Professor Rosemary Lyster has proposed that a fossil fuel-funded Climate Disaster Response Fund be established, much alike to our proposal for the introduction of a levy on Big Oil, Coal and Gas.[40] Lyster argues that the upstream top two hundred fossil fuel producers should be held liable through this scheme.[41] Lyster proposes a number of principles for supporting the position that these producers should be held levied for their annual historical production of fossil fuels and in accordance with their annual intro-

40 Rosemary Lyster, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616).

41 Rosemary Lyster, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616), 37.

duction of fossil fuel feedstock into the global energy system.[42] Importantly, upstream liability schemes offer the most administratively efficient option when compared with downstream liability schemes, whereby thousands of entities would face liability.[43] Lyster proposes that liability be strict, joint and several, retrospective and prospective.[44] Such design elements would help to ensure that the levy scheme overcomes weaknesses of civil liability that have emerged in other fields.

States have a responsibility to establish a mechanism such as this; to regulate the acts of entities operating within their jurisdictions to ensure they minimise their harm; and to pay for damage caused. Establishing such a mechanism does not diminish the responsibility of Annex II countries to ensure there is sufficient finance to support the activities of the International Mechanism for Loss and Damage, as well as loss and damage activities within the most vulnerable countries. If the funds from Big Oil, Coal and Gas Producers are not sufficient for the purpose, Annex II countries have a responsibility to provide the finance required to address loss and damage. This is consistent with law, as outlined in sections 4.1 and 4.2 and the precedents from other fields outlined in section 4.3.

The funds could be paid through a specific Loss and Damage Window in the Green Climate Fund, if it was deemed that the GCF structure and operational modalities were appropriate.[45] However, it may be more advantageous to create a specific finance mechanism as part of the International Mechanism for Loss and Damage.

The International Mechanism for Loss and Damage, with significant input from the most vulnerable countries, would make decisions and assessments as to how the funds are to be allocated. It is not appropriate for the Big Oil, Coal and Gas Producers to have any role in decision-making as to how the funds should be spent. The activities, and insurance mechanism, outlined here are simply examples of what the funding could be used for, and they should not be taken as proscriptive.

As with the IOPC Funds example, individuals and communities from most vulnerable countries should be able to directly access the funds made available via the International Mechanism for Loss and Damage. A 2015 report by Friends of the Earth proposed that a committee be set up to make determinations on specific complaints, and that this committee specifically address the ‹gaps› in liability for loss

42 Rosemary Lyster, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616), 38.

43 I. Choi, «Global Climate Change and the Use of Economic Approaches: the Ideal Design Features of Domestic Greenhouse Gas Emissions Trading with an Analysis of the European Union's CO2 Emissions Trading Directive and the Climate Stewartship Act» (2005) 5 Nat Resources J 865, 906.

44 Rosemary Lyster, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616), 38.

45 Loss and damage or slow-onset activities have been excluded from GCF initial result areas to date. The GCF model is currently one of the programme-/project-based activities implemented through intermediaries and implementers, which might not be appropriate for loss and damage finance and may require more of a direct budget-support payment based on needs.

and damage.[46] According to this proposal, communities should have the option to initiate claims in their own right and capacity building may be required to support this.[47] It is important that vulnerable communities have effective access to funding, which could be achieved through a micro insurance or finance component. While providing direct access for affected communities may be criticised for undermining national sovereignty, there is a «right to access to prompt and adequate compensation» under international law which supports the notion of direct access.[48]

Holding the Big Oil, Coal and Gas Producers financially responsible for loss and damage through this proposed scheme would effectively apply the polluter-pays principle. Extractions of fossil fuels by the Big Oil, Coal and Gas Producers have made the greatest contribution (63%) to carbon emissions, which is causing climate change. In accordance with the polluter-pays principle, they need to be held responsible («you broke it, you make it right»).

Using the Big Oil, Coal and Gas Producers as a source of finance has the advantage of being a new source of finance that has not been considered to date. It therefore meets the «new and additional» test for climate finance. It does not cannibalise from existing sources of finance for adaptation and mitigation, and it offers an opportunity to break outside of the current negative dynamic that exists within the climate finance negotiations. Importantly, these finance flows, which could be considered «private finance», will be a predictable source of income for the International Mechanism for Loss and Damage.

6.1 Key considerations

This report demonstrates the clear legal and moral basis for Big Oil, Coal and Gas Producers to pay a levy into the International Mechanism for Loss and Damage to fund the most vulnerable communities. There are some important elements explored below that need to be taken into account, and there are some key questions that remain open, on which we look forward to further engagement.

6.1.1 Fossil fuel phase-out

The most effective way to address loss and damage is to reduce greenhouse gas emissions, and therefore reduce the impacts of climate change. The sooner greenhouse gas emissions are phased out, the less loss and damage there will be. A net phase-out of greenhouse gas emissions by 2050 would ensure a very high likelihood of staying within 2°C of warming, and give a 50% chance of staying below 1.5°C of

46 Gita Parihar, ‹Proposal for a compensation fund and redress process for loss and damage› (Friends of the Earth, 2015 https://www.foe.co.uk/sites/default/files/downloads/loss-damage-proposal-compensation-fund-redress-process-76293.pdf), 6.

47 Gita Parihar, ‹Proposal for a compensation fund and redress process for loss and damage› (Friends of the Earth, 2015 https://www.foe.co.uk/sites/default/files/downloads/loss-damage-proposal-compensation-fund-redress-process-76293.pdf), 7.

48 See M Khan, C Schwarte and S Zaman. 2013. Compensation for loss and damage: Law and justice perspective. Climate Justice Policy Brief 1 (October).

warming (Höhne et al. 2013, p. 16). Keeping warming below 1.5°C would prevent some of the worst impacts of climate change, but still poses serious challenges, especially for least-developed countries, small island developing states, and African countries (Schaeffer et al. 2013, p. 3).

Fossil fuels make up the majority of greenhouse gas emissions.[49] Therefore, the approach to funding the International Mechanism for Loss and Damage outlined in this paper must be embedded within a plan to phase out fossil fuel use altogether. It should also be teamed with the even more urgent need to phase out subsidies for fossil fuels and write down fossil fuel reserves/assets. It should do this in a number of ways:

- Firstly, the levy should be in addition to existing royalties and taxes, in order to add to the market signal that fossil fuels must be phased down, and then out, and replaced with renewable technologies;
- Secondly, the levy should increase over time. This will reinforce the need to phase out fossil fuels, and to accelerate their replacement with renewables. It will also have the advantage of keeping the income stream reasonably steady as fossil fuel extraction reduces; and
- Thirdly, there should be a recognition that the levy will cease to generate funds in the future (once fossil fuels are phased out) and a plan to replace this finance with a different income stream.

6.1.2 Why focus on Big Oil, Coal and Gas Producers?

We propose that the levy on future extraction should apply to all coal, oil, and gas extraction, not just the top 90 examined in the *Carbon Majors* report. We have continued to refer to this expanded list of entities as Big Oil, Coal and Gas Producers.

Fossil fuels are extracted for a clear purpose. Their use will clearly result in the emission of greenhouse gases and therefore contribute to climate change. Big Oil, Coal and Gas Producers have had knowledge of the potential impact of their products since at least the first IPCC assessment report and the establishment of the UNFCCC. And in many cases, they have run deliberate misinformation campaigns to deny and obfuscate the science of climate change – deliberately planting false doubt about the effects of burning fossil fuels and climate change (Greenpeace USA 2013). It could be argued that this has exacerbated climate change, as this misinformation campaign has been an impediment to effective climate action.

Big Oil, Coal and Gas Producers have made, and continue to make, a profit from selling fossil fuels. As demonstrated in section 2, just five of the Carbon Majors made more than US$1 trillion in profits in the decade to 2012. They have made this profit by externalising one of the key costs of their business – climate change – for which all of us, but especially the world's poor, are paying.

Focusing on the point at which fossil fuels are extracted makes it administratively easier than focusing on the point at which fossil fuels are used. And as the amount

49 In total, 78% of total GHG emissions come from fossil fuel combustion and industrial processes (IPCC WGIII 2013, pp. 5–6).

of CO_2 emitted from burning a unit of coal, oil, or gas is largely consistent, regardless of how it is used, emissions can be calculated more easily and equally accurately upstream (Brunner et al. 2009, p. 8).

Big Oil, Coal and Gas Producers may choose to pass the cost of the levy onto their customers. In this way, the price signal is applied across the fossil fuel chain, making it irrelevant where in the chain the levy is applied for a dampening effect on demand. Governments should consider implementing complementary policies to ensure any pass-on of the levy does not have an impact upon the poor and exacerbate inequality.[50]

6.1.3 Differentiation between developed and developing countries

Whilst the «no harm rule» does not differentiate between developed and developing countries[51] the UNFCCC requires developed countries to take action first and to provide support for developing countries to take climate change action.[52]

The *Carbon Majors* report shows that entities from both developed and developing countries share the burden of responsibility for historical carbon emissions. Some of Big Oil, Coal and Gas Producers entities are from developing countries, owned by developing-country governments, or in some cases are developing-country governments. Charging the cost of loss and damage to each entity in proportion to their pollution would not take into account differentiation along the developed/developing country divide identified in the Annexes to the Convention.

In discussions with various stakeholders, the authors have found that some consider treating Big Oil, Coal and Gas Producers as equal entities and simply taking into account the emissions they are responsible for an advantage, as it is the actual extraction of fossil fuel that is being targeted. Regardless of its origin, each tonne of coal/barrel of oil/cubic metre of gas has added to the climate change loss and damage being inflicted upon the most vulnerable.

Some have argued that fossil fuel extraction in developing countries is more likely to have been used to provide customers with the basic necessities of life, whereas fossil fuel companies in developed countries are more likely to be extracting fossil fuels for luxury consumption (air conditions, driving cars).[53] The challenge is that, certainly for oil – and to a lesser extent gas and coal – fossil fuels are traded on an international market. Additionally, as the latest IPCC report demonstrates, a growing share of CO_2 emissions from fossil fuel combustion and industrial processes in low- and middle-income countries has been released in the production of goods that are subsequently

50 Although the majority of fossil fuel subsidies (and therefore, it can be extrapolated, price increases in fossil fuels if the subsidies are removed) are directed at the middle and upper classes in developing countries (Whitley 2013, pp. 11–12), their removal can still have negative consequences for equity, unless well managed. For a more detailed assessment of this situation, and policy recommendations, see Whitley (2013); available at: http://www.odi.org.uk

51 See section 4 of this paper on international law for further information.

52 See http://unfccc.int/essential_background/convention/items/6036.php.

53 For a more in-depth discussion of «survival» versus «luxury» emissions, see Baer et al. (2008) and Shue (1993).

exported to high-income countries (Edenhofer 2014, p. 8). Hence, where a fossil fuel is extracted is not necessarily a guide as to where it is burnt, which is not necessarily a guide as to where the product it may have been used to produce is eventually consumed.

A discussion paper by Professor Meinhard Doelle has explored a potential way to deal with state owned companies or states, who on the emissions from the fossil fuel extraction operations under their control, would be required to contribute to the proposed loss and damage fund. The basic concept is to permit qualifying developing states direct access to the loss and damage levy that they or their state owned companies contribute, for a limited time, to support the transition of their economies away from fossil fuels and other high emissions industries. This scheme would allow qualifying fossil fuel producers to contribute to a domestic fund to support the transformation of their economy in place of the international loss and damage fund.

Developing states that wish to utilise this temporary exemption would need to make a case that they should be permitted to have direct and exclusive access to the funds generated from state or state owned companies based on the principle of common but differentiated responsibility (CBDR). If a temporary exemption was approved, this would allow the relevant state to directly collect the funds for a prescribed period of time to fund efforts to diversify and transform its economy to reduce its reliance on fossil fuel based economic activity.

Criteria would need to be developed to assess applications for the temporary exemption. This process would allow for a fair, standardised and transparent case by case assessment of the range of circumstances that are relevant to determining whether a particular extraction operation or company should be exempt, rather than drawing an arbitrary line that would inevitably fail to take into account the unique circumstances of a particular state or state-owned company.

Criteria proposed by Doelle include:

- Ranking of the state significantly below the average ranking of OECD countries on the HDI
- Ranking of the state significantly below the average per capita GDP of OECD countries
- Cumulative contribution of greenhouse gas emissions on a per capita basis that is significantly lower than the average per capita contribution of OECD countries
- Other evidence that the overall capacity to mitigate is significantly lower on a per capita basis than the average per capita capacity of OECD countries (such as limited access to renewable, low greenhouse gas sources)
- If the applicant is a state owned company, does it operate more like a private business or more like an arm of government? Does it depend on government funding? Does it compete against private companies in an open market?
- Support received by the state to diversify its economy beyond the extraction of fossil fuels and to mitigate and adapt to climate change.

In addition, the imposition of a levy on state owned fossil fuel producers is not necessarily a barrier to the scheme. Indeed, the imposition of a levy on state owned companies has not been a constraint in other areas of international law, such as the Global

Oil Compensation Fund.[54] Furthermore, a range of emissions trading schemes and carbon tax mechanisms hold state owned businesses as liable.[55]

There may be other considerations and other ways to approach this issue, and the authors welcome the sharing of ideas as to how to address this issue.

6.1.4 When to begin historical responsibility? What period to calculate the levy over?

The *Carbon Majors* report calculates the annual and cumulative contribution of each of the largest 90 producers from as early as 1854 through to 2010 and calculates that, as a percentage of global industrial CO_2 emissions since the Industrial Revolution began (from 1751–2010), the 90 Carbon Major entities fossil fuel extractions and cement manufacture have resulted in 63% of emissions (Heede 2013, p. 16).

As Big Oil, Coal and Gas Producers have contributed in a substantial way to the losses and damages being felt by vulnerable communities right now, it is only fair that they pay a levy – in direct relation to the emissions their products are responsible for – that goes towards the damage they have caused.

Some will argue that the levy for historical emissions should take into account emissions since 1850, in line with the Brazil proposal around historical responsibility for countries (Government of Brazil 2013); this would mean that the whole period of the Carbon Majors Project would be included.

The science of climate change, whilst extending back until 1827, was recognised as a major concern by international governments at the 1972 Stockholm Conference (Verheyen and Roderick 2008, p. 19). The Intergovernmental Panel on Climate Change released their first assessment report in 1990, which detailed their concerns about climate change and the continued burning of fossil fuels. And in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro (Earth Summit) the world's Governments agreed the UNFCCC, which makes clear the harm from greenhouse gas emissions and the need to limit them. In 1994 the UNFCCC entered into force (Verheyen and Roderick 2008, p. 19). Any of these dates (from 1972 to 1994) are appropriate to start calculating levies based on historical responsibility, as from this date all entities were aware of an impending responsibility from emissions.

It is worth noting that approximately half of emissions from Big Oil, Coal and Gas Producers have occurred since 1986 (Heede 2013, p. 5), demonstrating a reckless disregard for the health of the planet in the face of ever-increasing impacts from climate change, and warnings from climate scientists.

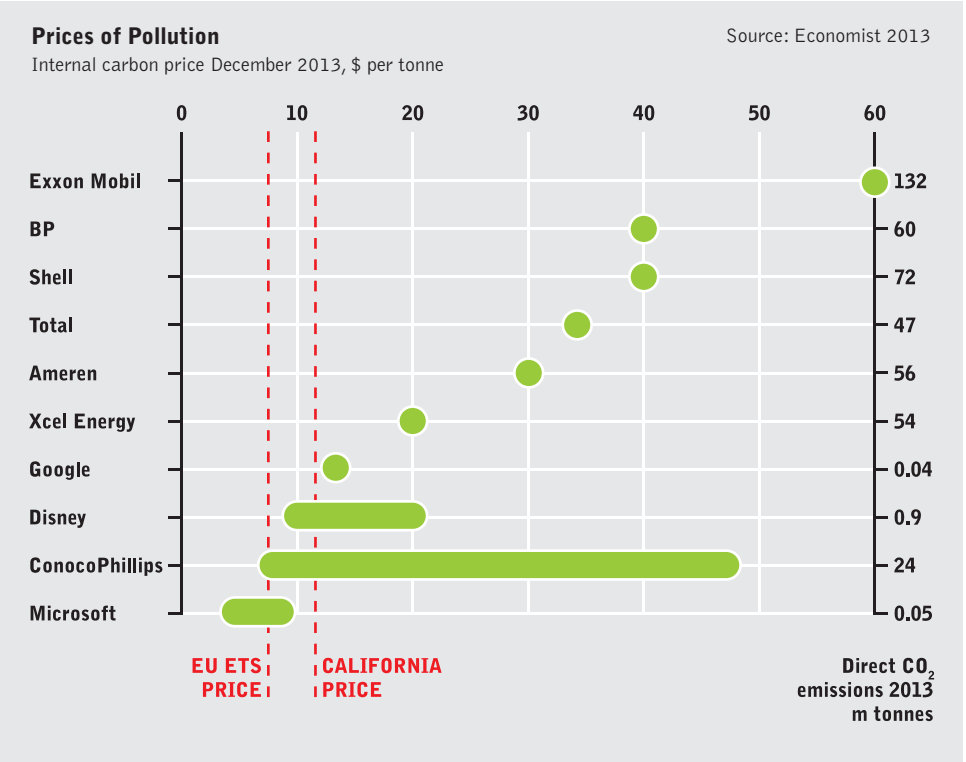
6.1.5 What should the levies be set at?

Calculation of the exact levies per tonne of coal, barrel of oil, or cubic metre of gas is beyond the scope of this report, but the authors welcome efforts by experts to calculate them. However, a few relevant pieces of information may give context.

---

54 Rosemary Lyster, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616), 39.

55 See e.g. Australia's Carbon Price Mechanism in New South Wales which holds state owned companies liable.



The levies should be calculated while taking into account the expected need for loss and damage funding. As outlined in section 3.1 of this paper, there is no clear agreement on what the loss and damage costs are or will be, but annual costs have been estimated at US$0.3 to $2.8 trillion by 2060 (Hope in ActionAid 2010, pp. 11–12). As needs are already substantial, it could be argued that an appropriate place to start would be generating US$50 billion per year by 2020 with the levies, and increasing total revenue between 5% and 10% each year, depending upon how much mitigation and adaptation action is taken. US$50 billion is less than the US$77.5 billion profit made by only three of the biggest Big Oil companies in 2013.[56] The 90 original Carbon Major entities contributed 27.95 $GtCO_2e$ in 2010 (Heede 2013, p. 24), therefore US$50 billion per year would be priced at less than US$2 per tonne of CO_2e to start. The authors offer these numbers as an example only – and welcome input.

It is important that the levy on ongoing extraction should increase over time. This will reinforce the need to phase out fossil fuels, and to accelerate their replacement with renewables. It should also be calculated in order to keep the income-stream reasonably steady, and in line with the needs of the most vulnerable communities and countries, as fossil fuel extraction is reduced.

56 Chevron's profit in 2013 was US$21.4 billion; ExxonMobil's profit in 2013 was US$32.6 billion; BP's profit in 2013 was US$23.5 billion – a total of $77.5 billion (Chevron 2014; ExxonMobil 2014; BP 2014). Their products are jointly responsible for 9.2% of cumulative global emissions: 3.52%, 3.21%, and 2.47% respectively (Heede 2013, 2014).

The historical levies should be calculated based on the historical emissions of each of Big Oil, Coal and Gas Producers. Levies on future extraction should take into account the carbon intensity of each fossil fuel.

The levies should be additional to the taxes and royalties that are already levied upon fossil fuel extractors in order to add to the price signal required to phase out fossil fuels. This will also minimise impact upon state revenues.

It is worth noting that many of the Big Oil, Coal and Gas Producers, and other companies, are already applying internal carbon pricing significantly higher than this level in the expectation that they will have carbon prices applied against them in the future.[57] See the graph overleaf for these internal carbon prices.

6.1.6 Interaction with other climate change programmes

The levy on fossil fuel extraction paid to the International Mechanism for Loss and Damage should be on top of existing taxes and levies, in order to create a price signal that fossil fuel must be phased down and then out.

The levy paid to the International Mechanism for Loss and Damage will make it easier to achieve country-level emission-reduction targets, but it will not directly interact with them. Hence, it will not remove the need for all countries to set targets and establish policies to reduce their greenhouse gas emissions. Nor does it reduce the need for developed countries to act first and to provide climate finance to support developing-country climate action.

6.1.7 Opportunities to progress within the UNFCCC

The levy on fossil fuel extraction to fund the Warsaw International Mechanism for Loss and Damage could be taken up within the finance discussions under the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP), the Warsaw International Mechanism for Loss and Damage Excom discussions, loss and damage discussions within the ADP. There is ample space within the current negotiations to take this item forward with a view to agreeing it as part of the 2015 package.

We welcome input from stakeholders on practical ways to progress this concept within the UNFCCC.

57 Carbon Disclosure Project in the Economist (2013).

7. Next steps including further areas of research and discussion

This discussion paper is tabled to demonstrate the legal and moral basis for Big Oil, Coal and Gas Producers to provide funding to the International Mechanism for Loss and Damage. It aims to outline how this could work, drawing on examples from other fields. However, it does not answer all of the questions that might arise, and it is not a fully fledged roadmap for the introduction of such a scheme. Therefore, we look forward to further engagement on the concept. A non-exhaustive list of areas that could be explored in the future follows:

- A projection of future extraction of fossil fuels, and a calculation of what levy is necessary and the rate at which it should increase in order to keep funding reasonably stable. Also a projection as to when the levy income would reduce as fossil fuel extraction slows and then ends, and some work on what to replace this source of income with.
- An assessment as to whether the principle of differentiation should be integrated into the levy and, if so, how could it most effectively be done.
- More work on whether the levy from Big Oil, Coal and Gas Producers should be channelled through the Green Climate Fund, or whether a direct funding mechanism should be established as part of the Warsaw International Mechanism for Loss and Damage.
- A review of areas that could be learnt from, including the bunker-fuel proposals (International Air Passenger Adaptation Levy etc.), the financial transaction tax proposal, campaigns aimed at phasing-out fossil fuels, and the precedents from other fields identified here.
- Development of implementation strategies, including political pathways and potential champions and negotiation pathways, would be helpful.

This discussion paper has put forward the basic argument that the major polluting entities, Big Oil, Coal and Gas Producers, should pay a levy to the International Mechanism for Loss and Damage. They have a moral and legal responsibility to make redress for the damage caused by their extraction of fossil fuel, and the emissions and climate change that have resulted.

For a very long time, these entities have known about the danger inherent in fossil fuels, yet they have not chosen an alternative, lower-risk path. They have instead put our planet in danger whilst continuing to make trillions of dollars.

The loss and damage from climate change is being felt most acutely by the poorest and most vulnerable communities, which have the fewest resources to deal with it. The levy on Big Oil, Coal and Gas Producers is not only about reparations, it must be part

of an overall plan to phase out fossil fuels with a view to achieving net zero emissions by the middle of the century, and hence keep climate change from becoming globally catastrophic.

The paper does not have all of the answers to how this levy should be implemented. We look forward to further engagement with government, civil society, and academic stakeholders to expand upon the ideas contained within this paper. If you wish to engage with this idea, please contact the authors via this short form: http://goo.gl/7Dbdfs.

We aim to keep those who get in contact informed of future developments.

BIBLIOGRAPHY AND RESOURCES

General resources

UNFCCC documents – loss and damage: http://unfccc.int/adaptation/workstreams/loss_and_damage/items/7585.php

Loss and damage in vulnerable countries initiative of Germanwatch, CDKN, The International Centre for Climate Change and Development, Munich Climate Insurance Initiative, United Nations University: http://www.loss-and-damage.net/

References

ACTIONAID. 2010. Loss and damage from climate change: The cost for poor people in developing countries. Discussion paper. Available at: http://www.actionaid.org/sites/files/actionaid/loss_and_damage_-_discussion_paper_by_actionaid-_nov_2010.pdf.

BAER, Paul, Tom Athanasiou, Sivan Kartha, and Eric Kemp-Benedict. 2008. The Greenhouse Development Rights Framework: The right to development in a climate constrained world. Revised second edition. November 2008. Heinrich Böll Foundation, Christian Aid, EcoEquity, and the Stockholm Environment Institute.

BALOGUN, Kehinde. 2013. Managing loss and damage from slow onset events: Applicability of risk transfer tools including insurance. September. Available at: http://www.lossanddamage.net/4949.

BP. 2014. Fourth quarter and full year 2013 results. Stock exchange announcement. February 4. Available at: http://www.bp.com/en/global/corporate/press/press-releases/fourth-quarter-2013-results--stock-exchange-announcement.html.

BRUNNER, S., Christian Flachsland, Gunnar Luderer, and Ottmar Edenhofer. 2009. Emissions Trading Systems: An overview. Discussion paper. Potsdam Institute for Climate Impact Research. Available at: http://www.pik-potsdam.de/members/brunner/publications/emissions-trading-overview.

BRUNSDEN, J. 2013. EU banks to pay into standing funds in deposit safety plan. December 18. Bloomberg. Available at: http://www.bloomberg.com/news/2013-12-17/eu-banks-to-pay-into-standing-funds-under-deposit-guarantee-plan.html.

CHEVRON. 2014. Chevron reports fourth quarter net income of $4.9 billion and 2013 earnings of $21.4 billion. Chevron press release. January 31. Available at: http://www.chevron.com/chevron/pressreleases/article/01312014_chevronreportsfourthquarternetincomeof49billion-and2013earningsof214billion.news.

DANIEL, Anne. n.d. Civil liability regimes: Sound international policy or false comfort? Review of European, Comparative & International Environmental Law 12(3): pp. 225, 227.

DUALL, Elizabeth. 2004. A liability and redress regime for genetically modified organisms under the Cartagena Protocol. George Washington International Law Review 36: p. 173.

ECONOMIST. 2013. Carbon copy: Some firms are preparing for a carbon price that would make a big difference. December 14. Available at: http://www.economist.com/news/business/21591601-some-firms-are-preparing-carbon-price-would-make-big-difference-carbon-copy.

EDENHOFER, Ottmar. 2014. Climate change 2014, mitigation of climate change. Presentation from Edenhofer, Co-Chair, IPCC Working Group III.

EXXONMOBIL. 2014. Exxon Mobil corporation announces estimated fourth quarter 2013 results. ExxonMobil press release. January 30. Available at: http://news.exxonmobil.com/press-release/exxon-mobil-corporation-announces-estimated-fourth-quarter-2013-results.

FAURE, Michael G., and Andre Nollkaemper. 1999. International liability as an instrument to prevent and compensate for climate change. 26A Symposium: Climate Change Risk, 123, 193.

FORBES. 2013. The world's 25 biggest oil companies. Available at: http://www.forbes.com/pictures/mef45ggld/1-saudi-aramco-12-5-million-barrels-per-day/.

FOSTER, Caroline. 2005. The ILC draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities: Privatizing risk? Review of European, Comparative & International Environmental Law 14: pp. 265, 277.

FROGGATT, A., Dr David McNeill, Prof Stephen Thomas, and Dr Rianne Teule. 2013. Fukushima fallout, nuclear business makes people pay and suffer. Greenpeace. Available at: http://www.greenpeace.org/international/Global/international/publications/nuclear/2013/Fukushima-Fallout.pdf.

GOVERNMENT OF BRAZIL. 2013. Submission: Development of a reference methodology on historical responsibilities by the IPCC to guide domestic consultations for the ADP 2015 agreement. Available at: http://unfccc.int/files/na/application/pdf/substa_submission_by_brazil__brazilian_proposal_final_corrected.pdf.

GOVERNMENT OF KENYA 2012. In: World Bank. 2013. Building resilience. Integrating climate and disaster risk into development. Available at: http://www.worldbank.org/en/news/feature/2013/11/18/disaster-climate-resilience-in-a-changing-world.

GREENPEACE. 2013. Fact sheet on the Carbon Majors report. Available at: http://www.greenpeace.org/australia/Global/international/briefings/climate/2013/Carbon-Major-factsheet.pdf.

GREENPEACE USA. 2013. Dealing in doubt: The climate denial machine vs climate science. September. Available at: http://www.greenpeace.org/usa/dealingindoubt/.

GRIESSHABER, Linde. 2012. The goal of 100bn USD of climate finance – Accounting issues regarding private finance. Berlin: Germanwatch.

HARMELING, Sven. 2014. Bumpy start for the Warsaw Mechanism on climate change «loss and damage». Thomson Reuters Foundation. Available at: http://www.trust.org/item/20140403125403-40so1/?source=shtw.

HEEDE, Richard. 2013. Carbon majors: Accounting for carbon and methane emissions 1854–2010. Methods and results report. Available at: http://www.climateaccountability.org/pdf/MRR%208.3%207Nov13.pdf.

HEEDE, Richard. 2014. Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. Climatic Change 122(12) (January): pp. 229–241. Available at: http://link.springer.com/article/10.1007/s10584-013-0986-y.

HEMENWAY, Chad. 2013. AIR: Insured losses from Typhoon Haiyan up to $700m. Property casualty 360o. November 18. Available at: http://www.propertycasualty360.com/2013/11/18/air-insured-losses-from-typhoon-haiyan-up-to-700m.

HÖHNE, N., Pieter van Breevort, Yvonne Deng, Julia Larkin, and Gesine Hänsel. 2013. Feasibility of GHG emissions phase-out by mid-century. ECOFYS. October 2. Available at: http://www.ecofys.com/files/files/ecofys-2013-feasibility-ghg-phase-out-2050.pdf (accessed on 22 April 2014).

IAEA CIVIL LIABILITY FOR NUCLEAR DAMAGE WEBPAGE.

IIED (International Institute for Environment and Development). 2012. Briefing: The eight unmet promises of fast-start climate finance. November. Available at: http://pubs.iied.org/pdfs/17141IIED.pdf?

INTERNATIONAL ENERGY AGENCY. FAQs: Oil. Available at: http://www.iea.org/aboutus/faqs/oil/ (accessed 10 April 2014).

INTERNATIONAL OIL POLLUTION COMPENSATION FUNDS. 2012. Available at: http://www.iopcfunds.org/uploads/tx_iopcpublications/brochure_e.pdf.

IPCC WGII. 2014. Climate change 2014: Impacts, adaptation, and vulnerability. Summary for policymakers. Available at: http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf (accessed 29 April 2014).

IPCC WGIII. 2014. Summary for policymakers, Working Group III (Mitigation), AR5. Available at: http://report.mitigation2014.org/spm/ipcc_wg3_ar5_summary-for-policymakers_approved.pdf (accessed 22 April 2014).

JACOBSSON, Mans. 2007. The international liability and compensation regime for oil pollution from ships – International solutions for a global problem. Tulane Maritime Law Journal 32: pp. 1, 7.

JOSEPH, S. 1999. Taming the Leviathans: Multinational enterprises and human rights. Netherlands International Law Review 46: 171.

KHAN, M. H. I., C. Schwarte, and S.T. Zaman. 2013. Compensation for loss and damage: Law and justice perspective. Climate Justice Policy Brief 1 (October). Retrieved from: http://ccj-b.org/pdfnewsletter.pdf (link no longer available).

LEFEBER, Rene. 2012. The legal significance of the Nagoya-Kuala Lumpur supplementary protocol. Amsterdam Law School Legal Studies Research Paper No. 2012-87.

LDC. 2012. Submission on loss and damage. Available at: http://unfccc.int/files/adaptation/application/pdf/submission_on_loss_and_damage_by_the_gambia_on_behalf_of_the_ldc_group.pdf.

LINNEROOTH-BAYER, J., M.J. Mace, and R. Verheyen. 2003. Insurance-related actions and risk assessment in the context of the UNFCCC. Background paper for UNFCCC workshops. Available at: http://unfccc.int/files/meetings/workshops/other_meetings/application/pdf/background.pdf.

LYSTER, Rosemary, ‹A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism› (Sydney Law School, Legal Studies Research Paper No. 13/77, 2013 available at http://ssrn.com/abstract=2346616).

MACE, M.J. 2008. The Bali road map: Can it deliver an equitable post-2012 climate agreement for small island states? Review of European, Comparative & International Environmental Law 17(2) (August): pp. 183–195. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9388.2008.00602.x/full (accessed 25 April 2014).

MCII (Munich Climate Insurance Initiative). 2012. Insurance solutions in the context of climate change-related loss and damage: Needs, gaps, and roles of the convention in addressing loss and damage. October. Available at: http://unfccc.int/resource/docs/2012/smsn/ngo/276.pdf (accessed 29 April 2014).

MUNICH RE. 2013a. Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE. Available at: http://www.munichre.com/en/reinsurance/business/non-life/georisks/natcatservice/default.aspx. Munich Re. 2013b. Information portal. Available at: https://www.munichre .com/touch/portal/en/. In: World Bank. 2013. Building resilience. Integrating climate and disaster risk into development. Available at: http://www.worldbank.org/en/news/feature/2013/11/18/disaster-climate-resilience-in-a-changing-world.

NDRRMC (National Disaster Risk Reduction & Management Council) Update. 2014. Effects of Typhoon «Yolanda» (Haiyan). April 17. Available at: http://www.ndrrmc.gov.ph/attachments/article/1177/Update%20Effects%20TY%20YOLANDA%2017%20April%202014.pdf.

NDRRMC IN WIKIPEDIA. Available at: http://en.wikipedia.org/wiki/Typhoon_Haiyan.

OECD NUCLEAR ENERGY AGENCY: Brussels supplementary convention webpage.

OECD NUCLEAR ENERGY AGENCY: International nuclear third party liability briefing.

OECD NUCLEAR ENERGY AGENCY: 2004 protocol to amend the Brussels supplementary convention on nuclear third party liability webpage.

OTTO, Friederike, Rachel James, and Myles Allen. 2014. The science of attributing extreme weather events and its potential contribution to assessing loss and damage associated with climate change impacts. Environmental Change Institute, School of Geography and the Environment, University of Oxford. Available at: https://unfccc.int/files/adaptation/workstreams/loss_and_damage/application/pdf/attributingextremeevents.pdf.

OXFAM AUSTRALIA. 2008. Sisters on the planet – Ursula (Carteret Islands). Story based on video interview. Available at: https://www.oxfam.org.au/explore/climate-change/what-oxfam-is-doing/sisters-on-the-planet/.

OXFAM INTERNATIONAL. 2013. Philippines typhoon: When our roof started to fly. Interview with Rowena Bajado-Alcober. Available at: http://oxf.am/wTm (accessed 28 April 2014).

PARIHAR, Gita. 2015. Proposal for a compensation fund and redress process for loss and damage. Friends of the Earth.

PARRY, Martin, Nigel Arnell, Pam Berry, David Dodman, Samuel Fankhauser, Chris Hope, Sari Kovats, Robert Nicholls, David Satterthwaite, Richard Tiffin, and Tim Wheeler. 2009. Assessing the costs of adaptation to climate change: A review of the UNFCCC and other recent estimates. London: International Institute for Environment and Development and Grantham Institute for Climate Change. Available at: http://pubs.iied.org/pdfs/11501IIED.pdf.

RAJAMANI, Lavanya. 2010. The increasing currency and relevance of rights-based perspectives in the international negotiations on climate change. Journal of Environmental Law 22(3): pp. 391–429.

RAO, Pemmaraju Sreenivasa. 2004. 2nd report on the legal regime for the allocation of loss in case of transboundary harm arising out of hazardous activities, ILC Doc A/CN.4/540 – ILC 56th session, 14.

REYES, Oscar. n.d. Critical issues for channelling climate finance via private sector actors. UK: Bond Development and Environment Group.

ROBERTS, E., Raj Bavishi, Katherine Lofts, Mohammad Hafijul Islam Khan, Anna Hasemann, Adao Soares Barbosa, and Saleemul Huq. 2013. Developing an institutional framework to address loss and damage. LDC paper series. October. Available at: http://ldcclimate.files.wordpress.com/2013/12/ldcp13_loss-and-damage1.pdf (accessed 24 April 2014).

RUPP, Lindsey. 2013. Haiyan to cost insurers sliver of $14.5 billion estimated damage. Bloomberg. November 18. Available at: http://www.bloomberg.com/news/2013-11-17/haiyan-to-cost-insurers-sliver-of-14-5-billion-damage-estimate.html.

SACHS, Noah. 2007–2008. Beyond the liability wall: Strengthening tort remedies in international environmental law. UCLA Law Review 55: pp. 837, 848.

SANDS, Philippe. 1995. Principles of international environmental law. Manchester: Manchester University Press.

SCHAEFFER, M,. Bill Hare, Marcia Rocha, and Joeri Rogelj (Climate Analytics). 2013. Adequacy and feasibility of the 1.5°C long-term global limit. CAN Europe and Climate Analytics. Available at: http://www.climnet.org/resources/doc_view/2204-adequacy-and-feasibility-of-1-5c-long-term-global-limit-july-2013 (accessed 22 April 2014).

SCHALATEK, Liane, Smita Nakhooda, Sam Barnard, and Alice Caravani. 2012. Climate finance thematic briefing: Adaptation finance. Climate Funds Update. November. Available at: http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7910.pdf.

SCHIERMEIER, Quirin. 2013. Did climate change cause Typhoon Haiyan? Nature (November 11). Available at: http://www.nature.com/news/did-climate-change-cause-typhoon-haiyan-1.14139.

SHIBATA, Akiho (ed.). 2014. International liability regime for biodiversity damage: The Nagoya-Kuala Lumpur supplementary protocol. Routledge.

SHUE, Henry. 1993. Subsistence emissions and luxury emissions. Law & Policy 15(1) (January).

SIEGELE, L. 2012. Loss and damage from the adverse effects of climate change – A SIDS view on Africa. Berlin: Germanwatch. Available at: http://germanwatch.org/en/4747.

TAXPAYERS FOR COMMON SENSE. 2013. Big oil, big profits: Industry tops $120 billion in 2012. February 5. Available at: http://www.taxpayer.net/library/article/big-oil-big-profits-industry-tops-120-billion-in-2012.

THIRD WORLD NETWORK. Briefing papers 1, 2, 3, 4 on loss and damage. Available at: http://www.twnside.org.sg/title2/climate/bangkok.briefings04.htm.

TOL, Richard S. J., and Roda Verheyen. 2004. State responsibility and compensation for climate change damages – A legal and economic assessment. Energy Policy 32: p. 1109.

TSANG, Amie, and Luisa Frey. 2013. The economic cost of Typhoon Haiyan. Financial Times Blogs. November 13. Available at: http://blogs.ft.com/the-world/2013/11/the-economic-cost-of-typhoon-haiyan/.

UNFCCC. Background on the UNFCCC: The international response to climate change. Available at: http://unfccc.int/essential_background/items/6031.php.

UNFCCC. 2008. Mechanisms to manage financial risks from direct impacts of climate change in developing countries. Technical paper. Available at: http://unfccc.int/resource/docs/2008/tp/09.pdf.

UNFCCC. 2012. Technical paper, FCCC/TP/2012/7, Slow Onset Events. The technical paper discusses slow onset events in the context of climate change, identifies and analyses approaches to addressing loss and damage associated with slow onset events and takes into consideration the outcomes of the four regional/expert and draws some observations with regard to gaps, challenges and lessons learned. Available at: http://unfccc.int/adaptation/workstreams/loss_and_damage/items/7585.php.

UNFCCC. 2013a. Summary note, updating work on L&D program. March. Available at: http://unfccc.int/files/adaptation/cancun_adaptation_framework/adaptation_committee/application/pdf/l_and_d_summary_25_feb.pdf.

UNFCCC. 2013b. Technical paper, FCCC/TP/2013/2. Non-economic losses in the context of the work programme on loss and damage. October 9. Available at: http://unfccc.int/documentation/documents/advanced_search/items/6911.php?priref=600007632.

UNFCCC. 2014. Background information for the Initial meeting of the Executive Committee of the Warsaw International Mechanism for Loss and Damage. Available at: http://unfccc.int/files/adaptation/workstreams/loss_and_damage/application/pdf/unfccc_excom_initial_meeting.pdf.

UNFCCC SBI. 2012. Views and information from Parties and relevant organizations on the possible elements to be included in the recommendations on loss and damage in accordance with decision 1/CP.16. Submissions from Parties and relevant organizations. November 19. Available at: http://unfccc.int/resource/docs/2012/sbi/eng/misc14a01.pdf (accessed 24 April).

UN General Assembly. 2006. Resolution adopted by the General Assembly on 4 December 2006 61/36. Allocation of loss in the case of transboundary harm arising out of hazardous activities. Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/res/61/36.

UNISDR (United Nations International Strategy for Disaster Reduction). 2013. From shared risk to shared value –The business case for disaster risk reduction. Global assessment report on disaster risk reduction. United Nations Office for Disaster Risk Reduction, Geneva. In: World Bank. 2013. Building resilience. Integrating climate and disaster risk into development, p. 6. Available at: http://www.worldbank.org/en/news/feature/2013/11/18/disaster-climate-resilience-in-a-changing-world.

UNITED NATIONS UNIVERSITY INSTITUTE FOR ENVIRONMENT AND HUMAN SECURITY. 2012. Fact sheet. Pushing the limits: Pioneering study shows evidence of loss and damage in vulnerable communities. Available at: http://lossanddamage.net/download/7059.pdf.

UNITED NATIONS SUBCOMMISSION ON THE PROMOTION AND PROTECTION OF HUMAN RIGHTS. 2003. Norms on the responsibilities of transnational corporations and other business enterprises with regard to human rights. UN Doc. E/CN.4/Sub.2/2003/12/Rev. 2 (2003), approved 13 August 2003. Res. 2003/16, UN Doc. E/CN.4/Sub.2/2003/L.11, 2003.

VERHEYEN, Roda, and Peter Roderick. 2008. Beyond adaptation: The legal duty to pay compensation for climate change damage. WWF-UK. Available at: http://assets.wwf.org.uk/downloads/beyond_adaptation_lowres.pdf.

WARNER, Koko, Kees van der Geest, and Sönke Kreft. 2013. Pushed to the limit: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation. Bonn: United Nations University Institute for Environment and Human Security. November. Available at: http://ehs.unu.edu/file/get/11480.pdf.

WARNER, Koko, Kees van der Geest, Sönke Kreft, Saleemul Huq, Sven Harmeling, K. Kusters, and A. de Sherbinin 2012. Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation. Loss and Damage In Vulnerable Countries Initiative. Policy Report No. 9. Bonn: United Nations University Institute for Environment and Human Security. Available at: http://www.lossanddamage.net/download/6815.pdf.

WHITLEY, Shelagh. 2013. Time to change the game: Fossil fuel subsidies and climate. London: Overseas Development Institute. November 2013. Available at: http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8668.pdf.

WORLD BANK. 2012. Thai flood 2011: Rapid assessment for resilient recovery and reconstruction planning. Bangkok, Thailand: World Bank. Available at: http://www.gfdrr.org/sites/gfdrr.org/files /publication/Thai_Flood_2011_2.pdf. In: World Bank. 2013. Building resilience. Integrating climate and disaster risk into development, p. 6. Available at: http://www.worldbank.org/en/news/feature/2013/11/18/disaster-climate-resilience-in-a-changing-world.

WORLD BANK. 2013. Building resilience. Integrating climate and disaster risk into development. Available at: http://www.worldbank.org/en/news/feature/2013/11/18/disaster-climate-resilience-in-a-changing-world.

XUE, Hanqin. 2003. Transboundary damage in international law. Cambridge: Cambridge University Press.

YEO, S. 2014. Exxon Mobil dismisses climate change risks to future growth. Responding to Climate Change. Available at: http://www.rtcc.org/2014/04/01/exxon-mobil-dismisses-climate-change-risks-to-future-growth/.

ABBREVIATIONS

ADP	Ad Hoc Working Group on the Durban Platform for Enhanced Action
AOSIS	Alliance of Small Island States
CMP	Climate Majors Project
ECJP	Ecosystems Climate Justice Project
Excom	Executive Committee
GCF	Green Climate Fund
ILC	International Law Commission
IOPC Funds	International Oil Pollution Compensation Funds
IPCC	Intergovernmental Panel on Climate Change
L&D	Loss and Damage
NDRRMC	National Disaster Risk Reduction & Management Council of the Philippines
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction

The climate change already being experienced is the result of the emissions that have been released into the atmosphere since the start of the Industrial Revolution. The Carbon Majors report released in November 2013 established that 63% of carbon emissions in the atmosphere have come from the coal, oil, and gas extracted and cement manufactured by only 90 entities – Big Oil, Coal and Gas Producers, which include Chevron, ExxonMobil, Saudi Aramco, BP, Gazprom, and Shell. These entities have made massive profits while billions of people in poor communities are already suffering from loss and damage caused by climate change.

This discussion paper outlines the case for Big Oil, Coal and Gas Producers to provide funding via the Warsaw International Mechanism for Loss and Damage for poor communities all over the world.

Heinrich-Böll-Stiftung Schumannstraße 8, 10117 Berlin
The Green Political Foundation **T** 030 285340 **F** 030 28534109 **E** info@boell.de **W** www.boell.de

ISBN 978-3-86928-130-8

Zoom
Fit Width
Search
TOC
2-pages Full-Screen-Mode