FINDINGS AND OBSERVATIONS

1.

THE MOST AMBITIOUS RESPONSE TO CLIMATE CHANGE IS THE MOST ADVANTAGEOUS POLICY IN HUMAN, ECONOMIC AND ENVIRONMENTAL TERMS

- Tackling climate change reaps significant net benefits for society in monetary terms, with monetary gains resulting from even the strongest action and far outweighing any associated expenses
- Climate change is estimated to have already cost the world close to 1% of GDP, the negative effects of the carbon economy add a further 0.7% of GDP to today's losses
- Both climate change and carbon economy costs grow as emissions expand and are lessened as they are cut
- Combined costs could double by 2030, lowering world GDP by well over 3% in absence of concerted action to reduce emissions and vulnerabilities globally
- This major revision of climate-related costs is based on an original research aggregation exercise of third-party scientific studies and data with more comprehensive and updated analysis than previously available including the full breadth of effects linked to the carbon economy, with overall conclusions notably unaffected by a differing of the discount rate applied
- The analysis excludes the willingness to pay to avoid long-term non-marginal catastrophic risks, often factored in by economists, which would further increase the costs of inaction and raise the benefits of ambitious responses, only strengthening the conclusion drawn here
- All collective actions aimed at stabilizing GHGs in the Earth's atmosphere generate net benefits to society: on the basis of available information the 400ppm CO_2 equivalent (RCP2.6) target results in the least human and environmental damages in addition to its monetary benefits
- Inaction would see a continuing escalation of the costs of the climate crisis and a diminishing ability for any policy action to bring it under control as humanity would be increasingly placed at the most extreme of risks

2.

THE HUMAN TOLL OF INACTION COULD EXCEED 100 MILLION DEATHS BETWEEN NOW AND 2030 ALONE

- Climate change and the carbon economy as estimated here are responsible for 5 million deaths each year today and cause illness in tens of million people globally comparable to the third leading cause of preventable death with a similar societal impact as tobacco use (see: Health Impact Climate/Carbon)
- The carbon economy claims the largest share of this impact, in particular due to toxic air pollution, at over 4.5 million deaths a year today
- Climate change is estimated to be responsible for 400,000 deaths each year, particularly due to hunger and communicable diseases in the lowest-income countries
- By 2030, the annual death toll is estimated to rise to 6 million, including close to 5.5 million deaths due to the carbon economy, and over 600,000 as a result of climate change
- Inaction on climate change could claim well over 100 million lives in the twenty year period to 2030
- Reducing emissions will rapidly diffuse risks to populations due to the carbon economy and generate co-benefits for human health, although the effect on the burden of disease will persist for decades
- Constraining climate change will have less of a beneficial effect on its near-term health impacts given that an additional half a degree of warming is now virtually inevitable in the decades immediately ahead
- Climate change linked health concerns are therefore an urgent priority for policies aimed at adapting to climate change, since the accelerating rate of change is outpacing the ability of expected large-scale gains in socio-economic development to lessen key health vulnerabilities in lower-income countries

3.

CLIMATE ACTION IS GOOD VALUE, BUT THE COST OF ADAPTING TO CLIMATE CHANGE HAS LIKELY BEEN UNDERESTIMATED

- Tackling the carbon economy alone is in many cases a sound proposition without even consideration of climate change – reducing the scale of future damages due to climate change are an added bonus to what can be a set of financially and environmentally sound policy measures in their own right
- Given the extent of near-future warming that decades of insufficient regulatory action have now unavoidably forced the world to experience, reducing emissions remains just half of the picture: parallel efforts to adapt to climate change are now essential to a safe and prosperous world
- While a full reassessment of the costs of adaptation is beyond the scope of this report, this Monitor's findings imply that it is very unlikely that the adaptation costs currently facing developing countries could be less than 150 billion US dollars per year today – double the highest of previous published estimates of around 75 billion US dollars per year – simply because a number of key climate change impacts assessed here, such as Heating and Cooling, or Water represent quasi adaptation costs by virtue of how they have been calculated – autonomous adaptation at cost (or gain) being assumed
- Moreover, provided the costs of adaptation rise at similar rates as the

costs of climate change, developing countries could be facing a minimum of over 1 trillion dollars of annual adaptation costs a year by 2030 (in 2010 dollars PPP) – an order of magnitude higher than any previous estimate

- While those figures represent minimum amounts, it is unlikely that the margin of error exceeds much more than double the minimums estimated here, whereas the impact of climate change is estimated to incur several times greater losses for developing countries: 500 billion dollars for 2010 and 4 trillion dollars for 2030 (2010 dollars PPP non-discounted)
- On the basis of existing literature on the subject, adaptation costs are therefore very likely to be less than the costs of the impacts of climate change – as a result adaptation represents a cost-effective investment across a broad range of sectors, meaning resources spent on adaptation are almost certain to reap net benefits for affected countries and for society as a whole
- An important qualification to any estimations of the costs of adaptation however is that climate-related uncertainty significantly increases costs, since planning is ideally robust to the full (or nearly) range of potential outcomes which may include opposites, such as more water, and inundation, or less water but drought

4.
CLIMATE INJUSTICE IS EXTREME

- Climate change takes the most from those who have the least: Least Developed Countries faced in excess of 10% GDP losses due to climate change and the carbon economy in 2010
- The Monitor uses four different country groups as broad geopolitical markers covering developed and industrialized countries as well as developing countries split between “high” and “low” emission categories – the latter group consists of 85 countries with less than 4 tons of CO_2e of GHG emissions (in 2005) or well below the safe per capita emissions level necessary for ensuring stabilized climate conditions in the near-term
- Low-emission countries have essentially contributed nothing to climate change –if all countries were polluting only to those levels, climate change would be marginal – although with a global carbon budget now all but exhausted even the lowest emitting countries can contribute or detract from the world’s ability to rise to the climate challenge
- Lacking any responsibility for climate change, the low-emission country group nevertheless experiences approximately 40% of all its economic losses, and over 80% of all climate change-related mortality
- In an intergenerational perspective, more than half of all climate change-related deaths are solely among young children in lower or middle income countries who have virtually no responsibility whatsoever for the problem – which adds further insult to the also serious implications of today’s inaction for the welfare of future generations

5.
CLIMATE INACTION COMPROMISES GLOBAL DEVELOPMENT AND POVERTY REDUCTION EFFORTS

- With serious ramifications for agricultural and coastal communities in both economic, health and productivity terms, climate change almost surgically targets global poverty reduction efforts, in particular towards the eight internationally agreed Millennium Development Goals (MDGs), directly and manifestly compromising above all the targets for extreme poverty and hunger (goal 1), child health (goal 4) and environmental sustainability (goal 7), but with important repercussions also for gender equality (goal 3), maternal health (goal 5) and infectious disease (goal 6)
- Effects are most extreme for countries understood to have the lowest levels of capacity, where local efforts are less able to be relied upon for making headway in responding to these additional and growing pressures
- Regional lag towards the MDGs, particularly for Least Developed Countries, small island developing states and African countries also corresponds very precisely to those geographic groups worst affected by the impacts of climate change, where the relative scale of losses reach their most extreme values as assessed by the Monitor
- The net impact of climate change doubles as a share of global GDP between 2010 and 2030 with the growth in losses increasing rather than slowing over time regardless of an expected tripling of global wealth during this 20-year period
- So despite an extremely strong link between wealth and a capacity to withstand climate change, impacts still outstrip the ability of economic development to rid developing countries of heightened vulnerabilities to climate change - contrary therefore to the assertions of previous studies, investment in development is not a sufficient response to limit the impacts of climate change and should not be considered a substitute for a dual policy strategy on climate change encompassing early and strong reductions of emissions together with adaptation

6.
INTERNATIONAL CLIMATE FINANCE: A CLEAR DEFAULT ON COPENHAGEN/CANCUN COMMITMENTS

- Two important goals on “new and additional” finance for climate change were agreed in 2009 in Copenhagen at the major UN climate conference there (COP15) and adopted in more official form at subsequent talks

a year later in Cancún (COP16): 1) "Fast Start Finance" of 30 billion US dollars balanced between adaptation and mitigation to flow from developed to developing countries between 2010 and 2012; and, 2) a similar collective goal to mobilize 100 billion dollars a year of climate finance in support of developing countries

- Several possible definitions of "new" and "additional" are left open to interpretation, and include: a) resources that are over and above pre-existing (2009) flows of climate change finance; b) resources additional to commitments to deliver foreign aid of 0.7% GNI as Official Development Assistance (ODA) – a commitment widely unmet since it was adopted by the UN in the 1970s; c) additional to commitments or intentions for progressively increasing ODA to meet the 0.7% target as communicated by governments well prior to the new climate finance pledges; and d), additional to 2009 levels of ODA
- Climate change finance fails to meet any of the above criteria except the first: climate change finance has increased significantly, especially finance for mitigation of climate change
- Because the other definitions do not qualify however, it is clear that "Fast Start" climate change finance has been withdrawn from earlier parallel commitments to sustainable development and poverty reduction efforts – the annual new and additional share of climate change finance is actually in the realm of just 2-3 billion US dollars for 2010, and not 10 billion a year, which raises further serious concerns that long-term financial goals could result in still more and greater diversions
- Numerous developed countries did however face in precisely this period the most extreme of financial pressures of the recent historical era, with a number among them facing fiscal collapse as a result of serious domestic and transnational economic and credit crises during the years of 2008-2012
- The recently agreed Green Climate Fund faces a difficult initiation environment as a result, endangering effective and cost-efficient climate action, in particular there is still no clarity on the scale and sources of generation of funding above all for the interim period from 2013-2020
- Given that ODA fell in real terms in 2011 versus 2010, the new and additional proportion of climate finance for the second year of the three year commitment period can only be lower still, meaning around 20 billion dollars of new and additional climate change finance should flow in 2012 if Copenhagen/Cancún commitments are to be met
- The finance provided is also imbalanced: adaptation makes up a mere 14% of the committed 14 billion dollars of overall climate change finance in 2010, or around 2 billion dollars – indications of change since then are unclear due to delayed reporting cycles – the need for enhance Monitoring, Reporting and Verification (MRV) is critical, in particular because there are serious risks of double or inaccurate accounting for resources under current reporting regimes
- Worse still, "Fast Start" finance is very slow: disbursal rates for conventional ODA are much faster than for climate finance – 76% versus 48% – mainly due to the complex array of funding instruments involved, slowing the rate at which climate-related funds reach beneficiaries
- Adaptation finance is not responding to vulnerabilities: with just over 2 billion dollars of adaptation finance flowing annually from developed to developing countries, wholesale gaps remain for even the most severely affected front-line nations – these are often complicated by conditionalities and other barriers that lock-out some of the world's most vulnerable countries from support
- The Clean Development Mechanism – albeit under severe pressure since several developed countries discontinued forward association – is currently leveraging tens of billion dollars of annual investment in low-carbon initiatives in developing countries and has emerged as one of the most meaningful de facto technology transfer instruments currently operational with around half of all projects resulting in a technology transfer of one form or another – coverage however is extremely limited with almost 90% of all investment benefitting either China or India alone

7.
NOBODY IS SPARED THE GLOBAL CLIMATE CRISIS

- In one respect or another, every country is experiencing negative impacts either resulting from the effects of climate change or as brought about by the carbon economy – not one country has Low vulnerability to the combined effects of climate change and the carbon economy, and just seven of the 184 assessed have Moderate vulnerability
- Even the largest and most advanced of the world's economies face serious losses, such as the United States, which is estimated to incur a 2.1% reduction in GDP by 2030
- That many wealthy countries exhibit low general vulnerability to climate change is more an indication of the extremity of effects taking hold on the climate frontlines, than of how inconsequential the effects of climate change are for the affluent
- Wealthy countries may have much lower thresholds of tolerance for climate-related impacts since wealth to a large extent insulates communities from suffering extreme societal risks: for example, the 75,000 additional deaths estimated to have been caused by the 2003 European Heat Wave that leading experts believe would almost certainly not have occurred in the absence of global warming is a major anomaly and point of concern for Europeans
- Advanced economies can also afford to part with much less of their economic growth than their developing counterparts – according to the International Monetary Fund, developing countries are growing more than four times as fast in real terms than advanced economies for whom

any marginal loss will have a disproportionate effect on what has been an average of just 1.5% in collective real economic growth over the last decade

- Furthermore, in the increasingly globalized world economy of the 21st century, the fortunes of all nations are more intimately tied, especially for highly networked developed countries that rely on foreign investments both domestically and abroad to sustain even marginal growth and retain high levels of prosperity – an unrestrained climate crisis can only become a major impediment to that prosperity whether or not its effects are felt locally or elsewhere
- The Monitor examines marginal short-term impacts and the implied evolution of these beyond the 2010-2030 scope of much of this report, but in the longer-term climate change implies rapidly growing risks of non-marginal and truly catastrophic impacts, such as a collapse in ocean circulation or of major ice sheets, or the breaching of thermal tolerance levels for humans – all of which would generate large-scale losses for any income group and none of which are accounted for in the Monitor

8.

OUTDATED ESTIMATES OF THE NEGATIVE EXTERNALITIES OF CLIMATE INACTION GUIDE TODAY'S REGULATORY DECISIONS

- Previous global estimates of the impact of climate change reveal less than 20 original studies developed by a much smaller range of authors, and with the exception of three, all are based on third-party research or data from the 1990s or earlier
- Previous studies routinely include the positive effects of carbon fertilization due to high levels of CO_2 without controlling for negative effects of an expanding carbon economy, such as ground-level ozone toxicity, ocean acidification, acid rain or the health hazards of pollution, among others
- No single study includes the impact of climate change on labour productivity, which the Monitor estimates as the most significant near-term impact of climate change in monetary terms
- Hundreds of estimates of the social cost of carbon are based on just nine studies of the negative externalities of climate change, all grounded in 1990s research and data, and which are actually integrated into and continue to guide the regulatory decisions of major countries
- In many cases these studies feed policy recommendations on emission reductions that would allow the rise in global temperatures to exceed the internationally agreed 2° Celsius (3.6°Fahrenheit) safety limit, since a common conclusion is that the costs of firm mitigation exceed any marginal benefits from reduced damages