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Analysing Command and Control Mechanism and Market Based Instruments for Implementation of Polluter Pays Principle in India

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Abstract

India is facing unprecedented environmental issues as we find that various Indian cities find place in the list of most polluted cities. It is the dire need to deal with the issue of environmental pollution and government has also proposed various policies of environment protection.

The paper argues that the traditional Command and Control (CAC) mechanism needs to be supplemented by modern tools of environmental regulation. One of the most important developments in this field has occurred in the discipline of economics. Various Market Based Instruments (MBI) have been proposed by economists for environmental regulation.

The first section highlights various environmental services which have to be taken into account in policy formation of environmental regulation. The second section discusses major features of CAC mechanism and fourth section explains the meaning and types of Market Based Instruments (MBI) for environmental regulation. The fifth section of the paper makes a brief analysis of Indian environmental policy and law to understand whether the same has the scope of adopting the MBIs and what MBIs are currently prevalent in Indian environmental law. Last section gives a comparative analysis of environmental regulation with the help of MBI and CAC and conclusion follows.

Keywords: Environmental service, Polluter Pays Principle, Market Based Instruments, Command and Control.

1. Introduction

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India is one of the most polluted countries in the world in terms of air pollution.[2] In the index of most polluted cities, various Indian cities find their place.[3] Various forms of pollution ranging from air, water, soil, noise and many more are making the environment deadly to live in various cities of India. Various reports attribute pollution as an important cause of increasing number of medical problems being faced by humans of every age group.[4] The menace of environmental pollution has reached to a level unprecedented in Indian history. It has affected various aspects of life. One of the examples is the cricket match between India and Sri Lanka.[5] Various causes such as industrialisation, population, urbanisation, poverty, have been identified by researchers which cause different types or forms of pollution.

Traditionally, pollution, especially the industrial pollution, was considered as the symbol of progress and development. However, with the passage of time it was been realised that the economic activities without paying proper attention to environment protection will prove catastrophic. This led to the emergence of environmental consciousness among nations at national as well as international level. Developments in the field of environment protection led to enactment of various laws to deal with the issue of preservation and protection of environment. Various laws were enacted to abate the environmental pollution.

One of the core principles which have developed in the area of environmental law is polluter pays principle (hereinafter as PPP). The PPP is based on the idea that the person who pollutes must be made responsible for the same and innocent parties should not bear the burden of clean up of environment in form of taxation. Various measures have been suggested to implement PPP by economists.

Present paper tries to analyse Market Based Instruments (MBIs) for implementation of PPP and compares MBIs with Command and Control (CAC) Mechanism for the same.

2. Environmental Services

[2] Sky Gould and Dave Mosher, *The Best - and Worst - Countries for Air Pollution and Electricity Use*, WORLD ECONOMIC FORUM (Feb. 9, 2017), https://www.weforum.org/agenda/2017/02/the-best-and-worst-countries-for-air-pollution-and-electricity-use/.

[3] Adam Shirley, *Which Are the World's Most Polluted Cities?*, WORLD ECONOMIC FORUM (May 12, 2016), https://www.weforum.org/agenda/2016/05/which-are-the-world-s-most-polluted-cities/.

[4] Marilena Kampa and Elias Castanas, *Human Health Effects of Air Pollution*, 151 ENVIRON POLLUT. 362, (2008).

[5] On December 3, 2017, when the match was being played in the Ferozeshah Kotla Cricket ground, the Sri Lankan Players complained about uneasiness in breathing and the match was stopped. After the match resumed, many players were found playing with the air mask on their faces, see Michael Safi, *Pollution Stops Play at Delhi Test Match as Bowlers Struggle to Breathe*, THE GUARDIAN (Dec. 3, 2017, 15:47 GMT), https://www.theguardian.com/world/2017/dec/03/pollution-stops-play-at-delhi-test-match-as-bowlers-struggle-to-breathe#maincontent.

Nature and the natural resources are the backbone of any economy. The benefits obtained from nature may be classified in three broad categories. *Firstly*, we extract various materials from nature in the form of food, raw materials like minerals, wood and other goods. These are called ecosystem goods. They are also referred to as provisioning services of the nature. *Secondly*, the nature helps us with various services which make human life possible on Earth. These services range from water filtration, soil formation, pollination and so many other known and unknown services.[6] These are also called as supportive services. *Thirdly*, nature also carries out the function of assimilating the waste generated by production and consumption. Ecosystem services play a major role in an economy as they have direct as well as indirect contribution in production, consumption and waste disposal of goods and services.[7] Ecosystem in the form of goods and services contributes in utility function of humans and therefore these are valuable for humans. However, current system of public finances does not attach any economic value to the services offered by natural components in an economy.[8] The same also trickled down to legal rules relating to environment protection.

The laws relating to environmental pollution did not consider these services and therefore there were no provisions in the law to integrate the loss of environmental services and the quantum of fines and punishments. However, with the passage of time, approach in this direction has changed and the PPP led to recognition that the polluting activities are undermining the ecosystem services and therefore there is a need of a legal principle which internalises the cost of these ecosystem services.

3. Command and Control Mechanism

Command and control mechanism of environmental regulation can be considered as the traditional method of protection of environment and natural resources.[9] Under this regime the State prescribes either certain standards to be adopted by firms and individuals with respect to emission or discharge of pollutants in the environment or specific technology to be adopted by firms and individuals for pollution abatement. Non-compliance of command is generally made punishable

[6] Glossary: Ecosystem Services, GREEN FACTS, (last visited Jan. 29, 2020), https://www.greenfacts.org/glossary/def/ecosystem-services.htm.

[7] For a brief introduction on the role played by the ecosystem services, refer RAMPRASAD SENGUPTA, ECOLOGY AND ECONOMICS: AN APPROACH TO SUSTAINABLE DEVELOPMENT (1st ed. 2001).

[8] KATAR SINGH AND ANIL SHISHODIA, ENVIRONMETAL ECONOMICS: THEORY AND APPLICATIONS 147-167 (1st ed. 2007).

[9] D Austin, *Economic Instruments for Pollution Control and Prevention – A Brief Overview*, WORLD RESOURCES INSTITUTE (September, 1999).

either with imprisonment or fines both.[10]

However, it is not necessary that these fines or penalties have any nexus with the loss or damage which might result from failure to observe the standards prescribed and consequent losses. Though, in the recent past, emphasis is growing with respect to imposition of penalties which are commensurate to remedy the situation which has occurred due to non observance of environmental regulations. Thus, CAC approach has been fine tuned keeping in mind the polluter pays principle. Generally, a CAC approach may prescribe either performance-based instruments or technology-based instruments to be adopted by the industries or individuals for protection of environment.[11]

(i) Performance Based Standards

In this approach of regulation, industries and individuals are required to meet emission level or emission rate. The State prescribes particular standard or rate which has to be met by all persons involved in a particular industry and they are free to achieve those standards or rate as per their convenience in terms of technology or production output. They have freedom to install a particular technology which can reduce their emission or discharge as per the standards or rate specified or they can simply reduce the level of production to meet prescribed standards.

However, if the State adopts the route of specifying the rate per unit of product, in that situation the industry may not be able to meet the regulation merely by reducing the output and they will necessarily have to implement a better technology to reduce pollution or they will have to shift to less polluting inputs to produce the goods.

(ii) Technology Based Standards

In this approach of regulation of pollution, the State specifies either the technology to be used by industries for reducing pollution or a particular process of production is prescribed which is required to be adopted. This approach is beneficial for those cases where monitoring of emission or discharge of pollution is difficult or highly costly.

In general, the CAC mechanism is a useful method of environment regulation as it mandates polluter to meet the standards despite the costs involved in such mandate. Therefore, this approach can be utilised for regulation of such activities

[10] National Center for Environmental Economics, GUIDELINES FOR PREPARING ECONOMIC ANALYSES, 4-1, USEPA (2014).

[11] *Id.*

which are considered absolutely harmful to society at large by the State.

However, there are other types of pollutants and pollution which may not necessarily be harmful but mere reduction of amount in such pollution can lead to optimal environment. In such situations, prescription of high standards and specific technology may not be a viable option as it may have direct impact on productivity as well as they may not be economically efficient. Therefore, economists have argued for market-based instruments for pollution reduction.

It is to be noted that in technology-based CAC approach, firms and individuals are always under threat that the State would change the technology to be used for the purposes of pollution reduction. From the perspective of the regulator, they are always required to remain up to date with respect to technology which has come up so that they can prescribe better alternatives to suit the environmental needs. This may lead to increase in the cost of regulating the environment. Another drawback of CAC approach is that it is focussed more on large polluting units and smaller units are either ignored or proper frameworks are not established to regulate them, alternatively, implementation at smaller unit leads to higher implementation cost.[12]

In the recent times, preventive measures have also come up under the head of CAC method, which brings it closer to MBIs. For example, use of biodegradable substances or green technology, recyclable material, eco-labelling etc. are preventive methods and also a voluntary measure taken up by the producers of goods and services. They definitely attract customers due to rising environmental consciousness. However, it is important to note that, in most of the cases producers of goods are adopting such measures due to the fact that they are in any case bound to comply with the environmental norms prevalent in the State. Therefore, *prima facie* they might appear to be a voluntary measure or market driven measure, they are actually being utilised for the adherence of the CAC norms.

Market based instruments refers to such policy measures of the State where change in behaviour, production patterns, and technology is encouraged with the help of market as an institution.[13] Market mechanism is a bigger umbrella within which financial as well non-financial mechanism may be incorporated.[14] The financial mechanism refers to such mechanism where the government induces a particular type of behaviour with the help of taxes or subsidies or a combination thereof. The non-financial mechanism may include fixing of quota, policy relating to eco-labelling, preferences being given to environmentally benign activities in various

[12] D Austin, *supra* note 8.

[13] Robert Stavins and Bradley Whitehead, *Market-Based Environmental Policies* 105-117 (Resources for the Future, Discussion Paper no. 98-26 (2008).

[14] *Supra* note 4.

forms such as parking slots, etc.

Use of these instruments to tackle pollution and conservation of natural resources refers to use of market as an institution and its mechanisms for regulating pollution. This approach has been advocated by economists on the premise that rational individuals' choices and behaviour is influenced by the hedonistic approach where they seek to maximize their utility at the least cost possible. In this approach, incentives and disincentives are created in favour of private players so as to influence their consumption and production behaviour. In addition to that, incentives and disincentives also lead to technological inventions to reduce the pollution. The technological inventions are due to the fact that the State simply incentivises or dis-incentivises production and consumption of certain goods.

4. Market Based Instruments

In this method of regulation, the State does not prescribe standards, rather it gives a direction to market towards consumption or non-consumption of certain goods. This approach may be generally categorised in two broad fields where the State uses (a) Fiscal measures for giving signals for correction of market distortions either by levying taxes or removing distortionary subsidies on polluting goods or services or various combination thereof. The signal is basically to course correction so that the producer of such goods or services and consumers indulge in such activities that are environmentally benign. (b) The State may also create market in environmental goods or services which were earlier freely accessible to all. By creating market in environmental goods and services a quota is fixed with respect to consumption of those environmental goods. Then those quotas are distributed quotas among all the players in market with the freedom to allow the transfer of those quotas for money. There are various market-based instruments which can be utilised by the State for environmental regulation.

5. Polluter Pays Principle

The polluter pays principle traces its origin in the externality concept and therefore, though, it has the flavour of equity, it comes very close to and converges with the economic theories related to externalities.[15] The doctrine of negative environmental externality resonated in the debates relating to environment protection in various countries as well as international environmental law. This led to the adoption of Polluter Pays Principle in various countries and also various documents relating to

[15] Theodore Panayotou, *Economic instruments for environmental management and sustainable development*, UNITED NATIONS ENVIRONMENT PROGRAMME'S CONSULTATIVE EXPERT GROUP MEETING 1–72 (1994).

international environmental law.[16]

In modern times, evolution of PPP and international environmental law[17] came into being almost at the same time. The United Nations Conference on the Human Environment (UNCHE)[18] though did not explicitly incorporate PPP, however various principles contained in the declaration left ample scope for the policy makers to develop it. Principle 22 of UNCHE declaration says that "States shall co-operate to develop further the international law regarding liability and *compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction*. This emphasis on developing the liability regime, rational management of resources[19] and planning as an important tool to resolve the conflict of environment and development[20] can be understood to contain the seeds of PPP.

In other words, UNCHE conference had provided that States must develop, in their own territories, some principles of liability in case of environmental pollution which should be based on rational considerations and must also be well planned.

While the deliberations in UNCHE were underway, the Organisation for Economic Co-operation and Development (OECD) should be given the credit for recommending PPP to its member countries.[21] After the recommendation made by OECD, PPP got much needed fillip for its promotion. In a short span of two decades there were various international agreements which incorporated PPP as one of the important principles of environmental governance. Few important documents include European Council recommendation of the year 1975,[22] the Single European Act, 1986,[23] and Maastricht treaty 1992.[24]

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[16] Report of the United Nations Conference on Environment and Development, UN Conference on Environment and Development (12 August 1992), UN Doc. A/CONF.151/26 (Vol. I).

[17] The United Nations Conference on Human Environment held at Stockholm in the year 1972 is taken as the origin of international environmental law as it was the first universal attempt on the part of international community to protect and preserve the environment. Prior to this, there were many bilateral agreements touching on the aspect of environment but these agreements were more in the nature of ensuring the equitable usage of natural resources, see PHILIPPE SANDS AND JACQUELINE PEEL, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 22 (3rd ed. 2012).

[18] Report of the United Nations Conference on the Human Environment, UN Conference on the Human Environment, UN Doc. A/CONF.48/14/Rev.1.

[19] *Id*, Principle 13.

[20] *Id*, Principle 14.

[21] There are three documents which form the core of PPP in OECD countries:
Organisation for Economic Co-operation and Development 'Recommendation on Guiding Principles Concerning International Economic Aspects of Environmental Policies' (adopted by the OECD Council on 26th May 1972), C(72)128;
Organisation for Economic Co-operation and Development 'Recommendation on the Implementation of the Polluter-Pays Principle' (adopted by the OECD Council on 14th November 1974, C(74) 223;
Organisation for Economic Co-operation and Development 'Recommendation on the Application of the Polluter Pays Principle to Accidental Pollution' (adopted by the OECD Council on 7 July 1989) C(89)88.

[22] EC Directive (75/436/Euratom, ECSC, EEC) of March 3, 1975.

[23] Single European Act, OJ L 169 29.6.1987, p.1-28, Article 130r.

Out of Europe and OECD countries, PPP was adopted in various treaties relating to environment protection and pollution abatement as the basis of liability of the polluter. These treaties include International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990,[25] Convention for Protection of the Marine Environment of the North-East Atlantic, 1992,[26] Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1993.[27]

The United Nations Conference on Environment and Development (UNCED), 1992 brought the PPP at the forefront. Principle 16 of the Rio Declaration on Environment and Development 1992 pointed that the States should adopt PPP. It provided that

> "National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."

It can be seen from the above discussion that here are various international and multilateral environmental agreements which adopt PPP as one of the most important principle of liability of the polluter. However, these documents fail to define the exact scope and meaning of the term. Most of the documents merely mention PPP, some of them simply declare that the polluter must, in principle, bear the cost of pollution.

Rio declaration hints towards the amount of cost as to what is the exact amount which must be paid by the polluter. It provides that there should be 'internalization of environmental costs'. However, it does not define meaning of 'internalisation' and 'environmental cost'. The idea of 'internalisation' and 'environmental cost' is directly related to the concept of externalities.

6. Indian Legal and Policy Measures on MBI and PPP

India has also gradually realised the importance of MBI for protection of environment. In the year 1992 a document entitled 'Policy Statement for Abatement of Pollution' was released by government of India.[28]This document emphasised on

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[24] *Id*, Article 130r (2).

[25] International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (adopted 30 November 1990, entered into force 13 May 1995) 1891 UNTS I-32194 Preamble, Resolution 4 and 5.

[26] Convention for Protection of the Marine Environment of the North-East Atlantic, 1992, (adopted 25 March 1998, entered into force 25 March 1998) 2354 UNTS I-42274 Guiding Principles, Article 3.

[27] Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1993, (adopted 22 March 1974, entered into force 03 May 1980) 1507 UNTS 160, Article 3(4).

[28] *Policy Statement for Abatement of Pollution, 1992* (Ministry of Environment and Forests, Government of India), available at https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/environment/Pollution_Policy_Statement_1992.pdf.

fiscal measures for reduction and prevention of pollution.[29] It highlighted the role of fiscal measures as a potent tool for reduction of pollution by giving clear signals to producers and consumers about the cost of environmental and natural resources. It expressly mentioned about effluent charge which may be levied on the basis of quantum of pollutant being discharged. It also emphasised that the revenue generated by such levies will be utilised for protection of environment, innovation and research in the same area.[30] Similarly, the Water Policy of India adopted in the year 2002 also proclaimed that PPP should be adopted for management of water resources in the country.[31]

The National Environment Policy of 2006 (NEP)[32] also emphasised on the need of application of precautionary principle and polluter pays principle along with other principles of environmental law. The NEP indicated that environmental degradation may take place due to inappropriate fiscal policies and fiscal instruments. Therefore, it was proclaimed that such economic or fiscal tools are required which can create incentive and disincentives as required to ensure efficiency of resources. It also proclaimed that the attitude of the masses needs to be changed that understands environmental goods as free goods.

NEP proclaims that in addition to improvement of existing regulatory or Command and Control regime, special emphasis is required on the use of economic principles for environmental decision making. CAC approach must be supplemented by fiscal measures for protection and preservation of environment and natural resources.[33] It also emphasised that environmental accounting is the need of the hour and the environmental decision needs to be taken only after considering the social cost of any activity. NEP also highlighted the impact of distortionary subsidies given on electricity and diesel on various resources such as ground water and river water. It proclaimed that such distortionary subsidies need to be done away with.

If we analyse the legislative framework, we find that there are very few legislations which have taken into consideration MBIs as a method of environment protection. If we analyse the Water (Prevention and Control of Pollution) Act, 1974 (hereinafter referred to as the Water Act), we find that it revolves around the CAC method of environment protection. However, there is one provision in the Water Act which

[29] *Id*, at para 7.
[30] *Id*, at para 7.4.
[31] National Water Policy, 2002 (Ministry of Water Resources, Government of India), para 14.4.
[32] National Environment Policy, 2006 (Ministry of Environment and Forests, Government of India), Section 4, available at https://ibkp.dbtindia.gov.in/DBT_Content_Test/CMS/Guidelines/20190411103521431_National%20Environment%20Policy,%202006.pdf.
[33] *Id*, at 45.

attract the attention with respect to MBIs. Section 46 of the Water Act allows the court convicting the offender for second or subsequent time to also publish about such conviction with relevant details in a newspaper or other manner as deemed fit and the cost of such publication is also to be borne by the convict.

Similarly, under the Water (Prevention and Control of Pollution) Cess Act, 1977 (hereinafter referred to as the Water Cess Act), Section 3 levies a cess for the purposes of the Water Act and for utilisation thereunder from every person carrying on any specified industry and from every local authority. The specified industry is listed in the First Schedule to the Act.[34] The cess is levied on the basis of the water consumed for the purposes specified in the Second Schedule, column 1. The maximum rate of cess is laid down in the Second Schedule, column 2. The Water Cess Act empowers the Central Government to specify the rate from time to time within the maximum rate as provided in the Schedule. It is provided in the Water Cess Act that, for the purposes of measuring and recording the quantity of water consumed, meters are to be affixed.[35]

The Public Liability Insurance Act, 1991 (hereinafter referred to as PLIA) was enacted with the view to provide interim immediate relief to the victim and it is based on the non fault liability principle. The PLIA conforms to the MBIs as the very idea of this legislation is to provide the interim relief to the victims of accident by the polluter and the polluter is bound to make advance contribution in the form of insurance premium and environment relief fund. As per the scheme of the PLIA, any hazardous activity can be carried out only when the handler of hazardous substances has taken insurance and the same is always in force. However, the PLIA was enacted only for interim relief and the victim is still left in the lurch to get the entire compensation of the accident. Therefore, the PLIA cannot be considered as a complete legislation on the liability based on MBIs.

The National Green Tribunal Act, 2010, which is legislation for providing an adjudicatory body, for the first time expressly proclaimed to apply the principles of sustainable development, precautionary principles and PPP while making decisions under the Act.[36]

Another recent legislation which appears to be a path breaking legislation in terms

[34] These industries are ferrous metallurgical industry, Non-ferrous metallurgical industry, Mining industry, Ore processing industry, Petroleum industry, Petro-chemical industry, Chemical industry, Ceramic industry, Cement industry, Textile industry including cotton synthetic and semi-synthetic fibres manufactured from these fibres, Paper industry, Fertilizer industry, Coal (including coke) industry, Power (thermal, diesel) and Hydel generating industry, Processing of animal or vegetable products industry including processing of milk, meat, hides and skins, all agricultural products and their wastes, and Engineering industry.

[35] The Water (Prevention and Control of Pollution) Cess Act, 1977, § 4, No. 36, Acts of Parliament, (1977) (India).

[36] *Id*, § 20.

of use of MBIs for environmental protection was enacted by the Parliament in the year 2016.[37] The Compensatory Afforestation Fund Act, 2016 (hereinafter referred to as the CAMPA) owes its origin to a series of cases decided by the Apex court with respect to management of forests in India. The Act incorporates the mandates given by the Supreme Court in the case of *T.N. Godavarman case*[38] which directed the State to allow the diversion of forest land for non-forest purposes only with stringent conditions of various types of afforestation. The court also held that the value of such forests is not simply restricted to the value of the land; rather the Net Present Value (NPV) should be the criteria to arrive at the real worth of the forests, keeping into consideration, various services rendered by a matured forest cover.

The CAMPA recognises various concepts which have been argued by the environmental economists for the better protection of the natural resources. These concepts are the environmental services[39] and net present value.[40] CAMPA establishes a National Fund and a State Fund. The money realised by diversion of the forest land prior to the CAMPA and after the enactment of the CAMPA is to be part of this fund. CAMPA contains various other provisions related to the utilisation of the funds available.

CAMPA can be considered as the formal beginning of the economic tools and methods in the legal system as a mode of protection and preservation of the environment and natural resources in India. The inclusive definition of environmental services leaves it to the policy makers to interpret the term in a liberal manner with the development of the discipline in this regard.

7. Comparing CAC and MBI for Implementation of PPP

Having understood CAC approach of environmental regulation and MBIs approach for environmental regulation, we can conclude that MBIs have certain advantages over and above the CAC approach. A comparative analysis may reveal following differences of MBIs and CAC:

(i) Recognition of Heterogeneity of Market

If we see the CAC approach, we find that the Sate generally dictates what should be

[37] The Compensatory Afforestation Fund Act, 2016, No. 38, Acts of Parliament, (2016).
[38] T.N. Godavarman Thirumulpad v. Union of India, MANU / SC / 0028 / 2014.
[39] *Supra* note 36, § 2(e) "environmental services" includes— (i) provision of goods such as wood, non-timber forest products, fuel, fodder, water and provision of services such as grazing, tourism, wildlife protection and life support; (ii) regulating services such as flood moderation, carbon sequestration and health of soil, air and water regimes; (iii) supporting such other services necessary for the production of ecosystem services, biodiversity, nutrient cycling and primary production including pollination and seed dispersal;
[40] *Supra* note 36, § 2(j) "net present value" means the quantification of the environmental services provided for the forest area diverted for non-forestry uses, as may be determined by an expert committee appointed by the Central Government from time to time in this regard.

done by a particular firm or the individual with respect to reduction of pollution. The basic advantage of market-based instruments over CAC mechanism is that it recognises heterogeneity of market where all players may not be at equal footing when it comes to meeting the standards prescribed under the CAC mechanism. There can be cases where technology dictated by the State under the CAC approach may be a costly affair which can be afforded only by the large-scale industries whereas small scale industries might not be in a position to install such technology and they will be compelled to go out of market.

(ii) Flexibility

CAC approach does not allow flexibility with respect to means to be adopted by the polluter to abate pollution. Under CAC regime the amount of discharge is fixed and the polluter has to abide with the command. They do not have the incentives to reduce the pollution. Similarly, the technology is also prescribed. On the other hand MBIs allow flexibility to the polluter in deciding with respect to whether to adopt a better technology or simply pay taxes or other payments in the mode of emission trading or charges. The flexibility comes from the fact that the polluter himself can assess the cost and benefit of both sides and decides to choose either of the options available to him. In other words, the producer can decide whether to go for pollution reduction measures or be satisfied with paying the penalty in the manner prescribed. Here, the producer is free to decide after making the cost benefit analysis and comparative as

(iii) Cost Reduction

Under CAC approach, the State prescribes the quantity of discharge of effluent and the polluter has to abide to such standards. This may lead to two problems depending on facts and circumstances. Firstly, when compliance can be made by the polluter without any incentive then it will lead to stagnancy in technological improvement with respect to reduction of pollutants. In the reverse, if the polluter cannot comply with the standards prescribed then the small-scale industries, which do not have ample funds for research and development will suffer due to heavier cost of compliance with the standards.

On the other hand, under MBIs approach, the producer would like to abate to the extent where payments in the form of fine or other mode are bigger than pollution abatement cost. However, when the pollution abatement cost starts increasing in comparison to monetary payments, per additional unit of reduction, the polluter would like to pay rather than apply better technology. At the same time, other firms which can control or reduce pollution at lower marginal cost may transfer their

right to another party willing to pay for such right. This leads to rationalisation of abatement costs as the person who can abate pollution at comparatively lower rate will do so and the one who cannot do so will pay to the person who is able to reduce such amount of pollution without compromising overall target fixed by the State.

On the basis of above analysis, it can be concluded that Indian legal system with respect to environment protection is primarily dependent on CAC approach. However, some baby steps have been taken in the direction of MBIs. It is suggested that the proper implementation of PPP requires that the internalisation of the social and environmental cost must be the primary aim of all the environmental legislations and therefore, proper MBIs must be created in the legal system for the same.

8. Conclusions

The above analysis makes it clear that the MBIs provide an alternative method of environmental regulation. The same may be an important improvement to the existing environmental regulation regime. On the other hand, PPP has been advocated to internalise the social cost incurred due to polluting activities as the free market does not internalise the same. Thus, MBIs was suggested as an alternative to the punitive CAC mechanism. After comparing the advantages and disadvantages of MBIs and CAC we can conclude that pollution, which is not absolutely hazardous in nature may be dealt with, with the MBIs as well.

Indian policy also recognises the relevance of MBIs; however, same is not visible prominently on the rule books. It is high time that we must supplement our CAC method of environmental regulation with MBIs so that more effective regulation of environment can take place.

As far as implementation of PPP is concerned, the same can be done better with the help of MBIs as the same provides better quantification of the losses. On the other hand, if the judicial or the executive wing of the State is not legislatively mandated to apply the same, they may not be bound to apply the PPP. Further, the MBIs also provide the required flexibility for adapting to the diversity of different players in the market.