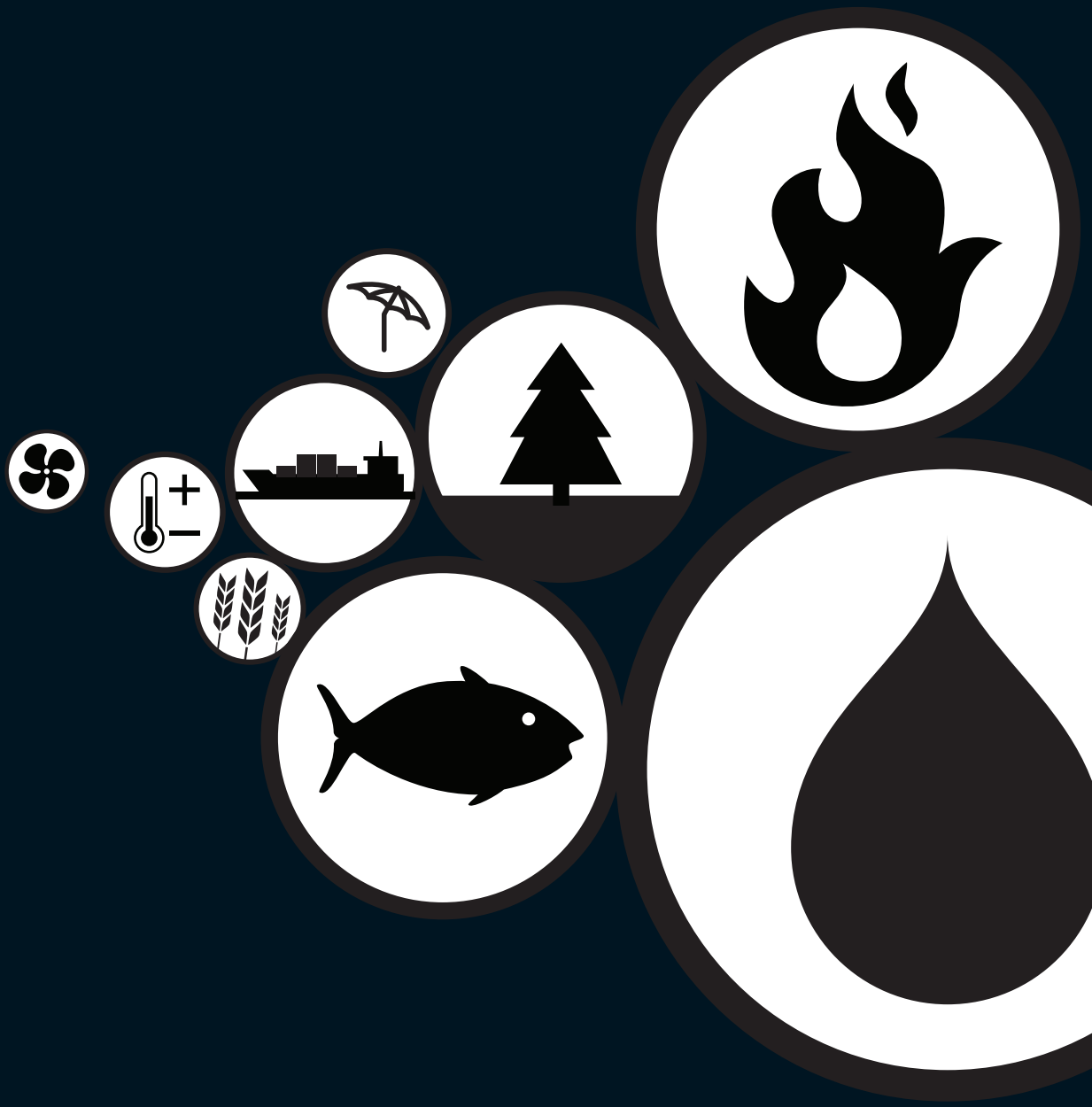
2ND EDITION CLIMATE VULNERABILITY MONITOR

A GUIDE TO THE COLD CALCULUS OF A HOT PLANET

Climate Vulnerable Forum

DARA

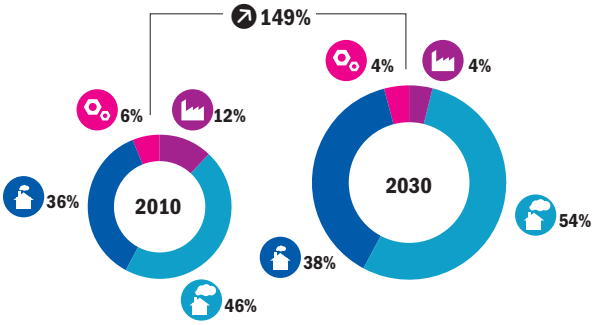


EXECUTIVE SUMMARY

This report provides a reassessment of the human and economic costs of the climate crisis. The reassessment is based on a wealth of the latest research and scientific work on climate change and the carbon economy, research that is assimilated as a part of this report.

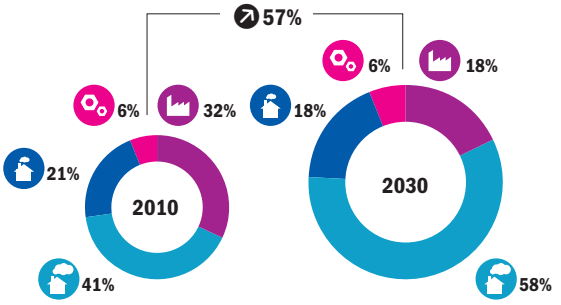
THE MAIN FINDING OF THIS REPORT IS THAT CLIMATE CHANGE HAS ALREADY HELD BACK GLOBAL DEVELOPMENT: IT IS ALREADY A SIGNIFICANT COST TO THE WORLD ECONOMY, WHILE INACTION ON CLIMATE CHANGE CAN BE CONSIDERED A LEADING GLOBAL CAUSE OF DEATH.

CLIMATE – TOTAL COSTS



Developed
Developing Country High Emitters
Developing Country Low Emitters
Other Industrialized

CARBON – TOTAL COSTS



Developed
Developing Country High Emitters
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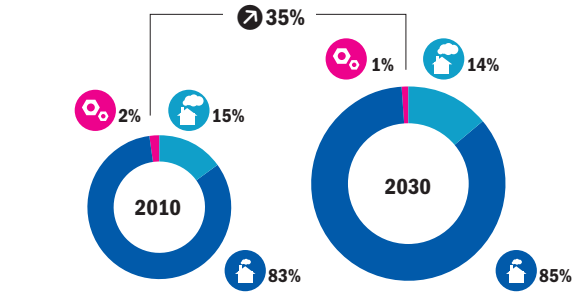
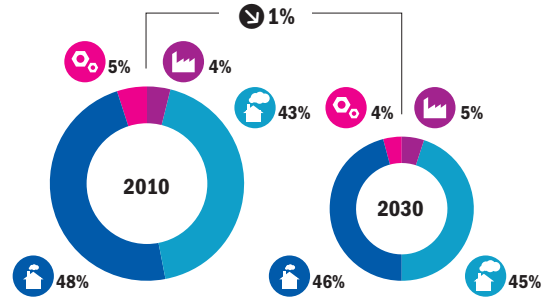
CLIMATE – TOTAL DEATHS



Developing Country High Emitters
Developing Country Low Emitters
Other Industrialized

CARBON – TOTAL DEATHS



Developed
Developing Country High Emitters
Developing Country Low Emitters
Other Industrialized

This report estimates that climate change causes 400,000 deaths on average each year today, mainly due to hunger and communicable diseases that affect above all children in developing countries. Our present carbon-intensive energy system and related activities cause an estimated 4.5 million deaths each year linked to air pollution, hazardous occupations and cancer.

Climate change caused economic losses estimated close to 1% of global GDP for the year 2010, or 700 billion dollars (2010 PPP). The carbon-intensive economy cost the world another 0.7% of GDP in that year, independent of any climate change losses. Together, carbon economy- and climate change-related losses amounted to over 1.2 trillion dollars in 2010.

The world is already committed to a substantial increase in global temperatures – at least another 0.5° C (1° F) due to a combination of the inertia of the world's oceans, the slow response of the carbon cycle to reduced CO_2 emission and limitations on how fast emissions can actually be reduced.[1] The world economy therefore faces an increase in pressures that are estimated to lead to more than a doubling in the costs of climate change by 2030 to an estimated 2.5% of global GDP. Carbon economy costs also increase over this same period so that global GDP in 2030 is estimated to be well over 3% lower than it would have been in the absence of climate change and harmful carbon-intensive energy practices.

Continuing today's patterns of carbon-intensive energy use is estimated, together with climate change, to cause 6 million deaths per year by 2030, close to 700,000 of which would be due to climate change. This implies that a combined climate-carbon crisis is estimated to claim 100 million lives between now and the end of the next decade. A significant

OVERALL COSTS

	Losses 2010, Bln PPP corrected USD	Losses 2010, % of GDP	Net Losses, % of GDP 2010	Net Losses, % of GDP 2030
Climate	696	0.9%	0.8%	2.1%
Carbon	542	0.7%	0.7%	1.2%
World	**1,238**	**1.7%**	**1.6%**	**3.2%**

NUMBER OF DEATHS

		2010	**2030**
Climate	Diarrheal Infections	85,000	150,000
	Heat & Cold Illnesses	35,000	35,000
	Hunger	225,000	380,000
	Malaria & Vector Borne Diseases	20,000	20,000
	Meningitis	30,000	40,000
	Environmental Disasters	5,000	7,000
Carbon	Air Pollution	1,400,000	2,100,000
	Indoor Smoke	3,100,000	3,100,000
	Occupational Hazards	55,000	80,000
	Skin Cancer	20,000	45,000
World		**4,975,000**	**5,957,000**

TECHNICAL SUMMARY

The Monitor presents a new and original analysis, synthesizing the latest research and scientific information on the global impact – including benefits and losses – of climate change and the carbon economy in economic, environmental and health terms. Climate change already causes 400,000 deaths each year on average. The present carbon-intensive economy moreover is linked to 4.5 million deaths worldwide each year. Climate change to date and the present carbon economy are estimated to have already lowered global output by 1.6% of world GDP or by around 1.2 trillion dollars (2010 PPP). Losses are expected to increase rapidly, reaching 6 million deaths and 3.2% of GDP in net average global losses by 2030. If emissions continue to increase unabated in a business-as-usual fashion (similar to the new IPCC RCP8.5 scenario), yearly average global losses to world output could exceed 10% of global GDP before the end of the century, with damages accelerating throughout the century. The costs of climate change and the carbon economy are already significantly higher than the estimated costs of shifting the world economy to a low-carbon footing – around 0.5% of GDP for the current decade, although increasing for subsequent decades.[1]

This report and scientific literature imply adaptation costs

share of the global population would be directly affected by inaction on climate change.

Global figures mask enormous costs that will, in particular, hit developing countries and above all the world's poorest groups. Least Developed Countries (LDCs) faced *on average* in excess of 10% of forgone GDP in 2010 due to climate change and the carbon economy, as all faced inequitable access to energy and sustainable development.

Over 90% of mortality assessed in this report occurs in developing countries only – more than 98% in the case of climate change.

Of all these losses, it is the world's poorest communities within lower and middle-income countries that are most exposed. Losses of income among these groups is already extreme. The world's principal objectives for poverty reduction, the Millennium Development Goals (MDGs), are therefore under comprehensive pressures, in particular as a result of climate change.

The impact for rural and coastal communities in the lowest-income settings implies serious threats for food security and extreme poverty (goal 1 of 8), child health and the ability of children to attend school (goals 2 and 4), maternal health and women's development (goals 3 and 5), the prevalence of infectious diseases (goal 6) and, through water, fisheries and biodiversity impacts, environmental sustainability (goal 7). Furthermore, in a difficult fiscal environment, the advent of climate change has pressured governments to divert Official Development Assistance (ODA) funds from other development commitments and activities in an attempt to provide support for climate change concerns, including to a marginal degree, for helping vulnerable communities adapt to climate change. The Green Climate Fund, agreed upon in incrementally greater detail at the successive international climate talks at Copenhagen, Cancún and Durban, faces an economic environment of declining ODA tied to acute fiscal crises across a host of the world's wealthiest economies (see: climate finance). These developments have ultimately compromised the global partnership for development (goal 8). Lag areas towards MDG achievement also align very closely with the most pronounced vulnerabilities resulting from climate change: sub-Saharan Africa, small island developing states, and South Asia in particular.

Poverty reduction efforts are in peril as the potential temperature increase the world is already committed to has only begun to be realized, and the world's major economies are in no way spared. The United States, China and India in particular are expected to incur enormous losses that in 2030 for these three countries alone will collectively total 2.5 trillion dollars in economic costs and over 3 million deaths per year, or half of all mortality – the majority in India and China.

The whole world is affected by these comprehensive concerns: 250 million people face the pressures of sea-level rise; 30 million people are affected by more extreme weather, especially flooding; 25 million people are affected by permafrost thawing; and 5 million people are pressured by desertification. The pressures that these combined stresses put on affected communities are immense and force or stimulate the movement of populations. As is highlighted in the Ghana country study in this report, they can also fuel violence and an erosion of the social and economic fabric of communities.

The impact of climate change on Labour Productivity is assessed here as the most substantial economic loss facing the world as a result of climate change. A large proportion of the global workforce is exposed to the incessant increase in heat, with the number of very hot days and nights increasing in many places by 10 days a decade.[2] Developing countries, and especially the lowest-income communities, are highly vulnerable to these effects because of geographical location – northern countries like Scandinavia, it is assumed, *benefit* from improved labour productivity due to warmer weather – but also because their labour forces have the highest proportion of non-climate controlled occupational environments.[3] Global productivity in labour is surging due to technological advances and a shift of emphasis from agricultural activities to an industrial and service sector focus for most developing countries, among other key developments.[4] Climate change, however, holds back the full extent of productivity gains the world would otherwise enjoy.[5] In this way, the

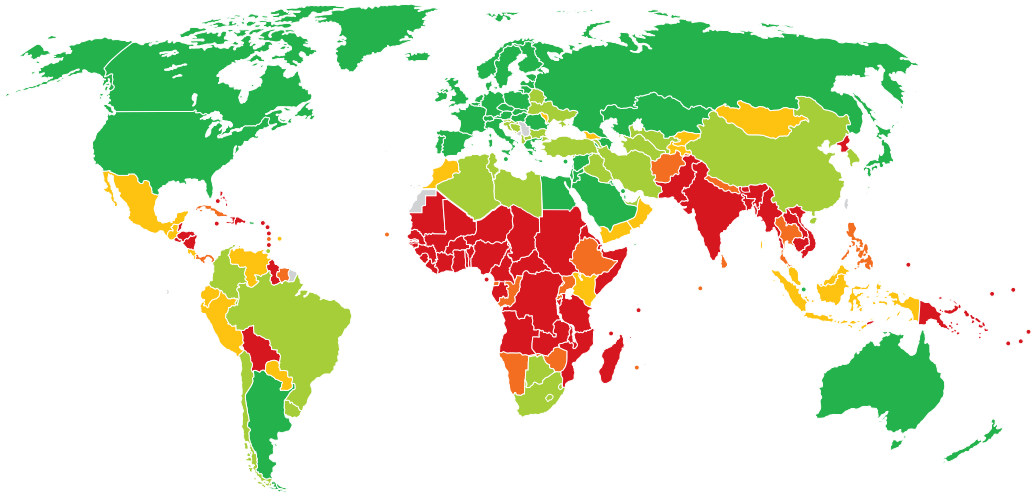
to be at least 150 billion dollars per year today for developing countries, rising to a minimum of more than 1 trillion dollars per year by 2030. These costs are, however, considerably lower than costs of damages to developing countries estimated here, so adapting to climate change is very likely a cost-effective investment in almost all cases and should be central to any climate change policy. Beyond adaptation, this report also emphasizes the urgency of mitigating key risks: tackling food security, indoor fires/ smoke, air pollution and other health issues such as diarrheal illnesses, malaria and meningitis that are all urgent priorities for lessening the extent of the human toll of this crisis.

With costs due both to unabated climate change and the carbon economy expected to rise rapidly over the course of this century, tackling climate change by reducing emissions yields net benefits to the world economy in monetary terms – amounting to around a 1% higher GDP for the entirety of the 21st century (net present value at a 3% discount rate). World net benefits from action on climate change are insensitive to discount rates from 0.1% to 20% (the highest tested). Even the most ambitious reductions in emissions aimed at holding warming below 2°C (e.g. 400ppm CO_2e/IPCC AR5 RCP2.6 scenario) generates economic benefits for the

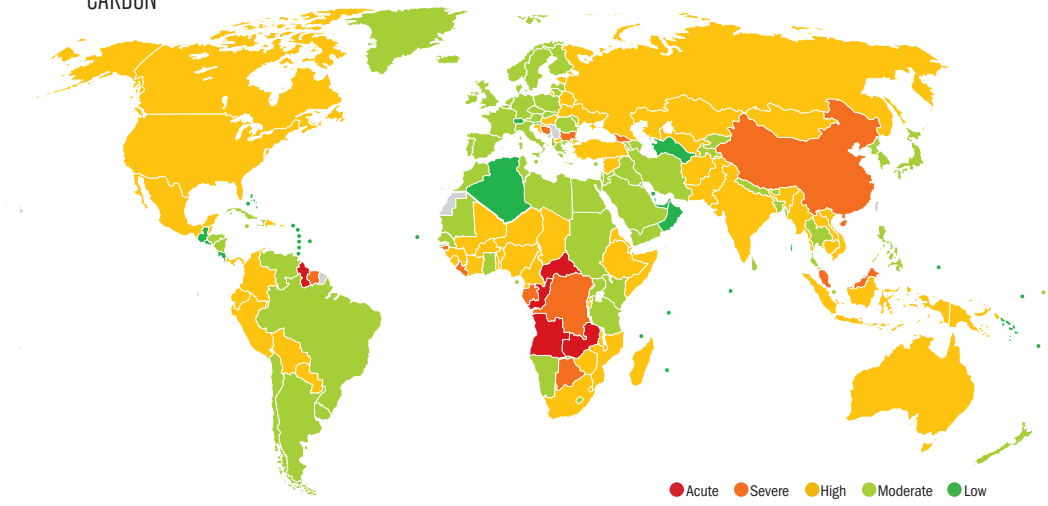
costs of climate change are hidden, which helps to explain in part how their full extent may have been missed. Even so, not all have benefitted from fast expanding labour productivity: labour productivity is a core indicator for MDG 1 (on extreme poverty and hunger), for instance, where little progress has been registered in many developing regions of the world, in particular for sub-Saharan Africa and the Pacific.[6] Not one country is *invulnerable* to the combined effects of climate change and the carbon economy. Inaction on climate change penalizes every country in the world, just as all are set to gain from action

MULTI-DIMENSIONAL VULNERABILITY

CLIMATE



CARBON



world economy after accounting for the costs of reducing emissions (mitigation costs). Limiting warming to this level would limit human, territorial and ecological damage as well as other concerns, such as climate-induced forced movement of human populations.

Over 98% of all climate change mortality and over 90% of all carbon economy related mortality is in developing countries: between 80% and 90% of all economic costs are projected to fall on developing countries. The most extreme effects of climate change are estimated to be felt by the Least Developed Countries, with average GDP losses of 8% in 2030. With respect to carbon economy effects, inequitable access to sustainable development sees Least Developed Countries again incurring the highest relative losses at over 3% of GDP, while between two thirds and three quarters of all carbon economy costs are borne by developing countries.

When the costs of climate change and the carbon economy estimated here are combined, not one country in the world is left unharmed. In terms of regional incentives to tackle climate change, every region is estimated to experience net economic benefits from action on climate change even for the highest levels of action.

The Monitor only analyses incremental impacts as a result of climate change, or changes in the frequency of well-known stochastic events, such as floods and landslides. Not assessed here in any way are potential catastrophic impacts that could occur due to more rapid climate change fuelled

on climate change. Moreover, the vulnerability of the world is shifting with every passing decade. Countries once resilient to marginal weather effects increasingly realize susceptibilities to a changed climate as the increase in heat and associated effects continue to reach new extremes.

Some quite serious damage is now unavoidable, but certain losses can still be reduced in the short term. In particular, human costs can be transferred to economic costs. This can be achieved through programmes aimed at reducing rural poverty – at the origin of hunger deaths and many communicable diseases afflicting the world's poorest groups, with risks that worsen with climate change. Or it can be achieved by ensuring clean air regulations, safer working conditions and modern energy options for people at risk due to carbon-intensive forms of energy. All these measures will save lives but cost money.

Economic losses themselves can also be lessened. A major recent review of humanitarian assistance work noted that Mozambique had requested 3 million dollars from the international community for flood preparations. That sum went unsecured, and 100 million dollars was subsequently spent on emergency flood response.[7] Investment in agriculture might also be cost-effective if the costs of supporting upgraded farming were to generate more benefits (in productivity, output) than the initial outlay.[8]

There are, however, limits to the ability of populations to adapt. The oceans can hardly be refrigerated against marine stresses.[9] Desert encroachment can be prevented but rarely reversed, and if so, generally at great expense.[10] It might be possible to protect a beach, but concrete polders could well be to the detriment of an area's authentic charm and so to the value of properties.

A low-carbon, renewable economy – of hydro, wind, solar, geothermal, tidal and other innovative sources of energy – now competes with the most carbon-intensive forms of power generation in the open market, where they constitute around 10% of the global energy mix today.[11] Shifting the balance in favour of low-carbon energy has been estimated to cost approximately 0.5% or less of GDP for the current decade.[12]

The carbon economy is largely responsible for the incredible growth in overall wealth society has amassed over the last 200 years, although, according to the World Bank, 1.3 billion people continue to remain trapped in dire poverty.[13] Regardless, an economic system developed to support a global population of 1 or 2 billion people in the 19th century is ill suited to a global population in excess of 7 billion and growing.[14]

The climate challenge runs in parallel to other key global developments: a growing world population, a major propensity to urbanization, and structural

by feedbacks such as a release of Arctic methane deposits, more rapid sea-level rise that could result from the disintegration of the West Antarctic Ice Sheet or large-scale climatic disruptions such as the collapse of ocean circulation mechanisms, all of which are understood to pose significantly larger human, economic and ecological risks than anything portrayed here. The possibilities of these events are by no means ruled out, with risks increasing substantially with warming.[2] Other economists have therefore factored such risks into their economic analysis to a degree.[3]

Only with the deep and sustained emissions reductions spelled out in the lowest of the new IPCC RCP 2.6 scenario is there a reasonable chance (comfortably over 50%) of not exceeding the internationally accepted "safety" temperature threshold of 2°C global mean warming above preindustrial.[4] Given the clear human, ecological and,

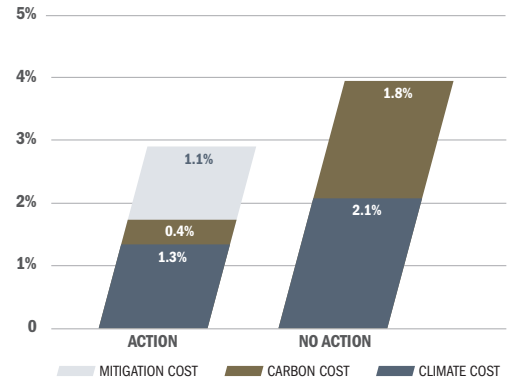
REGIONAL COST BENEFIT ANALYSIS, 2010-2100** PERCENTAGE OF GLOBAL GDP (NOMINAL), NET PRESENT VALUE AT 3% DISCOUNT RATE

	Climate + Carbon Costs				Highest Action		High Action		Moderate Action		Net Benefit		
Region	**No Action**	**Highest action (400 ppm)**	**High action (450 ppm)**	**Moderate action (550 ppm)**	**Avoided costs***	**Mitigation costs**	**Avoided costs***	**Mitigation costs**	**Avoided costs***	**Mitigation costs**	**Highest action**	**High Action**	**Moderate action**
USA	3.0%	1.0%	1.0%	1.5%	2.0%	1.5%	2.0%	1.0%	1.5%	0.5%	0.5%	1.0%	1.0%
Japan	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.0%	0.0%	0.0%
Russia	4.5%	1.5%	1.5%	2.0%	3.0%	2.0%	3.0%	2.0%	2.5%	2.5%	1.0%	1.0%	0.0%
China	4.5%	2.0%	2.0%	2.5%	2.5%	2.0%	2.5%	1.5%	2.0%	1.0%	0.5%	1.0%	1.0%
India	11.0%	5.0%	5.5%	6.5%	6.0%	3.0%	5.5%	2.0%	4.5%	0.5%	3.0%	3.5%	4.0%
EU27	1.0%	0.5%	0.5%	0.5%	0.5%	1.0%	0.5%	0.5%	0.5%	0.5%	0.0%	0.0%	0.0%
ROW	8.5%	3.5%	3.5%	4.5%	5.5%	2.0%	5.0%	1.0%	4.5%	0.5%	3.5%	4.0%	3.5%
World***	4.0%	1.5%	1.5%	2.0%	2.5%	1.5%	2.0%	1.0%	2.0%	0.5%	1.0%	1.0%	1.0%

*Avoided costs: No action (A1B +8.5) minus reduced ppm scenario (400 ppm C02e: RCP2.6; 450 ppm: RCP2.9; 550 ppm: SRES B1)
** Discounted (3%) sum of costs and GDP – mitigation costs from Edenhofer et al., 2010 (regional: Remind + Poles)
*** Median value of all 5 scenarios (Edenhofer et al., 2010)

ACTION VERSUS INACTION OVER THE 21ST CENTURY

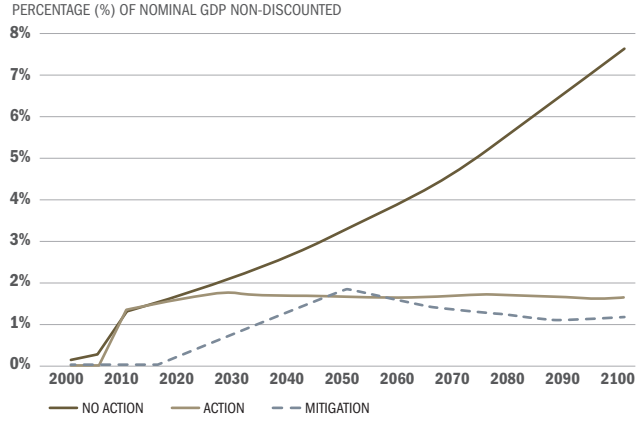
NPV OF GLOBAL CLIMATE/CARBON COSTS AND MITIGATION COSTS RELATIVE TO GDP (NOMINAL 2010-2100, 3% DISCOUNT RATE)



Action equals 450 ppm (RCP 2.9) No action equals mid-point of 2 non-stabilization scenarios (RCP 8.5 and SRES A1B)

21ST CENTURY COSTS OF CLIMATE CHANGE ACTION, INACTION AND MITIGATION

PERCENTAGE (%) OF NOMINAL GDP NON-DISCOUNTED



shifts occurring in economies around the world. All of these tendencies – most pronounced in developing countries, in particular the process of industrialization now spreading more and more widely[15] – can worsen or attenuate vulnerabilities to climate change or the carbon economy.

In order to understand the fuller implications of this study and to make its findings comparable with previous works that take on longer-term perspectives, the costs of climate change and the carbon economy were also estimated for the period up until 2100. On this basis, business-as-usual development could see the costs of inaction exceeding 10% of global GDP in losses prior to 2100.

Reducing emissions results in net benefits for society in every case because the costs of a low-carbon transition are more than outweighed by averted losses due to climate change and the carbon economy.

In the global context, the highest level of emission reductions results in similar global benefits to lower levels of action. However, the highest action sees fewer negative impacts on society –from human health to biodiversity and for the world's oceans – but requires slightly greater investments in low-emission forms of energy. Less ambitious action means accepting larger scales of human and ecological impacts.

The regional analysis of costs and benefits differs little in fundamental terms from the global analysis: all regions benefit from climate action in economic terms. Most regions find optimal climate action in the high-action scenario. The highest action to reduce emissions also limits the risks of crossing tipping points leading to large-scale climate disruptions.[16] Less ambitious action on climate change does not: moderate action on climate change has a high chance of exceeding the accepted international temperature goal of holding warming below 2° C (3.6° F) above pre-industrial levels.[17] The most vulnerable countries have called for warming to be limited below 1.5° C above pre-industrial levels as they believe 2° C is far too damaging and a risk to their survival.

Neither should the risks of catastrophic impacts be discarded as heresy: new research has highlighted great risks associated with *heat*, as opposed to ocean-related immersion of countries, with heat risks concerning far greater shares of the world economy and its population. In particular, at certain levels of high-end warming, large areas of the planet would progressively begin to exceed the thermal maximum at which human beings are able to survive outdoors.[18] The possibilities of very rapid climate change are not implausible or ruled out by climate change models, especially as the planet warms beyond the 2 degrees Celsius temperature threshold

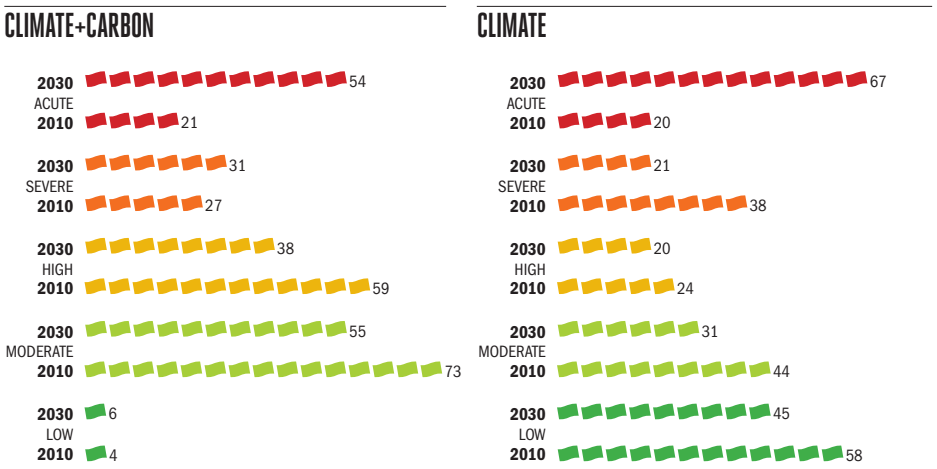
ultimately, economic advantages of aiming for a highest-action scenario, this report's findings imply that the highest action targets would reap the most benefits for the world. Therefore, the highest-action scenario is recommended to policy makers as the preferred target for enhancing and safeguarding global prosperity. Mainstream economic modelling shows that this transition is technologically and economically feasible but that action is needed now to get onto this pathway.[5] *International cooperation will clearly be central to ensuring that the costs of the transition are maintained at the lowest most efficient level and that the transition yields the highest co-benefits.*[6]

[1] See: Edenhofer et al., 2010; IPCC, 2012a
[2] Weitzman, 2007; Hare in Mastny, 2009
[3] For example: Hope, 2006; Stern, 2006
[4] Pope et al., 2010
[5] For an overview of some leading mitigation scenarios, see: Edenhofer et al., 2010; UNEP, 2011; IPCC, 2012a
[6] For example the economic benefits of cross-border emission reduction cooperation: De Cian and Tavoni, 2010

the international community has set for itself.[19] Of particular long-term concern are 1500 gigatonnes of CO_2 ($GtCO_2$) of methane stored in frozen sediments in the East-Siberian Sea at depths of less than 40 to 50 metres.[20] This represents three times the amount of CO_2 that could be released over much of this century if the 2 degrees target is to be kept.[21] As the Arctic sea warms due to climate change, these sediments are thawing and methane is already being visibly released at rates that currently exceed the total amount of methane emitted through natural processes over the entirety of the world's oceans.[22] While all policy pathways for reducing emissions have similar net benefits in economic terms, the highest-action route would clearly reap the greatest human, societal, economic and environmental benefits, since it would ensure the greatest chances of avoiding climate-triggered catastrophe and would minimize the human, social and environmental impacts of a hotter planet. Therefore, the cold calculus of a hot planet implies the most ambitious action on climate change is the savviest choice both in monetary, humanitarian and environmental terms. The highest-action approach is the pathway that the analysis in this report most supports.

The world risks carbon lock-in due to high-intensity carbon infrastructure plans still moving forward in the near term, so the shift in focus to a low-carbon transition should likely occur prior to 2017 and continue aggressively thereafter.[23] Several major economies will need to adjust and enact important domestic policy and legislative initiatives in order to make this a reality. Whatever the case, action on climate change that seeks out international partnership is most likely to further lessen the costs of a low-carbon transition and expand the benefits of this transition for all concerned. This report documents in part the potential benefits of avoided impacts of climate change in addition to the potential co-benefits of emission reductions that are targeted at key economic, health and environmental concerns.[24]

[1] Hansen et al., 2005
[2] Kjellstrom et al., 2009a; McSweeney et al., 2012
[3] ILO LABORSTA, 2012
[4] Storm and Naastepad, 2009; Wacker et al., 2006; Restuccia, et al., 2004; Storm and Naastepad, 2009; McMillan and Rodrik, 2012
[5] Kjellstrom et al., 2009a-b
[6] UN, 2012
[7] Ashdown et al., 2011
[8] Parry et al., 2009; EACC, 2010
[9] Cheung et al., 2010
[10] Puigdefaabregas, 1998
[11] US EIA, 2011
[12] Edenhofer et al., 2010; IPCC, 2012b
[13] Chen and Ravallion, 2012
[14] World Population Prospects/UN DESA, 2011
[15] OECD, 2012; IMF WEO, 2012; World Population Prospects/UN DESA, 2011
[16] Pope et al., 2010
[17] UNFCCC, 2009
[18] Sherwood and Huber, 2010
[19] Wietzman, 2007
[20] Shakhova et al., 2008
[21] Meinshausen et al., 2009
[22] Shakhova et al., 2008 and 2010
[23] IAE, 2011; UNEP, 2011
[24] De Cian and Tavoni, 2010



SUMMARY OF ECONOMIC IMPACT

		NET 2030	NET 2010	LOSSES 2010	GAINS 2010	2010				2030			
CLIMATE	DROUGHT	18	4	4	*	*	2	1	*	4	11	3	1
	FLOODS & LANDSLIDES	94	10	10	*	2	6	1	*	21	66	5	3
	STORMS	100	15	15	*	2	3	7	*	16	64	20	*
	WILDFIRES	*	*	*	*	*	*	*	*	*	*	*	*
	TOTAL	**213**	**29**	**29**	*	**5**	**14**	**10**	**1**	**40**	**142**	**28**	**4**
	BIODIVERSITY	389	78	78	*	8	26	36	9	56	299	80	54
	DESERTIFICATION	20	4	5	*	*	*	2	1	5	4	6	6
	HEATING & COOLING	-77	-33	5	-38	1	2	24	-8	30	7	-65	-49
	LABOUR PRODUCTIVITY	2,400	311	314	-3	135	162	16	-1	1,035	1,364	49	-12
	PERMAFROST	153	31	31	*	1	10	3	17	5	68	5	75
	SEA-LEVEL RISE	526	86	86	*	23	42	15	5	166	310	29	22
	WATER	13	14	44	-30	3	-3	13	7	-21	45	39	39
	TOTAL	**3,461**	**491**	**563**	**-71**	**166**	**235**	**60**	**30**	**1,276**	**1,908**	**144**	**135**
	TOTAL	**106**	**23**	**23**	*	**17**	**5**	*	**0.5**	**84**	**21**	*	**1**
	AGRICULTURE	367	50	51	*	27	17	3	2	208	144	8	10
	FISHERIES	168	13	16	-3	7	7	1	-1	97	80	-3	-6
	FORESTRY	44	6	7	-1	*	4	*	*	9	34	1	1
	HYDRO ENERGY	-24	-4	*	-4	*	-3	*	*	3	-20	-1	*
	TOURISM	*	*	5	-5	2	*	-1	*	19	-16	-2	-1
	TRANSPORT	7	1	1	*	*	*	1	*	*	1	6	*
	TOTAL	**565**	**66**	**80**	**-13**	**37**	**25**	**2**	**2**	**329**	**223**	**8**	**5**
	TOTAL GLOBAL RESULTS	**4,345**	**609**	**695**	**-84**	**225**	**279**	**72**	**33**	**1,730**	**2,294**	**179**	**144**
CARBON	OIL SANDS	24	7	7	*	*	*	7	*	2	1	20	0.5
	OIL SPILLS	38	13	13	*	1	6	6	0.5	3	24	9	2
	TOTAL	**61**	**20**	**20**	*	**1**	**6**	**13**	**0.5**	**5**	**25**	**29**	**3**
	BIODIVERSITY	1,734	291	291	*	32	128	114	17	236	1,034	349	115
	CORROSION	5	1.5	1.5	*	*	0.5	0.5	*	1	4	0.5	0.5
	WATER	10	4	4	*	*	*	3	1	*	2	4	4
	TOTAL	**1,749**	**296**	**296**	*	**32**	**129**	**117**	**18**	**238**	**1,038**	**353**	**120**
	TOTAL	**630**	**172**	**172**	*	**74**	**67**	**21**	**10**	**226**	**341**	**37**	**26**
	AGRICULTURE	-171	15	17	-2	1	2	9	4	-58	-121	4	4
	FISHERIES	77	9	9	*	1	7	0.5	*	5	70	2	0.5
	FORESTRY	83	28	28	*	3	9	14	1	13	48	18	4
	TOTAL	**-11**	**52**	**54**	**-2**	**4**	**18**	**24**	**5**	**-40**	**-3**	**24**	**8**
	TOTAL GLOBAL RESULTS	**2,429**	**540**	**542**	*	**112**	**220**	**174**	**34**	**429**	**1,401**	**444**	**156**

* Less than one billion dollars

Billions of dollars (2010 PPP) non-discounted. Totals do not correspond exactly due to rounding.

Environmental disasters · Habitat change · Health impact · Industry stress

Developing Country Low Emitters · Developing Country High Emitters · Developed · Other Industrialized