

GLOBAL ECONOMIC INCENTIVES FOR ENVIRONMENTAL SECURITY - REVISITING THE STERN REVIEW IN 2019

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ABSTRACT

The Carbon Majors report highlights that a fifth of global industrial greenhouse gas emissions are backed by public investment and this puts a significant responsibility on “those investors to engage with carbon majors and urge them to disclose climate risk.” There is an urge to move out of fossil fuel and towards clean energy at an accelerated pace in order to avoid/minimise the impending climate catastrophe. In light of these concerns, it is imperative to revisit the Stern Review, a canonical piece of literature on “The Economics of Climate Change”. The Stern Review introduces environmental degradation as an economic externality, where its consequences are felt by all even if only few contribute to it. The economics of climate change has been focused on “modelling the implications of growth for emissions, examining and modelling the economics of technological options, calculating ‘social costs of carbon’, and exploring tax, market and other structures”. With collective action as the core, it is now necessary to focus on the analysis that individual countries will require to assess/review their own policy positions along with a framework to generate impactful international action.

Keywords: Climate Change, Environmental Degradation, Environmental Security.

INTRODUCTION

Climate change is an increasingly urgent reality, threatening to significantly impact the human race much faster than anticipated. An overwhelming body of scientific evidence indicates that human activities, such as electricity generation, alteration of land use practices and consumption are the primary causes of global warming (Stern, 2006). Recent estimates suggest that, even if emissions peak in the next decade or two and then fall sharply, the impact on global temperatures will still be very large. Billions of tons of Carbon dioxide have been released into the atmosphere, increasing atmospheric CO₂ levels from 285 ppm in 1850 to approximately 400 ppm in 2015 (Tans & Keeling, 2015). Multiple scientific data have established a clear link between this increase and the >1°C increase in global average temperatures that occurred in the past 125 years (Lewis, 2015). Scientists have established with a high degree of certainty a causal

relationship between anthropogenic carbon emissions and significant global climate change (IPCC, 2014). And while direct links between a given weather event and climate change have not been established with certainty, the significant variation in weather patterns across the globe clearly points to climate change (Geo. Soc. of Amer., 2015; NOAA, 2015; Wuebbles et al., 2014). IPCC scientists anticipate at least 2°C of warming before 2100, even if extreme mitigation efforts are deployed (IPCC Press, 2014).

The Carbon Majors Report, 2017, prepared from the Carbon Majors Database which stores greenhouse gas emissions data on the largest company-related sources of all time, found that more than half of global industrial emissions since 1988 are produced by 25 corporate and state-owned entities alone. These fossil fuel users have produced emissions of a scale large enough to have contributed significantly to climate change. If fossil fuels continue to be extracted at the same rate, the Report predicts an increase in global average temperatures upto 4C by the turn of the century. In 2015, a Carbon Tracker study indicated that fossil fuel companies risked wasting more than \$2tn over the coming decade by pursuing coal, oil and gas projects which run counterintuitive to international action on climate change and advances in renewables. The report highlights that a fifth of global industrial greenhouse gas emissions are backed by public investment and this puts a significant responsibility on “those investors to engage with carbon majors and urge them to disclose climate risk.” There is an urge to move out of fossil fuel and towards clean energy at an accelerated pace in order to avoid/minimise the impending climate catastrophe.

In light of these concerns, it is imperative to revisit the Stern Review, a canonical piece of literature on “The Economics of Climate Change”. The Stern Review introduces environmental degradation as an economic externality, where its consequences are felt by all even if only a few contribute to it. The economics of climate change has been focussed on “modelling the implications of growth for emissions, examining and modelling the economics of technological options, calculating ‘social costs of carbon’, and exploring tax, market and other structures”. With collective action as the core, it is now necessary to focus on the analysis that individual countries will require to assess/review their own policy positions along with a framework to generate impactful international action.

BACKGROUND

The current international legal farmework governing climate change is under the aegis of the United Nations Framework Convention on Climate Change (UNFCCC) along with an array of environmental Conventions. Under the UNFCCC, countries have an obligation to substantially reduce greenhouse gas (GHGs) emissions. The 1992 UNFCCC, with 154 ratifications, marked the beginning of a legal framework under which countries took up differential obligations and

commitments to protect the environment. The UNFCCC led to the Kyoto Protocol, brought in as a legally binding protocol to monitor the progress of GHG emissions (IPCC, 2014). This was followed by the Copenhagen Accord of 2009, a non-binding agreement, under which countries pledged new targets to reduce GHG emissions.

In 2012 the Doha Amendment to the Kyoto Protocol was adopted so that the protocol could continue being in force and in 2016, the Parties to the UNFCCC reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement built upon the Convention with an aim is to strengthen the global response to the threat of climate change. The agreement also charted the ability of countries to deal with climate change by making finance flows consistent with a low GHG emissions and climate-resilient pathway along with an enhanced transparency framework for action and support. The Agreement, however, was a product of a deeply discordant political context rife with fundamental and seemingly irresolvable differences between the developed and developing State Parties, and had to ultimately resort to a mix of hard, soft and non-obligations in order to take off (Rajamani, 2016).

Despite the framework, there are serious concerns over their implementation and regulatory challenges at the international and State level. The tension is fueled by disagreements over interpretation of a fundamental underpinning of the UNFCCC and Kyoto framework—the principle of "common but differentiated responsibilities" particularly in light of achieving meaningful mitigation targets. At the most basic level, countries disagree over climate monitoring and financing stipulations in the Kyoto Protocol and other legally binding accords (Bodansky, Brune, Rajamani 2018). Developing countries lack the domestic capacity to audit their total emissions and even if they are able to monitor national levels, there is a fear that reporting high numbers would encourage international pressure to cap their emissions and subsequently, developmental projects.

Countries like China argue that an international monitoring system is an infringement on national sovereignty and developing states have leniency in emissions as they are currently in critical stages of economic development unlike developed States who have maximise their potential through environmental exploitations. Developed countries, for their part, are unwilling to share differential burden or assist the developing nations in meeting these targets at altered rates.

It is here that we turn to Stern's understanding of externalities in order to better compute State responsibilities and economics of climate change. Climate change, like any other environmental problem, involves an externality. As per the Stern Review, 'the standard theory of externalities, under certainty, perfect competition, and with a single government, points to one of: taxation of the emitter equivalent to marginal social cost (Pigou); the allocation of property rights with

trading (Coase); and direct regulation'. But in the case of the international regulatory framework problems are compounded by multiple jurisdictions, inadequate representation of those most affected (future generations), lack of global cooperation, collective vision, and important interactions with other market failures. Thus, while the standard theory may provide useful initial insights, climate change in 2019 is a complex economic policy problem (Stern 2006).

DISCUSSION

The various difficulties of implementing environmental legal and policy frameworks notwithstanding, the risk of severe and irreversible outcomes generates a compelling argument for strong and urgent actions. And in order to better integrate these processes with climate economics, it is pertinent to understand the measurements of economic damage caused by climate change. A recent study conducted by the Emmett Interdisciplinary Program in Environment and Resources in Stanford's School of Earth Sciences estimates the social cost of carbon to be \$220 per ton, indicating that countries are on a clock to increase their efforts to curb greenhouse gas emissions. The empirical findings of the study indicate that climate change could substantially slow economic growth rates, especially in poor countries (Moore and Diaz, 2016).

Climate change also take its toll on human health and mortality with a projection of 250,000 death per year between 2030 and 2050, and the pattern of deaths ranging from exposure to high or low temperatures (WHO Report, 2002). But this number is likely to increase given factors such as population displacement and reductions in labor productivity from farmers due to increased heat. By 2030, the estimate risk of various water borne diseases will be 10% higher in regions with visible climate change while malnutrition will vary across regions, depending on unmitigated emissions. The estimated proportional changes in the numbers of people killed or injured in coastal floods will be large, although they refer to low absolute burdens. Inland floods will increase by a similar proportion, and would generally cause a greater rise in disease burden. The proportional rates of increase are similar in developed and developing countries, but, developing countries start with a much higher baseline (McMichael, 2003). Climate change may force more than 100 million people into extreme poverty by 2030 (World Bank, 2017), which in turn, would make them more vulnerable to the health effects of such changing climate.

The compelling circumstances for us to revisit an important consequence of the Stern Review – the possibility of incorporating environmental values into economic and political decision making. The United Nations (UN) and the World Bank have been engaged in efforts in this area, and have incorporated natural capital estimates in partially revised GDP accounts for a number of countries (Lutz, 1993; UN, 1993; UNEP, 1989). National income accounts in their calculations of GNP or GDP, make no or inadequate allowance for natural resource use and environmental degradation. Consequently, there is concern that any national policy under

protects natural assets and facilitates excessive depletion and degradation. The economics of climate change argues that if the national accounts reflected a more accurate picture of environmental values, there would be reduced losses on the environment and natural resources re the loss of future economic potential (Repetto, 1991). Though incorporating environmental values and concerns in assessing and making policy for the nation poses formidable challenges, the climate emergency upon us ought to forces us to reexamine definitions of economic progress and development. Revision of the indices is also in adherence with sustainable obligations to future generations and the international community at large.

International institutions, principally the World Bank and the UN Statistical Office, have incorporated natural capital estimates in partially revised GDP accounts for a number of countries. Paralleling and often through the work of academic scholars, the World Bank and the UN Statistical Office have pursued an active research program in resource and environmental accounting. Two notable studies were published by the World Bank, are *Environmental Accounting for Sustainable Development* (World Bank, 1989) and *Toward Improved Accounting for the Environment* (Lutz, ed., 1993). These revaluation experiments are far from comprehensive and/or methodologically definitive. However, they offer valuable insights demonstrating opportunities and directions in pursuit of such efforts, particularly in developing countries where natural resource sectors constitute a larger share of the economy than in industrial countries. Many countries have started cultivating efforts towards natural capital-adjusted modification of their official accounts. These efforts however do not follow any standardization and are experimental at best. However, it is pertinent that the development of environmental accounting be pursued through research, the promotion of innovative and significant work, and the furtherance of interdisciplinary communication and cooperation among States. National policymakers and the data sources on which they base their decisions must take into account resource depletion, ecological balance, and the sustainability of economic development. Inter State cooperation and top down policies must be cognizant of each other's economics markers and capacity and may include governments regulating carbon emissions and promoting renewable energy sources and energy efficiency through monetary incentives such as a carbon tax or appliance rebates. States and corporations should aggressively switch from fossil-fuel-based power to alternative sources of energy. And these efforts must be complemented with a national policy that factors a bottom-up approach as well.

POLICY RECOMMENDATION

The Stern Review indicates that Tackling climate change is the pro-growth strategy for the longer term, and minimising emissions and other environmental accommodations may be fully consistent with continued growth and development. However, In 2008, Stern had clarified that

his report had underestimated the speed and scale of some serious climate impacts and increased his recommendation for expenditure on emissions reductions to 2% of global GDP. The comprehensive review adequately highlights climate emergency and economics for what it is but fails to account for politics and power structures that operate at the implementation level.

The following policy measures can be implemented in light of the Stern Review framework and suggestions:

- Adopt a clear vision towards the future with emissions mitigation and reduction of carbon footprints as priority. Global consensus is critical to move forward. The narrative among developed economies must change and the international community must not let its existing accomplishments collapse as it struggles to develop new alternatives for a comprehensive climate change accord.
- Ensure that States have a clearly articulated and accountable domestic climate change policy integrated into their economic and developmental projects.
- Set up substantial international funds for low-carbon technology finance. Such Funds can be targeted at eliminating specific problems by offering tailored risk guarantees and concessional loans. Funds can also be directed to avoided deforestation etc where measuring emissions changes is hard.
- Build a credible institution for measuring, reporting, and verifying global emissions and emissions-cutting efforts. Robust institutional capacity is necessary to verify that countries are indeed making the cuts and investing in emissions-cutting actions. This might happen under the aegis of the UNFCCC through supportive action by the WTO, IMF, and OECD.

CONCLUSION

Revisiting the Review is critical at this juncture given its thrust on sustainability and shared responsibility. Any effective response to the challenge of climate change must be based on an international understanding that collective action is the way forward to address its origins, impact, scale and urgency. The sustainability of agreements are crucial and a combination of methods will have to be deployed at the policy and framework level - international standards; treaty obligations supported by emissions quotas and taxes; realistic assessment of obligations re capacity, clear and implementable obligations that States can be held accountable to; technological lock-ins through infrastructure; placing climate change at the centre of the whole set of international engagements; national and international policies on inclusive and reliable data. Building on the science and scientific evidence, the economic analysis must aim to provide shared understanding of the nature of the economic problems it generates and inform the international participants of the implications for them. The need of the hour is to understand the

economics of environmental sustainability and climate change and find ways of sustaining a collaborative response to this urgent challenge.

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