The Internalization Of Climate Change As An Externality By Design Of A Proactive Carbon Policy Framework With Analysis Of Potential Adverse Impact Of Government Legislations On Remediation And Adaptation.

MAITRAYEE PATHAK[1], VENUGOPAL VARADARAJAN[2]
Email: moitri123@hotmail.com
1. FACULTY OF LAW, UNIVERSITY LAW COLLEGE, BANGALORE UNIVERSITY,
2. BMSCE, DEPT. OF MECHANICAL ENGINEERING
BANGALORE. INDIA

ABSTRACT:

Human Induced Climate Change (HICC) is considered for all forms of integrated assessment models as an externality. There are two important dimensions to Human Induced Climate Change (HICC) to elevate the problem to a more complex sphere. Firstly, the cumulative nature of carbon reservoirs in the earth system context makes it progressively complex with progress of time. Secondly, the vulnerability of impact centre towards the anthropogenic effect of HICC is not geospatially non-biased. The third major issue with internalization of climate change remediation through conventional approaches like taxation, cap and trade and technological leapfrogging are inadequate. The inadequacy is brought about by the cumulative and vulnerability inequality dimensions that have been elucidated in detail in the paper. The author's attack this stalemate in global consensus for a viable implementable solution in two half's of the paper. In the first half the primary focus is to present a carbon inclusive parametric modification for human extended for analysis of the carbon inclusive parameters. Contemporary approach to climate change policy formulation, policy guiding principles, modelling, projections and action plans are also evaluated in the light of equitable remediation and development. Specific market instruments including taxation, regulation and trading are discussed. The inherent lacuna in the reactive approach on the basis of a stabilization target centred policy formulation strategy is the basis to look for alternatives. In the second half of the paper, anti-tobacco legislation is used as a logical corollary to discuss the ramifications of government legislative inaction or subversion. Also, the legislative definition of "substantially similar" effort leadership by Brazil, Russia, India and China, demanded as a precursor to local action by some developed countries is extended and applied to justify the already showcased HDI coupled stabilization target framework, for applicability to carbon remediation.

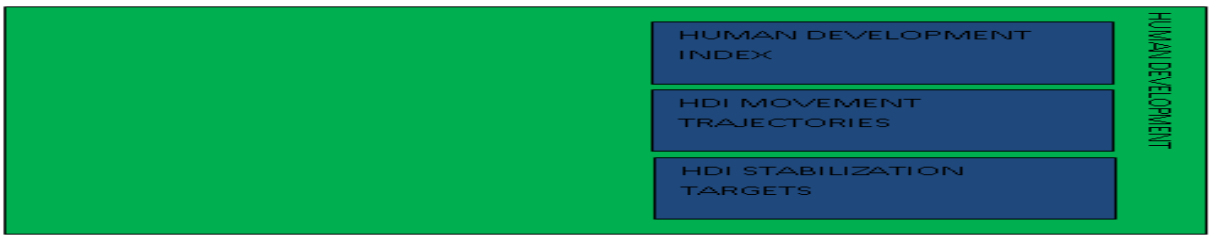
INTRODUCTION:

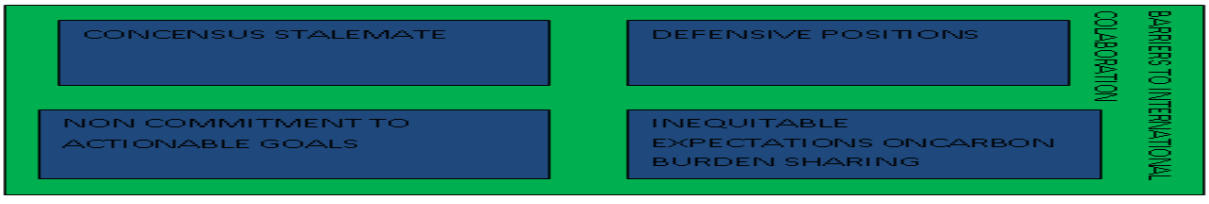
The human caused emission of green house gasses and its consequential impact on Global Climate phenomena is clear. The Climate sensitivity remains an area of active research, see Ackerman et al 2009. Several studies have estimated climate sensitivity by benchmarking climate models against the observed warming trend of the 20th century, e.g. Forest et al. (2006) and Knutti et al. (2002), building on this work, modelers have systematically varied a range of uncertain parameters in more complex climate models (such as those controlling cloud behavior) and run ensembles of these models, e.g. Murphy *et al.* (2004) and Stainforth et al. (2005). These studies provide an important first attempt to apply a probabilistic framework to climate projections. Their outcome is a series of probability distribution functions (PDFs) that aim to capture some of the uncertainty in current estimates. Meinshausen (2006) brings together the results of eleven recent studies (below). The red and blue lines are probability distributions based on the IPCC TAR (Wigley and Raper (2001)) and recent Hadley Centre ensemble work (Murphy *et al.* (2004)), respectively.

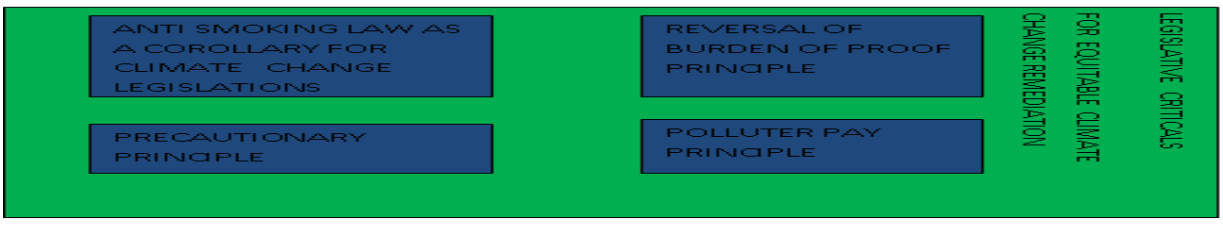
The results reinforce the convergence of Climate Sensitivity Measurement Spreads. In common with many other environmental problems, human-induced climate change is at its most basic level an externality. Those who produce greenhouse-gas emissions are bringing about climate change, thereby imposing costs on the world and on future generations, they do not face directly, neither via markets nor in other ways, the full consequences of the costs of their actions.[2] Much economic activity involves the emission of greenhouse gases (GHGs). As GHGs accumulate in the atmosphere, temperatures increase, and the climatic changes that result impose costs (and some benefits) on society. However, the full costs of GHG emissions, in terms of climate change, are not immediately – indeed they are unlikely ever to be – borne by the emitter, so they face little or no economic incentive to reduce emissions.[2] Similarly, emitters do not have to compensate those who lose out because of climate change. In this sense, human-induced climate change is an externality, one that is not 'corrected' through any institution or market[3] unless policy intervenes. The climate is a public good: those who fail to pay for it cannot be excluded from enjoying its benefits and one person's enjoyment of the climate does not diminish the capacity of others to enjoy it too.[4]Markets do not automatically provide the right type and quantity of public goods, because in the absence of public policy there are limited or no returns to private investors for doing so: in this case, markets for relevant goods and services (energy, land use, innovation, etc) do not reflect the consequences of different consumption and investment choices for the climate. Thus, climate change is an example of market failure involving externalities and public goods[5]. The science of climate change means that this is a very different form of externality from the types commonly analyzed. Climate change has special features that, together, pose particular challenges for the standard economic theory of externalities. There are four distinct issues that will the Stern review highlights as critical namely; Non locality of cause and effect, evolutionary development pattern, uncertainty in effect predictability in environmental and financial terms and the potential for a non marginal change on the world economy.

The dynamics of target stabilization and negative feedback obtained from moving towards it makes the system highly non linear and hence the standard approaches like Social cost of Capital and Marginal Abatement cost based medium to long term economic analysis is ineffective. Integrated assessment models such as DICE, IMAGE that incorporate growth and development; industry; innovation and technological change; institutions; international economy; demography and migration; public finance; information and uncertainty; and the economics of risk and equity within the frameworks are more effective means of policy analysis. Various approaches have been adopted towards integrated assessment including models such as DICE, IMAGE and variations which all look at the entire problem scenario from a stabilization target perspective and once fixing of targets is achieved various movement trajectories are computed towards the goal. The more recent models stress on a accelerated approach towards reaching very specific stabilization targets within 2100-2200 and model the optimal route to achieving specific carbon targets and in the process the trajectory taken is also simulated. The methods of these type of models are very well discussed by Risbey et al 1996 and Stanton et al 2009 with host of limitations discussed in Ackerman et al 2009. The stabilization target based approach is at the center of all the models with varying degrees of Policy .ramp up either slow steps initially followed by faster steps DICE 2009 or faster rate of climb towards the target from the beginning as in Ackerman et al 2009. However there is need for an alternative look at the entire Carbon Policy Space from a more equitable and sustainable angle.

HUMAN DEVELOPMENT INCLUSIVE FRAMEWORK DIMENSION FOR CARBON POLICY







Equity And Climate Legislation

FUNDAMENTAL RIGHTS

- *Life forms the fulcrum of human actions. It is the sole factor responsible for human existence. It is the basis of all basic rights of man.*
- *The concept of commons is being misused by companies and this may be dangerous and may lead to catastrophic effects.*
- *Industries release harmful gases continuously without releasing the impacts it will have in the longer run.*
- *Carbon dioxide, the aggregated accumulation of carbon dioxide in the atmosphere is proven to have an adverse impact on critical subcomponents of the climate system in turn having serious anthropogenic effects. These climate change effects cascade into socio economic systems.*
- *It is very important to look at legislative action to prevent or reduce the impact on the commons which are intergeneration equity to be preserved as it was initially for future generations.*
- *The concept of Intergeneration equity has a central tenet that each generation of human beings has right to benefit from the cultural and natural inheritance from past generations and has the obligations to preserve such heritage for future generations.*

CLIMATE NEGOTIATION

- *The geographic distribution of such events make it apparent that climate change does not concern just a few countries or people but it is an environmental problem of global dimensions and hence requires global coordinated action.*
- *Industrialized countries that were mainly responsible for climate change are reluctant to take any action against Green house gases and there is no agreement on binding commitments apart from a modest target of stabilizing carbon emissions. This lukewarm response towards climate change is mainly due to American opposition to stronger action.*
- *Participating countries have conflicting objectives in mind.*
- *Developed and developing countries are not willing to sacrifice current income for environmental protection, since they anticipate no severe damages from climate change on their economies.*
- *Countries which are more vulnerable to climate change impacts have a keen self-interest in reaching an agreement and curbing emissions.*

Specific Legislative Barrier To An Equitable Solution

The House of representatives as well as the senate are in the process of enacting certain bills that would subvert any potential equitable broad reaching consensus and from that an actionable global scale policy enactments and commitments. Especially, the developing countries multilateral including BRIC cluster would seriously consider taking a defensive non cooperative portion at future negations, which could prove as an Achilles heel to a consensus.

The bills are further discussed for their implications upon enactment. Some of the bills are discussed for their implications.

H.R. 680
PROHIBITION: Notwithstanding any other provision of law, the president may not make contributions on behalf of the United States to the Intergovernmental Panel on Climate Change (IPCC) EFFECTIVE DATE: The prohibition contained in subsection (a) applies with respect to fiscal year 2012 and subsequent fiscal years.
The prohibitory nature of the bill towards commitments by the US president to any IPCC funding is an indirect means to control the finances of the UN organization which would be a way limit its ability to conduct exhaustive research. The largest benefactor of most UN,WB programs is Us government and this bill is specifically be brought in to plug the flow of money towards Climate Change research.

S.15: To prohibit the regulation of carbon dioxide emissions in the United States until China, India, and Russia implement similar reductions. Notwithstanding any other provision of law, the Administrator of Environmental Protection Agency or the head of any other Federal agency shall not regulate carbon dioxide emissions until the date on which the Secretary of Commerce certifies that each of the People's Republic of China, the republic of India, and Russia have initiated measures that requires carbon dioxide emission reductions that are subsequently similar to the carbon dioxide emission reductions proposed for the United States.
This bill goes one step further in the already defensive strategy that has been on display by many developed countries towards responsibility sharing for the Carbon remediation burden. Essentially the mechanism inherent in the proposed legislation creates a potential stale mate in terms of actionability on climate change.

The developing and developed world both are part of the problem as well as the solution. The question that remains is equitable distribution of the carbon burden. Contributions to the carbon reservoir have been on since man discovered fire as a source of energy, however as more and more countries move into the energy usage the cumulative total emissions increase exponentially. The Human development aspects of the problem are very obvious as the economic aspects of the problem. Decelerating growth in order to enable a due carbon remediation is out of the question for most developing countries who aim to drive people out of endemic poverty through job creation and infrastructure development all of which requires energy. We are also aware that renewable energy sources as fuels due to various reasons are not readily available to the end user and are not going to substitute fossil fuels in the near future. Given this scenario, there has to a relook at the very foundation of what would be the nature of the carbon burden sharing. Equitable would be a more apt word to describe the nature rather than as has been proposed in the bill as "substantially similar". The premise of expectant action from the BRIC countries as a precursor to US action as has been advocated is the crux of the stalemate problem. However the authors believe that certain modifications to the bill around the definition of the proposed burden sharing can prevent any legislative subversion of the entire carbon remediation action plan. Also, if examined the words" substantially similar" in literal terms do not mean in effect same rather they bring out equivalence in effort. This equivalence of effort that is expected can be construed as nothing but an equitable distribution of the remediation burden.

In the final bill examines the amendments to the clean air act specifically to ensure Green house gasses are not brought in under the Class of Pollutants.

S.482 "To amend the Clean Air Act to prohibit the administrator of the Environmental Protection Agency from promulgating any regulation concerning, taking action relating to, or taking into consideration the emission of a greenhouse gas to address climate change, and for other purposes."

The intent of this amendment is obvious when clause 8 is examined. Any potential Green house gas is brought under the category of non pollutant.
Dilemma in the definition. A Pollutant is any resource that is out of place in simple terms and that since it is out of place is bound to cause interferences to the system that is has been place within.

All green house gasses are in this category and we have seen the impact on climate change. The impact on environmental and social systems owing to climate change has now been well documented by the UN as well as other governmental and non governmental institutions.
This impact is in essence a cumulative impact with feedbacks strengthening further impacts as has been examined in the sections on Human induced climate change.
Hence this specific legislation is a means of indirectly preventing the seeking of legislative remedy by individuals in the future in the scenario of severe anthropogenic effects impacting health and livelihood of large populations in the United States.

S.228 Section 2: FINDINGS AND PURPOSES

1) The climate of the earth is dynamic and changes in climate are caused by a complex combination of factors.
2) Greenhouse gases are globally dispersed and any attempt by a country to reduce the greenhouse gas emissions of the country must be undertaken in coordination with the international community, including the developing world to have a significant impact.
3) Regulating the emission of greenhouse gases under federal regulatory mechanisms in existence as of date of enactment of this act is divorced from any intent expressed by the congress during the enactment of the authorizing statutes governing those mechanisms .
4) Any action to control emissions of greenhouse gases in United States would result in substantial impacts to major sectors of the economy of the United States and interstate commerce and should therefore be explicitly authorized and prescribed by congress
5) The consequences of poorly designed Federal or state regulation of green house gases:
a) are well documented
b) Consist of lower economic growth, reductions in new and existing employment and reduced economic competitiveness
The substantial impact to major sectors of the economy is not substantiated rather it has been used as a generalization to create a threat perception from any efforts to control emissions of GHGs.
The statement fails to speak about the technology cost reductions from implementation of more energy efficient systems, even if we assume a scenario of business as usual meaning non replacement of fossil fuels.
The legislators assume certain fixed eventualities in terms of economic losses wherein the economic system is as complex if not more than the climate system that they believe are not well understood or probabilities of impact risk quantified. However, even the error probabilities of climate impact risk models have begun to converge. IPCC TAR(2001) and Murphy et al(2004).

Section 4: REGULATION OF GREENHOUSE GASES

a) REGULATION, ACTION, AND CONSIDERATION FOR EFFECTS OTHER THAN CLIMATE CHANGE

1)Except as provided in paragraph (2), the president or the head of the federal department or agency may not promulgate regulations providing for the control of emissions of a greenhouse gas, enforce or implement any law enacted or promulgated as of the date of enactment of this act that provides for the control of emissions of a greenhouse gas, take action relating to or take into consideration the climate effects of emissions of a greenhouse gas, consider climate effects in implementing or enforcing any law or condition or deny any approval based on climate effects unless the law, regulation, action, or consideration is-

A) determined by the President or head of a federal department or agency, as applicable, after notice and opportunity for comment, to be necessary to protect the public health from imminent and substantial harm caused by direct human exposure to the relevant greenhouse gas in a concentration that is substantially greater than current and projected future average concentrations of that greenhouse gas in global atmosphere and
B) Based solely on effects other than effects relating to atmospheric concentrations of greenhouse gases including climate change.

Both A and B ensures that owing to the underlying logical impossibility of pin pointing cause effect relationships for GHG gasses and human health there would be no powers available with the US president to promulgate regulations providing for the control of emissions of a GHG or enforce any such provisions previously ratified by legislation.

RESULTS AND DISCUSSIONS

The definition of "Pollutant" by most government agencies follows from the central tenet of a substance that is out of place; hence it is in a environment wherein it may be of potential harm. The US EPA (1986) definition says" any solid, liquid or gaseous substance accumulated in the environment in such quantity or concentration which may be injurious to the environment, is called environmental pollutant". UK EPA (1990) defines "pollution" as the "release into any environmental medium from any process of substances which are capable of causing harm to organism or interference with the ecological system is called "environmental pollution". In the Indian Context the Supreme court of India in its judgement Andhra Pradesh Pollution Control Board v/s Prof. M.V. Nayundu (Retd) and others held that uncertainity of proof in respect of environment and its changing nature from time to time has lead to upheaval in environmental concepts during the period between Stockholm conference of 1972 and the Rio conference of 1992. In other words, inadequacies of science are the real basis that has lead to the precautionary principle of 1982. It is based on the theory that precaution is better than cure and on the side of caution prevents environmental harm which may indeed be irreversible. Thus in the lack of scientific knowledge, it has become inevitable to adopt the precautionary principle. The principles of precaution involve the anticipation of environmental harm and takes measures to avoid it. In terms choice that is to choose the least environmentally harmful activity. It is based on scientific uncertainity. The environmental protection should not only aim at protecting health, property and economic interest but also protect the environment for its own sake. Precautionary duties must not only be triggered by the suspicion of concrete danger but also by justified concern or risk potential. The Precautionary principle further leads to the special principle of "burden of proof" in environmental cases where burden as to the absence of injurious effect of the actions proposed is placed on those who want to change the status quo. This is often termed as the reversal of burden of proof, because otherwise in environmental cases, those opposing the change would be compelled to shoulder the evidentiary burden, a procedure which is not fair. It is necessary that the party attempting to preserve the status quo by maintaining a less-polluted state should not carry the burden of proof and the party, who wants to alter it, must bear this burden. There are three precarious aspects to the legislative direction.

Firstly, the US senate and House of Representatives proposed legislations are in the opinion of the authors against the essence of the burden of proof principle

Secondly the citing of complexity of the climate change phenomenon as a case for lack of substantial proof of the exactness and quantifiability of impact of human induced climate change must then be used in same measure to attach a lack of exactness and quantifiability of potential economic nemesis that the carbon remediation would create.

Thirdly, the lack of a effective legislation declaring carbon dioxide and other green house gasses as pollutants due to the lack of direct scientific health impact evidence on individuals from the large concentation of such gasses, as is been cited in the proposed legislations is utterly unscientific firstly and secondly without any legal basis as well. As a logical premise for a legislative primitive, there is a parallel that can be drawn between anti-smoking legislation and a proposed legislation for Carbon remediation. The impact of tobacco smoke on Passive smokers is an externality. Though the exact mechanism by means of which tobacco causes cancer in passive smokers has not been exhaustively quantified and qualified, the linkage has been scientifically proven to certain. The externality also has a cumulative dimension to it with increasing probability of carcinogenic impact certainty on the passive smoker. Though at present impact certainty is not quantified in exact terms and is probabilistic we have an anti-smoking legislation in most countries. This legislation is more so a measure to provide a umbrella of legal protection to passive smokers against misinformation and in action on clear scientific evidence against tobacco citing plausible deniability. The legal premise for law was that while smoking is an optional engagement, breathing was not. Hence the passive smoker has no option but to be involved and impacted. However though carbon dioxide ideally should be considered on similar lines, a pollutant this would be highly unrealistic and impracticable. This is especially so, given the carbon intensive technology dependency for energy that exists as of today and for the medium term of foreseeable future. Hence we need to go one step short of that declaration and work towards voluntary banning in certain specialized scenarios.

The provisions of the EPA Air Act that are proposed to be amended by the Legislative Bills discussed above should first of all be dismissed individually. Secondly the attempt to delink Green House Gasses from any Environmental Action ability of various federal, State and other agencies has to be viewed as an attempt to divorce future generations across the world from the rights to legislative remedy from anthropogenic effects of human induced climate change and hence a law needs to enacted specifically to prevent such subversives tactics of parties involved within and without the congress. Thirdly instead of coupling non US action as a precondition element for climate change action we need to work on more cooperative lines to accelerate technology transfer to the developing world, at the same time integrate the Human development index stabilization targets with GHG stabilization targets to create a more equitable carbon burden sharing and globally acceptable status quo as a precursor to actual action on the scale that would make a difference.