

# FREE-MARKET ENVIRONMENTALISM AND GLOBAL EMISSION TRADING: A WAY TO GENERATE GREENER WEALTH IN INDIA\*

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*Competitive Market theory suggests that all relevant cost of an 'activity' must be internalized. Further, according to Ronald Coase, in a system where 'transaction costs' are negligible and property rights are well defined, resources would be utilized in an economically efficient manner irrespective of the legal regime. Borrowing from these theories, this paper seeks to explore the possibility of reduction of emission in India under a regime which permits emission trading. In this paper it shall be specifically argued that emission trading, a mechanism based on free market principles, can prove to be a useful tool in ensuring compliance to pollution laws and reduction of emissions. Secondly, it shall be emphasized that such a trading mechanism can also be used to ensure equitable distribution of wealth and allocation of resources.*

## I. INTRODUCTION

Pollution control and environmental regulation are “*not ethical values pitted against economic values.*”<sup>1</sup> They are “*...thoroughly economic.*”<sup>2</sup> This article is geared towards determining what are the most cost efficient tools for environmental regulation and pollution in the Indian context. We seek to argue

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<sup>1</sup> LESTER C THURLOW, THE ZERO-SUM SOCIETY: DISTRIBUTION AND POSSIBILITIES FOR ECONOMIC CHANGE 105 (1980).

<sup>2</sup> *Id.*

that emission trading<sup>3</sup> regimes which establish property rights<sup>4</sup> in the use of environment, despite concerns raised by certain scholars, are a step forward.<sup>5</sup> The article develops an understanding of the concept of private property rights and establishes a link between the need to regulate the use of environment and the need to allocate property rights in environment. For this purpose, we rely on Competitive Market theory<sup>6</sup> which argues that all relevant cost of an 'activity' must be internalized and the fundamentals of liberal economic theory which suggests that in a system where property rights are well defined and secure, resources would be utilized in an economically efficient manner.<sup>7</sup>

Environmental Economists emphasize, that markets can be a panacea to a majority of environmental problems.<sup>8</sup> They argue that markets are usually

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<sup>3</sup> Emissions' trading is based on the creation of tradable entitlements (economic incentives) to emit a certain quantity of a pollutant. The concept, based on the privatization of previously publicly held rights, involves the assignment of quantified emission reduction targets or the allocation of allowances for a given period of time and aims at regulating the use of the atmosphere...creates the right to release a certain amount of GHGs (Greenhouse Gases) in the atmosphere. The right that is created through this action is of regulatory nature, and the market, a 'permit' market. Any economic value attached to GHG emissions arises from the right to transfer defined units, which represent the authorization to emit a certain quantity of GHGs. See David Freestone, *Legal Ownership and Nature of Allowances*, in LEGAL ASPECTS OF IMPLEMENTING THE KYOTO PROTOCOL MECHANISMS 37- 42 (2005).

<sup>4</sup> See ARMEN A. ALCHIAN, *ECONOMIC FORCES AT WORK* 130 (1977) (The author defines property rights as "...property right for me means some protection against other people's choosing against my will one of the uses of resources said to be 'mine'.").

<sup>5</sup> The basic idea of emissions trading (in CO<sub>2</sub> context) is that an allowance is needed for every amount of CO<sub>2</sub> that is emitted which is limited ('emissions ceiling'). The allowances are transferable between the polluters. If an enterprise cuts back its emissions, it can sell the surplus allowances. Higher emissions than are covered by the allowances are only permitted when extra allowances are bought. Thus a CO<sub>2</sub> permit market with sellers and buyers of CO<sub>2</sub> emissions develop; See also William Funk, *Free Market Environmentalism: Wonder Drug or Snake Oil?*, 15 HARV. J. L. PUB. POL'Y, 511, 516(1992).

<sup>6</sup> See MITCHELL A. POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* 88-90 (1989) (This theory suggests that over pricing or under pricing of goods is economically inefficient. Thus, if costs of manufacturing a product are not fully internalized then the good is under priced leading to over consumption of the product.).

<sup>7</sup> See Thomas J Miceli, *Property*, in THE ELGAR COMPANION TO LAW AND ECONOMICS 121 (Enrico Colombatto, ed., 2005) (The author while arguing that the concept of property is fundamental to both law and economics states, "the economic approach to property rights emphasizes its role in promoting efficient allocation of resources. Accomplishing this goal generally involves creation and protection of individual rights in property so as to encourage exchange and investment...").

<sup>8</sup> See John H. Dales, *POLLUTION, PROPERTY AND PRICES: AN ESSAY IN POLICYMAKING AND ECONOMICS* 111-115 (1968) (Dales' work can be said to be the starting point of literature discussing tradable permits. He argued that a market of tradable permits should be organized by the government wherein pollution rights would be granted for a certain period. Further, while discussing the role of the government dale suggests that the government would act as broker for the trade and would regulate the system.); See also David W. Montgomery, *Markets in Licenses and Efficient Pollution Control*, 5 J. ECON. THEORY, 395, 397-401 (1972) (the author stressed that the governments should endeavour to reach it policy goals by using incentive based instruments.); CHARLES L. SCHULTZE, *THE PUBLIC USE OF PRIVATE INTEREST* 32(1977).

more successful, as compared to command and control mechanisms, in controlling pollution and other related environmental problems.<sup>9</sup> For this purpose, it is essential to understand why or due to what incentives or lack of disincentives does pollution occur. Let us take for instance, the 'greenhouse effect', which is a result of a "global common".<sup>10</sup> The notion of atmosphere, being a common resource, free for all, does not provide incentives/disincentives to reduce one's emissions of carbon and take account of the change to the atmosphere caused by it. Hence, since the benefit of the activity accrues solely to the emitter whereas the cost of emission is imposed upon the whole world at large, there is no incentive for the emitter to reduce emissions.<sup>11</sup> Unlike traditional command and control measures, it is submitted that free-market environmentalists advocate the use of economic instruments as measures to regulate use of the environment and propose that direct legal constraints should not be imposed. Instead, measures should be imposed in such a manner that they confer advantages/incentives or disincentives on execution of certain activities.

Drawing from above, this article seeks to explore the possibility of reduction of emission in India under a regime which permits emission trading. It shall be specifically argued that emission trading, a mechanism based on free market principles, can prove to be a useful tool in ensuring compliance to pollution laws and reduction of emissions. Secondly, it shall be emphasized that such a trading mechanism can also be used to ensure equitable distribution of wealth and allocation of resources. However, on a note of caution it shall be emphasized that for a free-market mechanism to succeed there have to be proper regulatory measures in place. Part II of the article shall establish the need for allocation of property rights in use of environment. Building upon the arguments advanced in part II, part III will elucidate how emission trading can achieve maximum reduction in emissions at least possible cost. After having highlighted the cost effectiveness of markets in resolving environmental problems in parts II and III, part IV brings to light the susceptibility of economies of developing countries' to climate change and conducts an economic analysis of relevant provisions of existing international environment regulation conventions and Kyoto Protocol. Further, this part explores the prospects and opportunities that a global emission trading regime brings for India and discusses the possibility of ensuring equitable wealth distribution through emission trading. Consequently, we argue that a 'bottom-up' approach should be followed and the local governance systems *i.e.*, panchayats should be taken into fold. Lastly, part V shall seek to analyse the approach of the Indian Judiciary

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<sup>9</sup> *Id.*

<sup>10</sup> See SUSAN J. BUCK, THE GLOBAL COMMONS: AN INTRODUCTION 6 (1998) (The author defines 'commons' as resource domains wherein common pool resources are found. Further, developing upon the same concept, 'global commons' has been defined as "...very large resource domains that do not fall within the jurisdiction of any one country...").

<sup>11</sup> See Garrett Hardin, *The Tragedy of the Commons*, in THE EARTH SCAN READER IN ENVIRONMENTAL ECONOMICS 60, 62 (Anil Markandya & Juile Richardson eds., 1992) (While critiquing Adam Smith's 'invisible hand theory' the author using the examples establishes that individuals when acting to promote their interest may not always promote social welfare.)

towards environmental problems. It is urged that in a country where the governance system, including the Indian judiciary, suffers from numerous institutional inefficiencies and failures, the emission cap and trading system is definitely a step in the right direction. VI consists of a brief epilogue.

## II. THE NEED FOR PROPERTY RIGHTS IN ENVIRONMENT

Most environmental protection regimes around the world regulate pollution and emissions usually by imposing a fine upon the polluter or by making the act of pollution (exceeding the emission limit) a punishable crime.<sup>12</sup> These regulatory steps are rather restrictive in nature and often do not lead to optimal allocation of resources.<sup>13</sup> Further, such parochial measures fail to create an incentive for private parties to invest in research and development of environmentally efficient techniques. Also, these regulations fail to create an incentive for victims to sue polluters.<sup>14</sup>

To elucidate further, we may refer to the famous example of open pastures used by Garrett Hardin. Hardin stressed that in such a situation all the herdsmen would strive to keep and add as many cattle as possible without taking into consideration the cost imposed upon others due to such addition or keeping. Highlighting this tendency of man he said that eventually in the case of free commons ‘...ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.’<sup>15</sup>

It is an established fact that private property rights over a resource impliedly creates an incentive for the owner to protect his resources in the best possible manner.<sup>16</sup> Such regimes avert ‘tragedy of commons’<sup>17</sup> and ensure efficient resource allocation. Such regulations have been largely advocated and endorsed by economists who are of the view that such a regime would be to sustained growth and development.<sup>18</sup> It comes as no surprise then that economists have

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<sup>12</sup> The punishment ranges from payment of taxes to compensating the victims, or in some cases, even a jail sentence for the polluter. *See, eg.*, Water (Prevention of Pollution and Control) Act 1974, Air (Prevention of Pollution and Control) Act 1981, Environment Protection Act, 1986, Public Liability Insurance Act, 1991.

<sup>13</sup> Since often they fail to ensure reduction of emission at the least possible costs.

<sup>14</sup> After all any improvement of in the quality of the environment would be beneficial for everyone and hence, there would exist a strong incentive for victims to free ride on the efforts of other victims. Such a situation would lead to “*sub-optimal investment in...monitoring use and sanctioning rule breaking behavior.*” Elinor Ostrom, *Private and Common Property Rights* in *ENCYCLOPAEDIA OF LAW AND ECONOMICS* 332, 338 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) [hereinafter Ostrom]

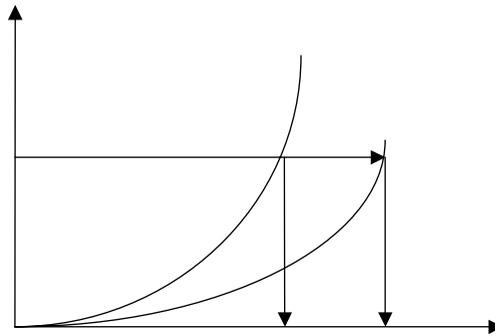
<sup>15</sup> *See* Hardin, *supra* note 11, at 64-65

<sup>16</sup> *See* RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 36 (5<sup>th</sup> ed., 1998).

<sup>17</sup> *See* Hardin, *supra* note 11.

<sup>18</sup> *See* Simon Johnson et al., *Property Rights and Finance*, 92 *AM. ECON. REV.* 1335 (2002) (Here, the authors highlight the importance of secure property rights taking post communist countries as examples.) *see also supra* note 7.

stressed that private property rights in resources are essential for growth and development of a nation over prolonged periods of time.<sup>19</sup> A well defined property rights regime ensures that all primary and incidental costs and benefits of an activity accrue exclusively to the owner of the right.<sup>20</sup> Traditionally, the environment/environmental resources were not perceived as something which could be owned. This may have been due to the fact that no one expected to extract any use out of the ownership of the environment. Also, technology levels did not ensure that the owner of such a resource could restrict the invasion of his resource. However, with the advent of the industrial age and the use of technologies and production processes, which used the environment as a 'sink', there has been call for a change.<sup>21</sup> Further, recent economic studies have indicated that pollution or environmental problems arise largely from lack or absence of property rights in the environment.<sup>22</sup> It is this lack of ownership in environmental resources which leads to inefficient resource allocation and socially undesirable outcomes. Thus, often there is over consumption of goods since the cost pollution is not internalized. For this purpose, we may refer to the figure below<sup>23</sup>



***Supply curve of a private property rights regime and a property regime with ill defined and weakly enforceable property rights***

<sup>19</sup> *Id.*

<sup>20</sup> H. Demstet, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 350 (1967) (The author stresses on the point that absence of a property rights regime may not result in internalization of all cost incurred by the society in the production of a good, in the price of that good produced.).

<sup>21</sup> *Id.* See also Richard Stroup, *Free-Market Environmentalism*, in THE CONCISE ENCYCLOPAEDIA OF ECONOMICS, available at [http://www.ecolib.org/library/Enc Environmentalism Free Mark et. htm](http://www.ecolib.org/library/Enc%20Environmentalism%20Free%20Market.htm) (The author puts forward several factors, like technological breakthroughs, changes in preferences etc, likely to lead to the evolution of property rights: "property rights tend to evolve as technology, preferences, and prices provide added incentives and new technical options. Early in American history, property rights in cattle seemed impossible to establish and enforce on the Great Plains. But the growing value of such rights led to the use of mounted cowboys to protect herds and, eventually, barbed wire to fence the range.").

<sup>22</sup> *Id.*

<sup>23</sup> See Graciela Chichilinsky, *Kyoto Protocol: Property Rights and Efficiency of Markets*, in INSTITUTIONS, SUSTAINABILITY AND NATURAL RESOURCES: INSTITUTIONS FOR SUSTAINABLE FOREST MANAGEMENT 144 (Shashi Kant and R. Albert Berry eds., 2005) [hereinafter Chichilinsky].

From this figure, it is evident that when property rights are not well defined, the supply curve of the resource is flatter.<sup>24</sup> Further from the above, it is implicit that weak property rights regime of developing countries as compared to strong private property rights regime in developed countries would result in over production and over consumption of resources.<sup>25</sup>

To complement this assertion numerous examples can be referred to. Studies have indicated that government controlled traditional command and control systems of environmental regulation often fail to regulate pollution. For instance, the failures of the environment protection regime of erstwhile Soviet Union and Eastern Europe, which came to light after breaking of the union and the introduction of *glasnost*.<sup>26</sup> Similarly, from the American experience of Love Canal Waste site<sup>27</sup> case it was revealed that often, in scenarios where a proper liability regime exists, government control of assets is an inferior alternative. It is conceded that mistakes can be made by any entity; however, a private entity would be more circumspect since it would be its wealth/interests which would be directly affected.

To elucidate further, since property rights in environmental resources are not defined, the polluter is not made to internalize the cost of activities upon others. Furthermore, there exists no incentive for victims to initiate actions against the polluter.<sup>28</sup> A corollary of the above would suggest that there exists a need to allocate well defined property rights in environmental resources.<sup>29</sup> A legal regime of such a nature would ensure the internalization of costs of his activities by the polluter as well as create an incentive for the victim to initiate an action against the polluter, in case of a threat to his/ her privately owned assets/ rights due to pollution; it would make the polluter take into account, the detrimental effect of his actions upon the victims.

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<sup>24</sup> *Id.* (With the aid of the figure above, the author demonstrates that the supply curve for a strong property rights regime is 'steeper' as compared to a ill defined or a weakly enforceable property rights regime. With the aid of the figure, the author shows that the "steeper curve is based on efficient supply behaviour in private property economies.")

<sup>25</sup> *Id.*

<sup>26</sup> See Jane S Shaw, and Richard L. Stroup, *Pollution in Eastern Europe: What Can Be Done About It?* 4 J. ECON. GROWTH 17, 20-21 (1990) (The author while discussing the functional inefficiency of command and control based mechanisms highlights that in 1990's press reports identified areas where brown haze hung in the air, where people's eyes routinely burned from chemical fumes and where drivers due to pollution had to use headlights in the day.)

<sup>27</sup> This site was designed and maintained by a private Company. However, the government took over the site and consequently there was a spill.

<sup>28</sup> See Hardin, *supra* note 11.

<sup>29</sup> When rights in the environment are defined and easily defended against invasion, all individuals or corporations, whether potential polluters or potential victims, have an incentive to avoid pollution problems.

For example, the right to fish for sport and commerce in England and Scotland is a privately owned and transferable right.<sup>30</sup> This setup provides an incentive to small anglers' clubs despite having modest means, to defend the streams from being polluted by moving the court in case of violation of fishing rights by polluters. Another example which can be referred to is of Seattle's Ravenna Park, an erstwhile privately owned park, containing magnificent Douglas firs, which was destroyed completely after its ownership was transferred to the local government. The local officials, having no personal property at stake, allowed the park to decline, resulting in its total deterioration by 1972, with the continuous theft of trees and other socially undesirable activities. Contrasted with this, thousands of wildlife habitats and scenic lands in the United States have been preserved by private individuals and groups none of which is owned by the government.<sup>31</sup> These entities' decision making is based on incentive based market mechanisms, thus, they do not suffer from the institutional inefficiencies of the government.

These examples clearly establish the fact that property rights in an identifiable entity can avert 'tragedy of commons'.<sup>32</sup> Thus, it is asserted in case of environmental resources, just like any other resource, for market based mechanisms and efficient resource allocation, it is essential for rights to be alienable, well defined with low costs of protection. Hence, pollution control regimes should be formulated in a manner which results in the creation of incentive to protect the environment.

### III. ENVIRONMENTALISM AND EMISSION TRADING

With the above principles and arguments as the background, this part shall explore the possibility of reduction of emissions by enforcing a global regime which enables emission trading. This part shall seek to establish that emission trading systems are efficient, in a trading systems having symmetric information, since they lead to reduction in emissions at *least possible costs*.

Majority of countries have refrained from introducing such mechanisms and those which have sought to introduce the same have been very cautious in their approach.<sup>33</sup> The authors in this part shall focus on examples of emission

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<sup>30</sup> Such a regime enables the right holders to sue/bargain with the polluters for the pollution caused.

<sup>31</sup> An estimated 748 trusts have been listed in the 1980 National Directory of Conservation Land Trusts (U.S.A).

<sup>32</sup> See Hardin, *supra* note 11; See Ankur Sood & Vardaan Ahluwalia, *Some Economic and Philosophical Considerations in Protection of Intellectual Property: A Perspective From India*, 1 NUJS L. REV. 69, 81 (2008) (The authors discuss instances, in context of intellectual property protection regimes, wherein too strong a property rights regime may result in counter socially undesirable outcomes.)

<sup>33</sup> In the case of emission trading, success stories usually come from the U.S.A, however, there are some European experiences as well. For further discussion on this see Michael G. Faure, *Environmental Regulation*, in ENCYCLOPAEDIA OF LAW AND ECONOMICS 443, 460 (Boudewijn Bouckaert and Gerrit De Geest eds., 2000).

trading carried out at a local level in United States and through these examples we seek to highlight that “[e]ven though emission trading regimes are a rather recent phenomenon, they have been extremely cost effective and successful.”<sup>34</sup>

A considerable reduction in the cost of pollution control, caused by a shift from traditional pollution regulatory measures to marketable permits has been projected by scholars.<sup>35</sup> To elucidate further, let us take for instance, a province wherein factories are required to reduce emissions by 10 tonnes each to meet the statutory limit. Further, suppose that there exist two kinds of factories in the province, namely, Paper products and Brewery. Keeping all other factors constant, let us also presume that the cost of reduction of emission for paper products factory 4\$ and the cost of reduction of emission for the brewery is 600\$. As provided in the table below<sup>36</sup>-

Factory	Cost of Reduction of emission/tonbe	Amount to reduced	Total Costs
Paper product	\$ 4	10	40
Brewery	\$600	10	6000

Under the traditionalist approach, which does not permit emission trading, each factory would be forced to cut down on emissions individually which in this case would costs 6040\$.

<sup>34</sup> See Chichilinsky *supra* note 23, at 150; It is estimated that in up through 1984 the EPA (U.S.A) alone saved an estimated \$300 million compared to what would have been spent to comply under traditional pollution controls. Hahn and Hester (1989) claim that the trading programmes concerning the Clean Air Act have led to considerable cost savings, albeit it that they had been less than anticipated.

<sup>35</sup> See THOMAS TIETENBERG, EMISSIONS TRADING: AN EXERCISE IN REFORMING POLLUTION POLICY 16-29 (1985) (The author argues that adoption of emission trading mechanisms may reduce costs of emission reduction considerably.); WALLACE.E. OATES, THE RFF READER IN ENVIRONMENTAL AND RESOURCE MANAGEMENT 64-69(1999) (The author complementing Tietenberg argues that a switch from command and control mechanisms may result in reduction of costs by atleast a third); See also Robert W Crandall, *Pollution Controls*, in THE CONCISE ENCYCLOPAEDIA OF ECONOMICS, available at <http://www.ecolib.org/library/Enc/Pollutioncontrol.htm> (The author highlights that Clean Air Act’s emission trading provision may reduce 50% of sulfur emissions while saving at least 4\$Billion per year, as compared to the command and control approach).

<sup>36</sup> The figures in this example are not imaginary. They are based on a study conducted in St.Louis (America) on the Paper products factories and Breweries wherein the study revealed that the traditional environmental regulation often imposes an unnecessary social cost on the society. The study highlighted that even though the Clean Air Act imposed a certain emission limit upon all factories, since it permitted emission trading, the cost of reduction of emissions was reduced considerably. Nonetheless, we may add here the fact whether the figures are imaginary or not is inconsequential for purposes of this study.

However, if in this scenario emission trading is permitted, the Brewery can bargain with the Paper products factory and can persuade the paper factory to reduce its emissions by 20 tonnes so that the Brewery can continue to operate without cutting down on emissions. Thus, the same amount of emissions can be reduced at 80\$, creating a surplus of 5960\$.

Factory	Cost of Reduction of emission/ton	Tonnes Reduced	Total Costs
Paper Product	\$4	20	80
Brewery	\$600	0	0

The above example makes apparent the fact, that emission trading system is a more desirable option for environmental regulation. Another example highlighting cost effectiveness of emission trading regimes could be the General Electric case, wherein in 1981 the company had three months to comply with the statutory limit of emission in the State of Kentucky. For this purpose, GE bargained with International Harvester and used the surplus emissions credits which International Harvester had earned. In the tradeoff, a surplus of 1.8 million\$ was generated and International Harvester earned 60,000\$ for their environmentally friendly efforts.<sup>37</sup>

#### IV. GLOBAL EMISSION MARKETS AND KYOTO PROTOCOL: A STEP FORWARD?

According to economists, there exists a direct positive relationship between CO<sub>2</sub> emissions of a country and its level of industrialization.<sup>38</sup> A direct and positive relationship between the degree of industrialization of a nation and the consequent G.D.P generated in an economy can also be inferred.<sup>39</sup> For empirical evidence refer to the table below<sup>40</sup>

Category	Cumulative Co2 emissions	Current CO2	Population	GDP
Developed	70%	60%	24.5%	68.5%
Developing	30%	40%	74.5%	31.5%

<sup>37</sup> See For further discussion on experiences of other countries Wallace E. Oates, Market Incentives for Environmental Protection: A Survey of Some Recent Developments, in PRICES, COMPETITION AND EQUILIBRIUM 251, 251-267 (M. Peston & R. Quandt, eds., 1986).

<sup>38</sup> See Chichilinsky *supra* note 23, at 144.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

From the table it is implicit that at present technology levels, if the emissions made by a country are reduced then such a step would have a detrimental impact upon the G.D.P of that country and would reduce the growth rate of an economy.<sup>41</sup> However, studies have indicated that the economies of underdeveloped and developing countries will be worst hit by climate change because substantial amount of their economy is under agriculture; a practice which is extremely sensitive to climate changes.<sup>42</sup> It is emphasized that if traditional methods of pollution control are not done away with, the cost of emission reduction will be prohibitive; which may unnecessarily retard the growth process in these countries.<sup>43</sup> Hence, the need to ensure emission reduction at the lowest possible cost becomes imperative.

Drawing from above, we suggest that the Kyoto Protocol<sup>44</sup> and the creation of global emission trading markets is a step in the right direction. The protocol should be viewed as an international instrument which seeks to limit the right to emit greenhouse gases.<sup>45</sup> As discussed in part I, property rights emerge as a consequence of advancement in the field of technology and evolution of human society.<sup>46</sup> Similarly, in our view the protocol, which seeks to allocate property rights in the use of environment as a resource and regulate practices which use of environment as a 'sink', is a sign of change in technology levels and the evolution<sup>47</sup> of human society. Furthermore, since protocol while allocating rights establishes an emission trading market, it should be viewed as nothing but an attempt by the

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<sup>41</sup> *Id.* ("The data in Table clearly indicates...direct positive relation between CO2 emissions and GDP...". See also Satvik Verma, *Carbon Trading Impacting Business Climate*, ECONOMIC TIMES, Nov. 30, 2007, available at [http://economictimes.indiatimes.com/News/Economy/Carbon\\_Trading\\_impacting\\_climate\\_/articleshow/2583129.cms](http://economictimes.indiatimes.com/News/Economy/Carbon_Trading_impacting_climate_/articleshow/2583129.cms)

<sup>42</sup> See, e.g., Cynthia Rosenzweig & Daniel Hille, *Potential impacts of climate change*, 1 CONSEQUENCES (1995), at <http://www.gcrio.org/consequences?summer95/agriculture.html> (last visited Mar. 1, 2008); CTV.ca News Staff, *Poor Most Vulnerable to Climate Change*, Nov. 27, 2007, at [http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071127/climate\\_change\\_071127/20071127?hub=TopStories](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071127/climate_change_071127/20071127?hub=TopStories) (last visited Mar. 30, 2008)

<sup>43</sup> See Chichilinsky *supra* note 23, at 144.

<sup>44</sup> This instrument is a protocol to the United Nations Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849 [hereinafter UNFCCC]. The Kyoto Protocol was agreed on 11<sup>th</sup> December, 1997 at the 3<sup>rd</sup> Conference of the Parties to the treaty at Kyoto.

<sup>45</sup> The Protocol establishes a legally binding obligation on individual nations who are allocated differentiated targets, ranging from an eight percent reduction for the European Union to a ten percent increase for Iceland, to achieve the collective target of greenhouse gas reduction by at least 5.2 percent of 1990 levels by the first commitment period (2008-2012); The differentiated obligations or quantified emissions limitation and reduction commitments (QELRCs) can be expressed as a quantity of permissible emissions or assigned amounts (AAs). See Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, arts. 3(1), 3(7), 37 I.L.M. 22, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf> [hereinafter Kyoto Protocol].

<sup>46</sup> See Boudewijn Bouckaert, *Original Assignment of Private Property*, in ENCYCLOPAEDIA OF LAW AND ECONOMICS 2 (Boudewijn Bouckaert and Gerrit De Geest eds., 2000) (Property rights, as argued by the authors, are a result of a shift from an institution less and rule less open society to an ordered and complex system concerned about administrative, policing and adjudicative institutions system of rights etc).

<sup>47</sup> By the term 'evolution' we imply a change in preferences of the society.

global community to reduce emissions at least possible costs.<sup>48</sup> Taking into account the equity considerations, the protocol rightly provides more emission rights to developing nations since it imposes restrictions on the developed nations. The protocol recognizes Clean Development Mechanism (CDM)<sup>49</sup> as the mechanism related to developing countries and the main objective is to help Annex I countries to meet their quantified emission reductions obligations at lower cost while helping Non-Annex I countries in achieving sustainable development.<sup>50</sup>

India is believed to be a major beneficiary of the mechanism and is slated to capture between 20 and 30 per cent of the CDM market.<sup>51</sup> India is already one of the global market leaders having already generated 29 million carbon credits and has another 139 million in the pipeline for sale; prices are hovering between 15-17.5 euros per certificate currently, with a Deutsche Bank report suggesting that prices of the certificates could go up to 35 euros by 2012.<sup>52</sup> 599 projects were approved by National CDM Authority by mid-April, 2007, among which a majority was in the renewable energy (RE) sector.<sup>53</sup> The greatest potential for CDM lies in the areas of renewable energy (RE) enhanced industrial efficiency and industrial processes, fuel switching, and municipal solid waste (MSW). "India's pre-eminent position in the CDM market is due to many favourable enabling factors such as good technical base, and proactive National Authority approving projects for submission to the UNFCCC Executive Board in a time-bound manner and ensuring the contribution of CDM activities to sustainable development priorities in India".<sup>54</sup>

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<sup>48</sup> The Kyoto protocol defines three instruments by which developed countries listed in Annex I of the UNFCCC Convention (Annex I countries) can obtain part of their greenhouse gas (GHG) emission reduction from non domestic sources: emissions trading (Article 17), joint implementation (Article 6) and the clean development mechanism (CDM) (Article 12); these are to help promote the implementation of the quantitative commitments of the developed countries and the more qualitative commitments of the developing countries.

<sup>49</sup> The incentive to invest in CDM project activities comes from the opportunity of crediting emission reductions from projects in developing countries, in the form of certified emission reductions (CERs) which may be used by the developed countries in meeting their emissions targets under the protocol. For further discussion See Chichilinsky *supra* note 23 at 151-152 (wherein the authors while stressing upon the benefits of Kyoto based carbon reduction mechanisms states "...the main benefits that can be expected from the project-based Kyoto mechanisms are, on the one hand, that they potentially reduce industrialized countries' costs of meeting the Kyoto Protocol targets, whereas, on the other hand, they are to support the host countries objectives regarding sustainable development.").

<sup>50</sup> Kyoto Protocol, *supra* note 4, art.12(2).

<sup>51</sup> Joseph B. Gonsalves, *An Assessment of Projects on the Clean development Mechanism (CDM) in India* (2006), at [http://www.unctad.org/en/docs/ditcted20065\\_en.pdf](http://www.unctad.org/en/docs/ditcted20065_en.pdf).

<sup>52</sup> *India's carbon credit market set to take off*, THE TIMES OF INDIA, Nov.14, 2007, available at <http://timesofindia.indiatimes.com/article/show/2539072.cms>.

<sup>53</sup> Environmental pro, <http://environpro.blogspot.com> (Jun. 26, 2007, 1:05AM IST),

<sup>54</sup> See Gonsalves *supra* note 51.

As said earlier, the sustainable development priorities of CDM projects, along with projected GHG emissions, are important to be ascertained before setting them up in developing countries. The eligibility criteria of CDM projects in India also includes sustainable development indicators<sup>55</sup>, to enable an alignment of priorities of CDM projects with the development priorities here, so that the benefits reaped from such projects can contribute in inducing greater distribution of wealth and well being of people.

Further, it is submitted traditional environmental control mechanisms and even pollution taxes would not be effective tools in India due to corruption.<sup>56</sup> Therefore, it is suggested that introduction of innovative strategies which limit the role of governance bodies would be an attractive alternative. Introducing incentive based mechanisms and involving more and more local and grass root level organizations can ensure that the proceeds and direct/ indirect benefits from emission trading and consequent CDM projects would reach the people who matter. Hence, the established rural decentralized form of government, such as Panchayats, can serve as the necessary institution for linking the common man with the carbon market<sup>57</sup>; it would ensure the benefits of such projects reach

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<sup>55</sup> The sustainable development priorities of developing countries had been tried to be broadly ascertained by the Commission of Sustainable Development in its 11<sup>th</sup> and 13<sup>th</sup> sessions, which encouraged work on indicators of sustainable development by countries in consonance with their specific needs and priorities. The revised set of indicators after two earlier versions, was finalized in 2006, with the guidelines being implicitly divided in four categories (social, economic, environmental, institutional), and broadly containing 96 indicators, and 50 core indicators; they are available as reference for all countries to develop their respective national indicators. See DEPARTMENT OF ECONOMIC & SOCIAL AFFAIRS OF THE UNITED NATIONS, INDICATORS OF SUSTAINABLE DEVELOPMENT: GUIDELINES AND METHODOLOGIES (3<sup>rd</sup> ed., 2007), available at <http://www.un.org/esa/sustdev/natlinfo/indicators/guidelines.pdf>.

<sup>56</sup> According to Transparency International statistics, the amount of money lost in bribery and corruption in government procurement and related activities costs the Indian taxpayer a whopping \$7,000 million. Tax compliance in India is only 32%, with India ranking 73<sup>rd</sup> in the corruption perceptions index thus showing the level of inefficiency among the officials in providing monetary benefits to common people (Transparency International corruption perception index 2007). Firms seek to evade the regulations imposed on them by bribing government officials; the institutions necessary to monitor and enforce compliance are weak which makes corruption more pervasive, and the compliance regulations low.

<sup>57</sup> A World Bank development policy's report, 2006 highlighted the problems of service delivery in the country, to the people, especially to those below the poverty line; it reflected on advantages of decentralization and the role of Panchayati Raj Institutions in the delivery of services by providing them with proper administrative support for improving the quality of service delivery. See *Roadmap for efficient service delivery*, THE HINDU BUSINESS LINE, Sep. 4, 2006, available at <http://www.thehindubusinessline.com/2006/09/04/stories/2006090401300900.htm>

directly to people.<sup>58</sup> “Development must address human needs directly, and institutions of direct democracy, such as, panchayats can be rooted in processes that are socially inclusive and responsive to changing circumstances”.<sup>59</sup>

The process of environment protection is intangible to individuals at a personal level; yet, they can play a vital role in effective reduction of emissions.<sup>60</sup> It is, in this regard, submitted that substantial benefits can be reaped by people if personal and public participation could be ensured in the CDM projects. With such a decentralized and regulated setup in place, perhaps, people to people or personal carbon trading, i.e. local community trading of carbon<sup>61</sup> can be introduced

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<sup>58</sup> For example, *Van Panchayats* is a democratically elected village level institution set up in Uttaranchal state for the management of forests (locally elected bodies or voluntary groups of local people that govern the local forests). Directly involving it in the carbon credit process can provide a new avenue for sustainable development of the region. Carbon offset projects can also increase local communities’ access to forest goods and services, and expand income; earned revenue through carbon credits could be invested in development of alternative energy sources in the region, sustainable agriculture etc. Community forestry by Van Panchayats can provide a good opportunity for integrating carbon trading, local institutions, ensure people’s participation and environmental improvement, and this example can be followed in other parts also. Non Governmental Organizations need to be involved in keeping these institutions active by bringing the local communities to the centre stage of decision making, and ensuring a credible system in place. See MK Gupta, *Promoting Self Sufficiency Through Carbon Credits From Conservation and Management of Forests* (2007), available at [https://maplib.clarku.edu/departments/idce/docs/Gupta\\_\\_2007.pdf](https://maplib.clarku.edu/departments/idce/docs/Gupta__2007.pdf).

<sup>59</sup> As stated in a World Bank Report, 2000, cited in *Panchayati Raj Institutions: Improving Self-governance through ICT*, available at <http://www.egyankosh.ac.in/bitstream/123456789/8110/1/Unit-7.pdf> (last visited on Feb. 17, 2008).

<sup>60</sup> Matthew Taylor et al, *Responsible Profit: Climate Change and Green Economy*, Global Policy Innovations’ Third Workshop for Ethics in Business, New York City, Nov. 2, 2007 organised by Carnegie Council & the Royal Society for the encouragement of Arts Manufactures & Commerce (Rapporteur’s Summary prepared by Christina L. Madden, 2007), available at [http://www.cceia.org/resourcews/articles\\_papers\\_reports/0001.html](http://www.cceia.org/resourcews/articles_papers_reports/0001.html).

<sup>61</sup> “People-to-people” carbon trading involves the idea of ‘polluters’ directly paying those who are actually reducing carbon dioxide emissions. This trading is based on the concept that citizens should be allocated with an equal ‘carbon allowance’ as part of a ‘cap and trade’ scheme designed to control carbon emissions. These carbon allowances would be issued at no cost to individuals with a dependable system of verifying carbon reduction in place. People using less than their share could sell the surplus to people or businesses using more than their allotted share, via a market. In this way, it would provide an incentive for every individual to take steps to reduce their ‘personal emissions’. The idea can enhance quality of life by stimulating a low carbon economy which would bring about positive social and economic changes and meet the sustainable development criteria of the country. See also Royal Society for the encouragement of Arts Manufactures & Commerce (RSA), *Exploring Personal Carbon Trading* (Sep. 2007), available at <http://www.rsacarbonlimited.org/aboutcarbonlimited/whatispersonalcarbontrading/default.aspa>. See also atherine Bottril, *Personal Carbon Trading: Excluding Public Transportation* (UK Energy Research Center Working Paper No. UKERC/WP/DR/2006/007, Dec. 2006) available at <http://www.eci.ox.ac.uk/research/energy/downloads/pct/pct-transport.pdf> (last visited on 17<sup>th</sup> February, 2008)

to bolster the effectiveness of CDM in India.<sup>62</sup> The projects can involve participation of rural, indigenous communities, enabling them to have a say in the carbon reduction process and get the benefits of their efforts directly. For this, community based forest management systems (CBFMS) are a viable option which seem to reduce resource degradation while improving rural livelihoods.<sup>63</sup> One successful example can be taken of a tribal hamlet in Andhra Pradesh's Adilabad district, where a women's self help group (SHG) earned Rs. 29, 000 by selling 147 tons of verified carbon dioxide reductions (4500 pongamia trees planted by them would yield 51 tonnes of pongamia oil substituting for petroleum diesel over 10 years) directly to the World Bank. Another example can be taken of the Handia forest range of Madhya Pradesh where on succession of the project, 95 villages can earn at least \$300,000 a year from carbon payments by restoring 24,700 acre of degraded community forests.<sup>64</sup> Our view is that a successful replication in other parts of the country can be achieved with a dependable system for verifying carbon reduction, forming community based forest management institutions and involvement of NGOs in the process.

However, it is also pertinent to point out that at this moment the Kyoto Protocol and its provisions are far from perfect<sup>65</sup> and needs to be amended adequately to accommodate varied interests of different nations. Further, there is a need for the establishment of a global emission regulation body to ensure that prevention of mal practices.<sup>66</sup>

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<sup>62</sup> See Aniket Alam, 'Break the Kyoto deadlock', THE HINDU, Jun. 27, 2004, available at <http://www.thehindu.com/thehindu/mag/2004/06/27/stories/2004062700240400.htm>.

<sup>63</sup> In the forestry sector, afforestation and reforestation are the only eligible project activities under the CDM, but community based forest management systems (CBFMS) is becoming popular as a method to reduce GHG emissions; it involves both commitment of people to the conservation and management of resources as well as decentralization of power to the locals, achieving the objectives of social, economic and environmental benefits and defined property rights. See Tek Narayan Maraseni et al., 'Community Based Forest Management Systems in developing countries and eligibility for CDM', available at [http://eprints.usq.edu.au/568/1/Livelihood\\_Paper-Final.pdf](http://eprints.usq.edu.au/568/1/Livelihood_Paper-Final.pdf) (last visited Feb.10, 2008)

<sup>64</sup> Nandini Vaish, 'Greener side of carbon', INDIA TODAY, Nov.7, 2007, available at <http://indiatoday.digitaltoday.in/the-greener-side-of-carbon-152.html>.

<sup>65</sup> For instance, there is controversy surrounding the differentiated emission trading caps for different countries and the underestimated collective target of 5.2% reduction; also, monitoring and reporting is complex and expensive; there is disagreement over the specific land use change to count as carbon sink and scientific uncertainty about the exact removal of carbon by carbon sinks; the main source of LULUCF (land use, land use change, and forestry activities) emissions, deforestation in developing countries, is not covered. Forest preservation activities are also excluded from the CDM agenda. Another flaw is that LULUCF activities that are not implemented as projects (dispersed, individual actions of land users and beneficial policy changes) are excluded under Articles 6 and 12.

<sup>66</sup> See generally Robert Hahn & Gordon Hester, *Where did all the Markets Go?: An Analysis of EPA's Emissions Trading Program*, 16 YALE J. ON REG. 109 (1989); Robert Hahn & Gordon Hester, *Marketable Permits: Lessons for theory and practice*, 16 ECOLOGY L. Q. (1989) (Hahn and Hester pointed at the importance of monitoring and enforcement in the framework of a market for pollution rights).

## V. THE FUNDAMENTAL RIGHT TO ENVIRONMENT AND EMISSION TRADING: A CALL FOR GREATER CLARITY

As is evident from the above, emission trading, if regulated properly, can be an effective tool to curb and contain emission of green house gases at the lowest possible costs. However, in light of recent development of environmental jurisprudence by the Indian higher judiciary, we believe it is imperative to discuss the implications the same. This part seeks to consolidate the argument that state command and control mechanisms are an inferior alternative to market mechanisms.

In the last two decades, the Supreme Court of India through a catena of cases created and legitimized the fundamental right to environment.<sup>67</sup> Acting as the savior of the citizens, the court justified the creation an inalienable right to environment. However, an economic analysis of the international principles sought to be implemented by the courts would highlight that they definitely do not result in efficient resource allocation. For instance, “polluter pays” and “absolute liability” principles if interpreted literally would imply that a firm would in all cases be forced to compensate for environmental harm, irrespective of the contributory behaviour of the victim and the costs associated with precautionary measures.<sup>68</sup> And therefore, most obviously the *polluter pays* principle has earned a reputation as “nothing but an empty shell which offers little help at the policy level”.<sup>69</sup> Similar efficiency concerns may arise in the case of ‘precautionary principle’ since often these principles impose restrictions upon the society without knowing the actual costs on the society.<sup>70</sup> These informational problems are further magnified in India due to the so-called justified ‘activism’ of the courts.<sup>71</sup>

<sup>67</sup> See *M.C Mehta v. Union of India*, (1987) 1 S.C.C. 395; *Vellore Citizens v. Union of India* AIR 1996 SC 2715; *B.L.Wadhwa v. Union of India* AIR 1996 SC 2969; *Indian Council for Enviro Legal Action v. Union of India* AIR 1996 SC 1446; *M.C Mehta v. Kamal Nath* (1997) 1 SCC 388; *T.N. Godavarman Thirumulpad v. Union of India* AIR 1997 SC 1228; *T. N. Godavarman Thirumulpad v Union of India* AIR 1999 SC 97; See also Shubhankar Dam, *Lawmaking Beyond Lawmakers: Understanding the Little Right and the Great Wrong*, 13 TUL. J. INT’L COMP. L. 109, 109-140 (2005)[hereinafter Dam, *Law Making Beyond Law Makers*].

<sup>68</sup> Since the firm is absolutely liable the victims would have no incentive to take precautionary measures, which in turn would lead to sub optimal outcomes. Economics analysis of the law of nuisance suggests that for socially optimal outcomes, both polluters and victims should be made to internalise the cost of their actions. For a brief discussion on this issue see Steven Shavell, *Economic Analysis Of Property Law*, at 16 (Harvard Law School Discussion Paper No. 399, 2002), available at [http://www.law.harvard.edu/programs/olin\\_center/papers/399\\_shavell.php](http://www.law.harvard.edu/programs/olin_center/papers/399_shavell.php).

<sup>69</sup> Michael G. Faure, *Environmental Regulation*, in *ENCYCLOPEDIA OF LAW & ECONOMICS* 455(Boudewijn Bouckaert and Gerrit De Geest eds., 2000).

<sup>70</sup> Anthony I. Ogus, *Quality Control for European Regulation*, 2 MAASTRICHT J. EUR. COMP. L. 325, 335. (1995) (Ogus suggests that such a regime, in case of insufficient information, may force regulators like Pollution Control Boards to issue regulation without even knowing for certain the benefits of such regulations.)

<sup>71</sup> However, we do not intend to delve into cost-benefit analysis of judicial activism in this article. For further discussion on this issue See RICHARD POSNER *ECONOMIC ANALYSIS OF LAW* 678-680 (5<sup>th</sup>ed.,1998); For India specific discussion see generally Vardaan Ahluwalia, *A Law and Economic Understanding of Judicial Activism*, 1 JUR. REV 37 (2008)

Some relying upon the right to environment, yet, may choose to argue that since the right to environment is inalienable, any trading or transfer of obligations or privileges in the environment is not permissible. A plain look at the nature of rights in part III would suggest that emission trading is not permissible since rights in part III are not alienable. Nonetheless, it is argued that such an argument would not stand since on application of ‘balancing theory’ to this situation, it becomes amply clear that when rights<sup>72</sup> guaranteed by the constitution conflict, then “the remedy is not precedence of one over the other, but rather harmonious construction of both.”<sup>73</sup> This theory has been applied by the courts in resolving cases regarding environment.<sup>74</sup> In *T.N.Godavarman v. Union of India*, the court observed

*“[N]o development is possible without some adverse effect on the ecology and environment, and the projects of public utility cannot be abandoned and it is necessary to adjust the interest of the people as well as maintain the environment.”*<sup>75</sup>

Notwithstanding the above stated, we concede that constitutional protection of the right to environment creates a sense of ambiguity regarding the constitutionality of emission trading.

Hence, in this part what we have sought to emphasize is that constitutional protection of right to environment by reading it into Part III of the constitution, creates a potential area of conflict and hence, requires that a balanced approach be adopted towards the issue.

## VI. EPILOGUE

Often it is argued that since the long term effects of pollution and phenomenon such as global warming cannot be known, emission trading should not be permitted. True as it stands, it is also true that the problem of asymmetrical information is also present when any other tool of regulation is used. Further, with introduction of incentive based monitoring mechanisms, the society would be better off in the longer run since strong property rights regime would increase the probability of technological advancement. Hence, just like democracy is the least dangerous form of government, in our view, emission trading in green house gases

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<sup>72</sup> The rights in this situation would be the right to trade and right to environment.

<sup>73</sup> See Shubhankar Dam, *Remedying a Technological Challenge: Individuals Privacy and Market Efficiency; Issues and Perspectives on the Law Relating to Data Protection*, 15 ALB. L. J. SCI. & TECH. 338, 365 (2005).

<sup>74</sup> *Id.*

<sup>75</sup> *T.N.Godavarman Thriumalpad v. Union of India*, 2002 S.O.L. Case No.556, at para. 38 (K.M. Chinappa J.). See also Dam, *Law Making Beyond Law Makers*, *supra* note 67.

accompanied with compulsory insurance policies<sup>76</sup>, if properly regulated, has the potential to equitably resolve numerous problems that plague our environment.

It is true that there are numerous hurdles which need to be overcome, before the Kyoto Protocol is fully implemented. Moreover, we have pointed out that Kyoto may not actually be the answer to numerous problems posed by global warming. However, in this article, after studying certain examples, we argue that emission trading may ensure cutting down on emissions at the lowest possible costs. This is of extreme importance to developing countries since any reduction in emissions may have detrimental effect upon their growth rate.

Hence, any regime which seeks to deal with the issue should seek to create and legitimize markets for emission trading and other related incentive based environment regulation mechanisms. Also, the regime, like any other regulatory authority should establish a governmental authority which can monitor and supervise the trading in the market.

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<sup>76</sup> Such measures would ensure that victims are always compensated.

