

Commentary on the evolution environmental sciences essay



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Introduction

Corporations throughout the world are changing their outlook towards business. Sustainability as a concept has gained much importance among business concerns. Apart from the social and economic dimensions, the concept encompasses environmental responsibility and responsible management of resource use. The Brundtland Commission Report defines sustainable development as " Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (HLPGS, 2010). An alternative definition of sustainability can also be viewed from an angle that does not consider environmental issues at all. But, the previous definition despite being subject to lot of criticisms has brought in a new dimension. The term sustainability has assumed a newer, higher and more comprehensive definition in view of the rising threats of climatic hazards which is a necessary outcome of economic and industrial development. The whole scenario has since then changed altogether and has become more complicated but expanded in meaning and scope. It has given boost to the idea for newer philosophy too. The whole gamut of our development process has now been looked at from a different perspective. Sustainable issues have not only surfaced in the development debates, but the business sector has also started playing a proactive role by incorporating such issues in their core strategies. To the business enterprises, the expanded idea of sustainable development implies adopting business strategies that not only suffice the needs of the enterprise and its internal activities, relationship with stakeholders etc. in the present period, but also

takes into consideration imminent concerns about protecting, sustaining and enhancing human and natural resources that will be needed in the future. In normal business parlance, sustainability refers to the core ability of the enterprise to attain a position that would not dwindle and be short lived, instead would last for a considerable longer time unaltered. India has been experiencing higher GDP growth until very recently the economy faced dampened growth due to severe economic crisis. With the development of the sectors such as retail, telecom, transport, infrastructure and others, the sustainability issues also become very prominent. Environment degradation with climate change in particular has already begun to share a huge space in the sustainability debates as has been mentioned earlier. Innovating new methods of green technology, reducing carbon footprint and other related efforts are being taken up by the companies to lessen the carbon dioxide emissions as compared to the business-as-usual scenario. Business being the greatest change agents, if they actively participate in the process of climate change management processes, there could be a better synergy expected between the doctrine of sustainability and economic growth. In this paper, we try to offer a review of the climate change management scenario in India and the emerging perspective for market based voluntary instruments to engineer the changes needed to attain sustainability. The first section of the paper deals with the efforts and instruments which are mostly used by the governments and policy makers to deal with the climate change challenges. We term these measures as non-market in nature as they their functioning is not based on market signals. The recent years have witnessed the growth of market based voluntary instruments in the form of sustainability indices which have been designed in such a manner so that the corporate sector

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voluntarily accepts sustainability issues and thereby brings a sea change in the paradigm of climate change management in India. In several cases we provide international instances to strengthen the arguments.

Regulatory Framework for Climate Change Management in India

In India, handling climate change challenges started mainly with the use of non-market approaches. This regulatory framework, though successful in increasing environmental compliance, had certain limitations. In course of time, a more expansive and comprehensive portfolio of market based instruments has emerged as a better alternative in achieving sustainability. Businesses all over the world are trying to find out new ways to reduce GHG emissions and go much beyond this law-enforcing domain. Adhering to this, the different types of policies and instruments are discussed below.

What are Non-Market Approaches?

Non-market approaches are those whose functioning is not dependent on market signals and they mostly depend on the use of command and control (CAC) measures in their functioning. The non-market instruments used for climate change management are laws, legislations and standards. Although this CAC policy tools seek to correct the problems associated with market failure, in most of the cases they are found to be inadequate to incentivize the process of protection and change. The different types of approaches are discussed below.

Legislations and Regulatory Policies in India

The earlier tools used for climate change management in India has been mostly in the form of legal instruments consisting of legislations, regulatory policies and standards. As mentioned before, these non-market approaches usually place heavy reliance on the command and control measures imposed by the government. The regulatory efforts in India had started with implementation of the Environment Protection Act, 1986 (EPA). It is the umbrella legislation extending to the whole of India and was passed in the aftermath of the Bhopal Gas Tragedy. It is a short and comprehensive act, consisting of 26 sections with the main objective of providing environmental protection and improvement of the environment as a whole. It defines the role of central and state government in protecting and improving the quality of the environment. It has designated the Central Government to issue notifications (Official Gazette) in the matters related to air, water or soil quality; maximum allowable limits of concentration of various environmental pollutants, procedures and safeguards for handling of hazardous substances, prevention of accidents which may cause environmental pollution, and prohibitions and restrictions on the location of industries and related matters etc. This act includes a comprehensive section on penalizing individuals or companies who do not comply with its provisions, with the penalties extending up to five years imprisonment along with fines up to Rs. 1 Lakh. From time to time the central government issues notifications under the EPA for the protection of ecologically-sensitive areas or issues guidelines for matters under the EPA which include Doon Valley Notification (1989), Coastal Regulation Zone Notification (1991), Dhanu Taluka Notification (1991), Revdanda Greek Notification (1989), The Environmental Impact Assessment <https://assignbuster.com/commentary-on-the-evolution-environmental-sciences-essay/>

of Development Projects Notification (1994), Ash Content Notification (1997), Taj Trapezium Notification (1998), Disposal of Fly Ash Notification (1999) etc. Other major legislations in India are the Motor Vehicles Act, 1988, the Public Liability Insurance Act, 1991, National Green Tribunal Act, 2010, the Wildlife (Protection) Amendment Act, 2002, the Biological Diversity Act, 2002 and the Water (Prevention and Control of Pollution) Cess (Amendment) Act, 2003.

Further, the planning procedure including the five year plans also stresses on strong environment related rights. The significant contribution includes the National Environment Policies (in eleventh year plan) stated the objectives and principles related to environment protection, climate change, improving air and water quality, issues related to solid waste management, mitigating land degradation etc. and the due course of actions to be taken. The National Environment Policy (NEP), 2006 in India provides for the basis of integration of environmental concerns in all relevant development processes. Its principles includes human beings to be placed at the center of sustainable development concerns, wherein, they are supposed to play the role of both polluters and stakeholders who are entitled to a healthy and productive life, fulfillment of the right to development so as to equitably meet the developmental and environment needs of the present and the future generations, realizes the inclusion of environmental protection as an inclusive part of the development process, vouches on the precautionary approach to environment protection and achieving economic efficiency as an end result. Apart from this, the country adopted its first ' National Action Plan on Climate Change' (NAPCC) in 2008 outlining existing and future policies and programs directed at climate change management and adaptation. In June 2010, the Ministry of Environment and Forests at GOI had released its <https://assignbuster.com/commentary-on-the-evolution-environmental-sciences-essay/>

document called ' India: Taking on Climate Change - Post Copenhagen Domestic Actions'. The Indian Government has set up an Expert Group on Low Carbon Strategy for Inclusive Growth. The Group has been given the mandate to develop a roadmap for India for low carbon development. On the forestry side, a Technical Group has been set up to develop methodologies and procedures to make assessment and monitoring of REDD+ actions. Apart from this, India has also made serious efforts in the area of energy efficiency and renewable energy by reducing its energy intensity. On the other hand, the Electricity Act 2003 seeks to coordinate development of the power sector in India. Solar and wind power are strongly promoted as well through Solar and Wind Power Generation Based Incentives. Given the extensive ambit of laws and legislations in India, their efficacy in the context of climate change and environment can be viewed from two angles. First, whether the law or policy is a comprehensive one and the second viewpoint can challenge the potential of a CAC aspect altogether as it fails to invoke the right kind of incentives. According to Shrum (2007), a policy tends to be reduced to a mere tool of CAC when it dictates the method of reaching a given goal. Policies and regulations are definitely an integral part of regulation provided it creates the right incentive. But the laws related to climate change in India are based on command and control approaches which are paralyzed with certain incapability and imperfections. As a benchmark we do not have any yardstick to measure the efficiency of these mechanisms, but we can present some international scenarios which can portray the broader representation. In the case of India, both the above viewpoints seem to be correct. First of all, as we find from the figure below, an international comparison of climate change legislations throughout the <https://assignbuster.com/commentary-on-the-evolution-environmental-sciences-essay/>

world reveals the fact that although the sectors of energy efficiency, forestry, renewable energy, transport etc. remains the priority focus areas in case of India, the laws are not comprehensive enough as it excludes a very crucial area of carbon pricing. In fact neither the EPA nor the other legislations related to environmental protection contain any specific provisions related to climate change in particular. This is in sharp contrast to the developed countries of the EU, South Korea and UK, where the main focus of the climate change legislations have been on the pricing of carbon.

Figure 1: An International Comparison of Climate Change Legislations

Note: X: Main Focus; M: Detailed Coverage; O: Some Coverage Source:

Townshend, T. et al (2011), Globe Climate Legislation Study, a report by the Grantham Research Institute on Climate Change and Development and the Globe International Another concern regarding these rules and regulations is that the level of corporate compliance with these instruments is usually low in India. These instruments are not based on any market signals and as a result they might fail to arouse the right kind of motivation for a fair compliance of the rules thus set. The overall framework being based on command and control, as a general psychology, there could be lethargy in compliance and an active effort to find the legal loopholes for an honorable non-compliance, which is expectedly otherwise in case of market based instruments.

Environmental Standards

Environmental standards are a set of quality conditions that are adhered or maintained for a particular environmental component. The Central Pollution <https://assignbuster.com/commentary-on-the-evolution-environmental-sciences-essay/>

Control Board (CPCB) of India has prescribed quality standards for air water, industrial wastes, noise, vehicles etc. Each and every business enterprise has to fulfill the required norms stated by the prime authority, before the start of any operation or production. As a matter of fact, these environmental standards vary from one particular country to another. Hence need was felt to develop a universal environmental framework that would be accepted globally. The ISO 14000 Standardization was designed to aid companies trading across different nations to increase trade, quality and productivity along with cost reduction considerations. The specific objective of ISO 14001 is to provide any organization the assistance and a proper framework that will help in reducing the environmental impacts created by the organization's activities. It consists of several phases starting from developing an environmental policy, planning, implementation and control, checking, corrective action and management review. According to Darnall (2006), ISO 14001 helps in continuous improvement of the environmental practices by the corporate sector. This framework also helps in making the firms conscious enough to incorporate proper environmental practices in their day to day operations and comply with more regulated processes. Increased compliance also leads to improved relations with the environmental regulators. The ISO 14001 standard is often referred to as the "green" standard because it sets forth specific requirements for a comprehensive Environmental Management System. Several national and international companies have already taken steps in implementing this standard. Many companies in India and internationally have implemented the Environment Management Systems (EMS), primarily ISO (14001) resulting in both economic and environmental benefits from improved performance and

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production efficiency. Although there have been an increase in the ISO 14001 certification by the Indian firms, but in many cases this upsurge in certification have not necessarily resulted in increased environmental performance. Qadir and Gorman (2008) have evaluated that although there has been an increasing certification by the Indian firms over the years, it has been mostly due to market pressures and is not backed by any other incentives. Although stakeholder pressure has forced firms for ISO certification, internal cultures and values have played a very limited role, thereby leading to cheapening of such certification. Efforts have also not been made to link the framework with the existing environmental regulations. Dearth of such efforts has often led to diluting the objective of such certification. On the global front, the success of the ISO 14001 has also not been widespread. The attitude of most of the developed countries, US in particular have often looked upon the system with failure and distrust. There have been several studies relating to the doubts about increasing compliance with this standard, wherein according to some economists, ISO 14001 has often resulted in a corporate myth. Boiral (2007) observes that although there has been an increase in the adoption of this standard in both the developed and developing nations, inconsistencies are widely prevalent relating to the integration of the standards in business practices and individual behavior. Cost considerations related to compliance with standards have often resulted in reluctant behavior. In many instances there have been imbalances between the market and regulatory pressures which have often resulted in unsuccessful implementation of the standard. Apart from this, lack of awareness and transparency have also led to improper implementation and reduced its sustainability in the longer run.

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Other Initiatives

Other Voluntary Initiatives (VA) have been developed by economists and policy makers to provide realistic responses to new policy problems. These have been mainly constructed to achieve a sustainable solution taking into account the new domain of business perspective and a relief from the traditional CAC approaches. More specifically, these are private and public sector efforts to improve corporate environmental performance beyond legal requirements. There are evidences of these voluntary environmental initiatives being used in developed countries. Borkey et al. (1998) observes the scenario in the USA. Public voluntary programs are widely used over there, which are signed between the Environment Protection Agency (EPA) and an individual company without any enforcement provisions. Public image considerations are the greatest incentives for any company, as a result of which the programs aim at producing incremental environmental improvements. The performance of voluntary agreements in the developing countries has not been studied properly due to lack of data. Yet, there are a few studies with regard to this. One such study by Blackman et. al (2007) has analyzed Mexico's Clean Industry Programs. It was also found that Mexico's Clean Industry Program fails to attract the dirty firms, thereby making the program unproductive. Relating to the question of efficacy of these regulations in other developing countries, there are two opposite views emerging in literature. As stated by the author, some economists argue that these initiatives hold considerable promise for the developing countries. The success behind these initiatives lies in the fact that these do not depend directly on the mandatory regulations to motivate polluters to cut emissions.

Rather they depend on two things. First, the external pressure faced by <https://assignbuster.com/commentary-on-the-evolution-environmental-sciences-essay/>

polluting firms by the consumers, capital markets, NGO's, community groups etc. generally motivates the firms to comply with the standards. Secondly, voluntary initiatives subsidize investments in pollution abatements. The second view expresses doubts over the success of voluntary regulation in developing countries. Studies by Khanna (2001) and Lyon and Maxwell (2002) are also of the opinion that weak regulatory pressures often lead to poor performance of the voluntary regulations. As a result these are expected to perform well where the mandatory regulation is strong. Apart from the regulatory pressures, weak non-regulatory pressures from the consumers, capital markets, NGO's etc. also lead to poor performance of voluntary regulations. Although voluntary class has become quite an important tool in the mix of public policy and corporate strategy, there remains, however, a good deal of uncertainties in its effectiveness w. r. t economic efficiency, equity and transparency. The following table gives a fair view of the efforts undertaken in several countries. Although the efforts date back to the year 1999, it more or less provides a detailed description of the voluntary initiatives. Previously, these efforts were mostly observed in developed countries. But, certain initiatives like ISO 14001 standards, ecolabelling schemes etc. have also become operational in India, though their success has been limited.

Table 1: Voluntary Initiatives undertaken in several countries

Type

Key Features

Example

Individual firm Unilateral action on dimensions of environmental performance chosen by the firm. 3M - Pollution Prevention Pays Trade association Specific actions or codes of conduct agreed upon by at least a large segment of an industry. Keidanren Voluntary Action Plan, Chemical Industry Responsible Care program Cross-industry efforts Codes of conduct or environmental commitments designed by industry to address performance across a range of industries. International Chamber of Commerce, Global Environmental Management Initiative, the Natural Step. Standards organization System for verifying environmental performance through third party certification ISO 14000 Non-government organization Voluntary codes of conduct developed by organizations focused on environmental objectives or corporate social responsibility. CERES Principles Government-led voluntary challenges. Opportunities for firms to take voluntary action and receive technical help help in coordinating with other actors, and public recognition. Energy STAR, Green Lights Government-led voluntary agreements. Contractual agreement, in lieu of regulation. European voluntary agreements. Source: Paton (1999), Voluntary Environmental Initiatives and Sustainable Industry, 1999 Greening of Industry Network Conference, Best Paper Proceedings In the year 2011, the Securities and Exchange Board of India (SEBI) had issued the National Voluntary Guidelines for Social,

Environmental and Economic Responsibilities (NVG-SEE) in Business. This document outlines principles for responsible business action and provides guidance for its implementation. The guidelines have been formulated to encourage adoption of sustainability reporting and mainstream disclosure on environmental, social and governance metrics in India. NVG-SEE provides businesses a framework which enables them to move towards responsible decision making and urges them to adopt the "triple bottom-line" approach. In the recent years, SEBI has also introduced guidelines for mandatory disclosure of ESG (Environmental, Social and Governance) information by 100 Indian companies. As per SEBI's regulation, all public equities are required to comply with certain disclosure norms related to corporate governance. This decision to get the largest businesses to adopt the NVG-SEE is a reaffirmation to continue to raise the bar for disclosure and drive transparency in the marketplace. Although ESG disclosure has been started by the Indian companies, it is in the nascent stage as compared to the developed markets of USA and Europe. The success of ESG disclosure depends on the level of acceptance by the business sector, investors, policy makers and non-government actors.

What are Market-based Instruments (MBI's)?

Market Based Instruments (MBIs) have been specially designed to tackle the problem of pricing of carbon. Contrary to the non-market instruments, market instruments tend to achieve economic efficiency with the help of market signals. The category of market instruments influences change in human behavior through the help of market signals and not by any obvious instructions. Hence if the policies are well defined then an overall change

can be brought about voluntarily by the firms in their own interest. Apart from the cost considerations, a MBI creates an extra incentive for the firms to comply much beyond the compliance levels, (Stavins, 2001). Initial classification of the MBI's into price based instruments, rights based instruments and instruments based on market friction are established according to Whitten et al (2003). In this paper we include another category of voluntary market instruments, which based upon sustainability indices. Another classification of the above mentioned market instruments can be made into compliance based market mechanisms and voluntary market approaches. The distinction between the two categories can be understood from the figure below.

Figure 2: Classification of MBI's

Price based Instruments

Compliance Mechanism

Rights based Instruments

MBI's

Instruments based on Market Friction

Non-Compliance/Voluntary Mecha Mechanism

Voluntary Market Instruments

2. 2. 1 Price based Instruments

Environmental Taxes and Subsidies

These taxes and subsidies are price based instruments which are used to deal with the detrimental effects of environmental externalities in both

production and consumption. Existing literature suggests that firms achieve
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Pareto Optimality by equating their marginal environmental pollution abatement costs to the marginal damages from pollution. Nearly four decades ago Baumol and Oates (1971) had shown that an efficient outcome could be achieved by setting a per unit tax on emissions. The models of general economic equilibrium based on Pigou's original analysis have shown that with Pigouvian taxes and subsidies the economy is able to achieve Pareto Optimality even in the presence of environmental externalities (Bhattacharya, ed. (2001)). Although many theories have suggested efficient outcome by imposing environmental taxes and subsidies to correct externalities, its effect on business compliance is still doubted. A report on carbon taxation indicates that although the developing countries have been experimenting with the carbon taxes for quite some time now, the regressivity of the carbon taxes in India has often been debated by several economists and policy makers. However, in some of the Nordic countries like Sweden, Denmark, Finland the tax has been able to effectively reduce carbon emissions. The report highlights the findings of PricewaterhouseCoopers, Sweden, which had conducted a study based on interviews with 200 Swedish companies on how they look at environmental taxes and their impact on business. The findings of the study are quite interesting: 30% of the companies make use of voluntary climate related instruments such as climate compensation for corporate travel. 20% of the companies reported the cost of energy tax, carbon dioxide tax and sulphur tax in the financial statements. 49% of the companies say that energy and carbon taxes affect their investment decisions. 63% of the companies are experiencing increased demand from customers that their products/services shall be the environment/climate suited. 58% of the companies say their

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business strategies are affected by energy and carbon taxes and the climate situation as a whole. 53% of the companies are planning to increase their use of bio-fuels. The above findings are quite indicative of the fact that the business sector in the developed countries is not very much assertive about the role and efficiency of environment taxes, which might affect their business strategies on a negative note. On the other hand, there have been innumerable studies relating the role of these taxes and positive evidences have also been analysed by several economists and policy makers regarding the efficacy of green taxes. The following table summarizes some of the views:

Table 2: Impact of Green and Carbon based Taxes

Country and Tax

Period Evaluated

Impact

Finland-Carbon/Energy Tax 1990-2003 CO₂ emissions 7 per cent lower than would have otherwise been a shift from carbon tax to output tax on electricity in 1997 may have lessened impact

Norway-Carbon Dioxide Tax 1991-2007 21 per cent reduction in CO₂ from power plants by 1995 14 per cent national reduction in CO₂ in 1990s, 2 per cent attributed to carbon tax 12 per cent reduction in CO₂ emissions per unit of GDP

Denmark-Carbon and Energy Taxes 1992-1997 CO₂ emissions in affected sectors down by 6 per cent and economic growth up by 20 per cent between 1988 and 1997 and a 5 per cent reduction in emissions in one year in response to tax increase. In 1990s a 23 per cent reduction in CO₂ from business as usual trend and energy efficiency increased by 26 per cent subsidy to renewables may have

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accounted for greater proportion of emissions reductions than tax

Sweden- Energy and Carbon taxes 1990-2007 Emissions reductions of 0.5 million tonnes per annum Emissions would have been 20 per cent higher than 1990 levels without tax

The Netherlands- Energy Tax 1999-2007 Emissions 3.5 per cent lower than would have otherwise been low tax rates may have limited impact

Germany- green fiscal reform, taxes on transport, other fuels and electricity 1990-2005 CO₂ reduced by 15 per cent between 1990 and 1999 and 1 per cent between 1999 and 2005 CO₂ emissions 2-3 per cent lower by 2005 than they would have been without tax

German re-unification an important factor in reductions

UK- industrial energy tax 2001-2010 UK CO₂ emissions reduced by 2 per cent in 2002 and 2.25 per cent in 2003 and cumulative savings of 16.5 million tonnes of carbon up to 2005

Reduction in UK energy demand of 2.9 per cent estimated by 2010

Source: Green Fiscal Commission, 2009

India's experience on the use of environmental taxes and subsidies for controlling pollution is not new. There are a number of eco-taxes in India which includes input taxes, product taxes, export taxes, land-use taxes, import tariffs, etc. which are used to internalize the externality. Taxation of petroleum products is a key component of environmental taxation. Apart from this, India has also levied a carbon tax on the carbon content of coal. However its impact might also have an adverse on the corporate sector, affecting the firm's asset position. It may also be the case that the business sector will find ways to evade the tax. Again, there is also the possibility that big corporate houses will pay up the required taxes and still continue to pollute. Thus the purpose of a tax is not served as long as it leads to the reduction of Greenhouse gas (GHGs) and increasing compliance by the corporate sector. Energy and fuel subsidies on the other hand, also

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have a long tradition in India. Energy subsidies have important implications for climate change and sustainable development and it influences the energy market outcomes by lowering the cost of energy production, raising the price received by energy producers or lowering the price paid by energy consumers. There are different types of energy subsidies, for e. g., direct financial transfers, preferential tax treatment, trade restrictions, regulation of the energy sector etc., which may affect producers and consumers in a different manner. In an international comparison with non-OECD countries, it has been found out that the oil and electricity are the highly subsidized sectors in India. The Indian government subsidizes the LPG gas to such a great extent that it has led to large distortions in the Indian energy market. LPG subsidies mainly benefit the higher income households that generally give preference to LPG for cooking and water heating purposes. Although the government has heavily cut on fuel subsidies, agricultural subsidies in fertilizers are quite high. These high subsidies often lead to greater distortions in the economy and the actual purpose of providing the subsidy gets blurred.