



PILOT ON EMISSION TRADING SCHEME (ETS) IN INDIA

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Abstract-Emissions trading schemes (ETS) have been operational to control greenhouse gas emissions in European Union since 2005. ETS have been proposed to be introduced in developed countries including India. The main idea of the ETS is to create the market for pollution which will provide economic agents with incentives to reduce their emissions. The design of ETS plays a significant role in reducing greenhouse gas emissions and encouraging environmental and economic sustainability. The Environmental regulation in India is relatively inflexible and places high costs on industrial enterprise that are the engines of much needed economic growth. The study reveals the ongoing pilot ETS scheme in selected States in Gujarat, Tamil Nadu and Maharashtra which seeks to transform regulation of particulate matter from industrial sources in India (Stationary sources).

Key Words: Emissions Trading Scheme, Continuous Emissions Monitoring System, Particulate matter,

I. INTRODUCTION

Emissions Trading Scheme (ETS) is a market-based tool for controlling pollution. Emission trading provides economical incentives to reduce pollution. It works on the 'Cap and Trade' principle. A regulatory authority sets a cap or limit to a certain amount of Green house gases that can be discharged. The cap or limit will be sold to the firms in the form of emission permit which shows the precise amount of volume that can be discharged by the firm. The total number of permits will not be more than the cap. The cap is continuously reduced so total emission is also reduced. The companies have to reduce green house gases emission by following the technology. The cap must be neither so high that the system does not achieve reductions nor so low as to be prohibitively costly to firms. The companies which emit excessive amount of Green House Gases (GHG) will have to buy permits from international emission saving projects around the world. If companies exceed heavy penalty would be imposed; while if company reduce emission, the emission would be utilize by them or may be sold. The transfer of permits is refers to as trade. Here, buyer has to pay money to pollute environment and seller is rewarded for less emission. The companies covered by the scheme are no longer free to pollute [1] [4].

Emission trading, originating from the Acid Rain crisis of the US in the 1980s, which works on cap & trade, has been credited with not only allowing the US to successfully overcome it, but is also finding favor in addressing the issue of global warming. Emission trading is one of the effective mechanisms for developed country to achieve their emission reduction targets. An Authority sets a cap or limit to a certain amount of Greenhouse gases that can be emitted. The total number of permits will not be more than the cap. The companies have to reduce greenhouse gases emission by following the technology. The cap must be neither so high that the system does not achieve reductions nor so low as to be prohibitively costly to firms [2].

The cap or limit will be sold to the firms in the form of emission permit which shows the specific amount of volume that can be emitted by the firm. The cap is continuously reduced so total emission is also reduced. The companies which emit excessive amount of Green House Gases (GHG) will have to buy permits from international emission saving projects around the world

Gujarat, Maharashtra and Tamil Nadu are the leading industrial states of India. Growth in industry has contributed to growth in emissions of various pollutants in air and water, including particulate matter. Throughout India, urban areas have high levels of particulate matter that are known to be harmful for health. Under the new, stricter National Ambient Air Quality Standards, many industrial regions must significantly cut particulate emissions to move towards the more stringent, uniform standards now in place [3].

II. BRIEF DETAILS OF EMISSION TRADING ON PILOT SCALE IN INDIA

MoEF& CC, Government of India has made a commitment not to allow country's per capita GHG emissions to rise above per capita emissions of advanced countries (Joshi & Patel, 2009). India has started market-based emission trading system to check industrial pollution that will allow auctioning of pollution permits to industries under an ETS for air pollution. The proposed system involves regulator setting a pollution cap, aggregate as also for individual units, and let industries trade permits by ensuring low pollution self-regulation. To begin with, the system will be implemented in Gujarat and Tamil Nadu as these states contain critically polluted areas with many large industries [6].

The pilot emissions trading scheme covers about 1,000 industries in close proximity to the largest metro areas in Gujarat, Maharashtra and Tamil Nadu. The industries are selected by geographic area, sector and parameters like boiler capacity and fuel type that are indicative of capacity for pollution emissions. State Pollution Control Boards have determined the precise criteria for eligibility and mandate and enforce the emissions trading scheme as the only form of regulation for particulate matter for all industries deemed eligible. The pilot scope includes a significant fraction of large particulate emitters in each metro area covered, which are a small share of all industries in each state [14].

It will be implemented under a cap on air pollutants set by the respective state pollution control boards. Auctioning of the permits will also yield revenue for implementing regulations, besides ensuring that firms responsible for emissions bear the full cost of their emissions. Introduction of emissions trading would position India as a clear leader in environmental regulation among emerging economies [2].

III. ABOUT THE PROJECT & VISION

The emissions trading scheme will set a new model for environmental regulation in India. The scheme will be a leap forward from both a regulatory and economic viewpoint. It aims to cap total pollution emissions, increase regulatory transparency and accountability and reduce compliance costs for all participants. The scheme will be rolled out in a rigorous, randomized-controlled trial in order to convincingly demonstrate these benefits and allow the scheme to serve as a model for environmental regulation across India and the world [13].

On the regulatory side, emissions trading, through a relatively modest extension and focusing of existing capacity, that regulation will target total emissions, rather than concentration norms, as under the current system. At present, engineers and scientists from the State Pollution Control Boards (SPCBs) visit polluting units at most several times each year and sometimes measure the concentration of air pollutants in the boiler and process stacks. This method makes it impossible to measure total emissions, as the concentration during a particular visit may bear little on the pattern of emissions over the whole year. Furthermore, plants may adjust their emissions during infrequent visits to appear to be polluting less [7] [8].

The emissions trading scheme will introduce continuous emissions monitoring systems (CEMS) to measure and report the total emissions from industry stacks (stationary sources) continuously through the year. Targeting total emissions is essential to achieving air quality standards. It is not the concentration but the total amount of particulate emissions that matters for health [5] [9].

IV. REGULATORY FRAMEWORK

The Central Government has two alternate statutes under which an ETS could be deployed, the Air Act and the EP Act. Under Section 16(2)(h) of the Air Act, one of the functions to be performed by the Central Pollution Control Board (CPCB) is to lay down standards for air quality. The CPCB has also been given powers under Section 17(4) to do "such other things" and "such other acts" as it may think necessary for the purpose of carrying into effect the purposes of the Air Act. The purpose of the Air Act is very broad since it includes 'prevention, control and abatement' of air pollution. In the present case power may be derived from Section 17(4) of the Air Act to impose a cap on particulate matter emissions [3] [10].

The EP Act provides a legal framework to support an ETS. The EP Act in Section 3 gives the Centre the power to lay down standards for the quality of environment. In Section 5, the EP Act grants power to the Central Government to give direction in exercise of its powers and performance of its functions under the EP Act. This includes the power to close, prohibit or regulate any industry, operation or process.

V. ABOUT GUJARAT:

Industrial units of textile city Surat will become the first in India to run an emission trading scheme (ETS) locally. As a part of pilot project by Ministry of Environment, Forest and Climate Change (MoEF& CC) and Central Pollution Control Board (CPCB), nearly 350 units located in and around Surat will trade for particulate matter. Those exceeding the limits will be fined but those who perform better will be rewarded, much akin to the way carbon credits are traded. In order to monitor the particulate matter, Gujarat Pollution Control Board (GPCB) has asked the industrial units to install continuous emission monitoring system (CEMS) on the stacks of about 350 textile units. These devices will continuously monitor the particulate matter emissions [11] [12].

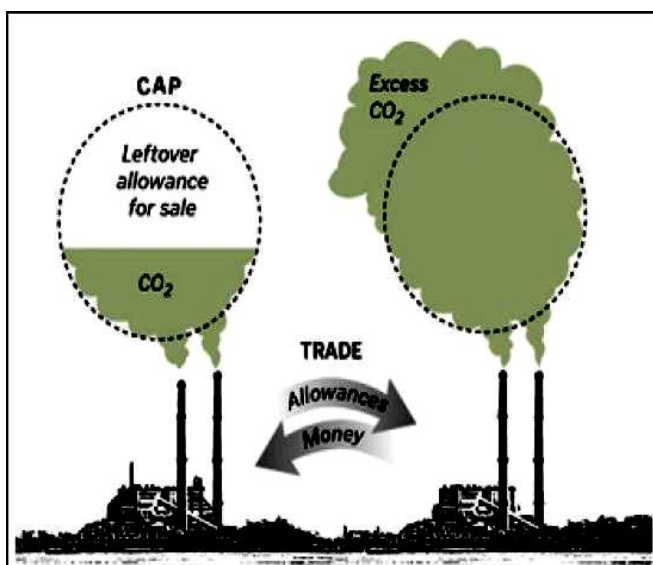
VI. OBJECTIVES:

Piloting an ETS will enable the Ministry of Environment & Forests & Climate Change (MoEFCC), Government of India to cap total pollution emissions in select areas and increase regulatory transparency and accountability. The pilot emissions trading scheme will be rolled out as a randomized-controlled test to enable rigorous appraisal. Such an appraisal will provide gold-standard evidence on the environmental and financial benefits of the scheme. Pollution emissions will be measured in realtime using continuous emissions monitoring, and economic adjustments will be measured with regular unit surveys. Backed by this evidence, the pilot scheme will give a model for expansion within India and a framework for implementing global environmental policy.

VII. ENVIRONMENTAL LAWS & REGULATIONS:

The regulatory framework and technical capacity to implement emissions trading and achieve these ambitious goals already exist. The MoEF & CC is empowered by the Environment (Protection) Act, 1986 and

accompanying rules to limit net adverse environmental impact from industrial activity and is ready to apply this power to support an emissions trading scheme. The State Pollution Control Boards have the power to implement such a scheme on the ground by modifying the terms of environmental Consent [13].



It is assumed to the reduction of emissions of some conventional air pollutant, such as SO₂, NO_x or SPM, for the betterment of human health and the reduction of compliance costs. The pollutants to be regulated will best be determined by a consideration of the goals and problems of the SPCB, as well as market design considerations such as the number of large sources and the ease of monitoring. Markets with many large sources and better monitoring will generally function more smoothly.

VIII. EXPERIENCE WITH EMISSIONS TRADING

The application of cap-and-trade pollution markets has been very successful in practice, achieving the desired reductions in emissions reliably and at lower than-expected cost.

In an emissions trading scheme, the regulator sets the overall amount of emissions but does not fix emissions from any particular source. Instead, pollution sources must purchase enough permits to cover their total emissions. Because the total number of permits is fixed, so is the total amount of emissions. International experience suggests that four areas are especially important for successful implementation of an emissions trading scheme [11].

- i. **Setting the Cap**-The target for aggregate emissions from the sector where trading is introduced must be set to produce reasonable prices and emissions reductions.
- ii. **Allocating Permits**-The permits to emit must be distributed in an equitable way to build support for the scheme. In many successful cases this allocation has been made for free relative to baseline emissions, greatly reducing the cost of compliance for industries.
- iii. **Monitoring**-The quantity of emissions from each industrial plant must be reliably and continuously monitored with high integrity recognized by all sides.
- iv. **Compliance**-The regulatory framework must make industries confident that buying permits is the only reliable way to meet environmental obligations.

IX. PROGRESS TOWARDS EMISSION TRADING IN INDIA

Gujarat Pollution Control Board (GPCB) at present considers the best prospects for a successful pilot emissions trading scheme would be in the industrial areas in and around Surat of Gujarat state. These areas have a large number of textile units consuming solid fuel, which contributes to particulate matter pollution in the city of populous cities of Ahmedabad and Surat, respectively.

In Maharashtra, MPCB has developed its regulation and monitoring over the past several years in a manner that will help support emissions trading. For about the past three years, large sources of particulate emissions have been required to install CEMS as a condition of their environmental Consents. A similar Consent provision will be a requirement of participating units in the ETS. The Maharashtra pilot program will encompass the cities of Aurangabad, Tarapur, Chandrapur, Jalna, and Kohlapur.

In Tamil Nadu, continuous emissions monitoring systems (CEMS) are already in place in many units. TNPCB has over 40 units online and targets having about 250 industries online in the project. The Board has been constantly expanding the scope and depth of its monitoring capability. TNPCB's indication is that an ETS will be phased in across industrial areas near Chennai, starting in Manali, Cuddalore and Ambattur industrial areas, targeting particulate matter for emissions trading

Particulate Matter has been selected for Emissions Trading in India. If we analyze the Air Quality data generated under the National Air Quality Monitoring Program (NAMP) it can be observed that:

- a) Almost half of the total cities monitored under NAMP have critical levels of PM₁₀.
- b) Indian cities are reeling under heavy particulate pollution.
- c) As far as data on SPM is concerned, a mixed trend was observed and it has exceeded the notified standards in a number of cities

Here it would be important to note that the monitoring regime for Emission Trading Scheme is based upon CEMS but not limited only to the instrumentation but it comprehends a complete institutional and technical ecosystem warranting high-quality emissions data. Also it is essential that the CEMS installed must be robust, tamperproof and accurate.

X. CONCLUSION

Thus, as it is evident from the above facts that the implementation of Emissions Trading Scheme for Particulate Matter in India has lot of challenges and issues to be addressed right from baseline inventory to market trading and crimes related to it. But considering the success of such schemes in other parts of the world especially their role in reducing ambient pollution and thus improving overall ambient air quality at an optimal cost of pollution abatement, the scheme should be surely welcomed in India and it would be a step forward for betterment of environment for the days and generations to come.

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