

## Role of Carbon Tax in Containing Carbon Emission – A Comprehensive Analysis

**Saurabh Sood\***

*Independent Researcher, Himachal Pradesh University, Shimla, Himachal Pradesh, India*

### **Abstract**

*Carbon emission is one of the most vexed issues of the present times that is directly responsible for climate changes at unprecedented rates. The issue has catapulted in last few years with the negative effects of both carbon emissions and climate change becoming more and more visible. Unfortunately, the governments around the world have not yet woken up to take note of this impending danger and we do not have any international legislation in the form of a convention or a bilateral treaty to deal with the issue. Not only that we do not have a comprehensive definition for carbon tax, let alone the standards to be adopted for the imposition of the same. Even though some steps have been taken in the direction of making carbon tax law mandatory in India and elsewhere, yet the obvious drawbacks of carbon tax on developing countries have been one of the reasons for the proper implementation of the same. This paper thus aims to undertake a comprehensive analysis of the concept of carbon tax from the national and international legislative context.*

**Keywords:** Carbon tax, Kyoto Protocol, Global warming, World Trade Organisation, General Agreement on Tariff and Trade.

**\*Author for Correspondence** E-mail: saurabhsood1892@gmail.com

### **INTRODUCTION**

An increase in average global temperature has been observed by scientists and this phenomenon is known as global warming. But most of the scientists prefer to call it climate change since it has a comprehensive meaning and does not merely encompass the effects of rising temperature. Keeping the terminology aside, the problem of increased human influence is apparent and has resulted in rising temperatures globally and this has been caused mainly due to the excessive emission of greenhouse gases or carbon emissions. The paper makes an attempt to focus on one part of the overall threat caused by the increase in carbon emissions and then scrutinize the relative effectiveness of the suggested solution in the form of carbon taxation. The end purpose of the research being that the carbon-based emissions be reduced or eliminated so that the impending climate change process be halted, reversed or slowed down. For a solution to be effective, it must yield quantifiable results otherwise the solution can

hardly be referred to as effective. The measures that a society employs to obtain the desired results would be effective only if such measures are employed in tandem and directed towards slowing down or putting a stop on the deleterious effects of the climate change process. At this juncture it is imperative to decipher the nature of the problem in hand so as to appreciate the need of immediate affirmative action to contain the issue of climate change. In order to trim down the amount of carbon emissions it is submitted that a price or tax be set on the carbon emissions [1]. Such a price or a tax, is known as a Pigouvian tax. The tax should be fixed at a level directly proportional to the consequent damages that a ton of carbon or carbon dioxide emissions will accrue. This means that the polluter will be charged for the marginal damage that has been caused in such a manner that it will not generate profit to the polluter to produce goods that cause carbon emissions beyond a certain point. The amount of carbon emissions will be lessened if the price or tax is

set properly and this would result in subsequent reduction of environmental damages. A grey area that is subject to excessive dispute also exists with respect to fixing the price or tax on carbon emissions. The main source of this controversy is establishing marginal damage estimate. The researchers dealing with the issue contend that it is impossible to determine or estimate both the costs and the occurrence of the catastrophic risks. It is imperative to establish whether various models meant to explain carbon taxation are relevant at all in the long run since regardless of the price being fixed on the carbon emissions, yet some concrete step ought to be taken to reduce the overall emissions below the catastrophic level. Hopefully, at present the best thing to do is to fix a price on carbon emission even if it is catastrophic simply because it ensures certain reduction in carbon emissions.

### **DEFINING CARBON TAX**

Simply put a carbon tax is a sort of Pigouvian tax that is a negative externality levied from business enterprises to remedy a market failure that has resulted from their work. Pollution results in a negative externality since it hampers the interests of the society at large including the polluter and the resulting financial benefits are not evenly disbursed in the society. These financial benefits at the cost of carbon emissions resulting in lower cost of production prove beneficial only to the polluter [2].

A carbon tax thus ensures that the burden that results from this activity is shifted to the polluter from the society. This results in alignment of the real benefits and costs that result from the business activity and create viable incentives for the businesses to utilize the resources in the best optimal manner. Taking this analysis into consideration, we may say that the conceptual definition of polluter is made applicable to parties apart from the polluter who is responsible for the emission of the carbon. For instance, when we talk of manufactured products, the end consumers of the manufactured products may also be held responsible for pollution because it is the demand for the product in question

that lead to its production and the consequent pollution. Almost all the economists opine that for the reduction of the potential impacts that the climate change would have on the world, it is imperative that tax be levied during all stages of production and the use of fossil fuels. A carbon tax is thus a perfect example of application of “double dividend hypothesis” meaning thereby that such a taxation scheme fosters optimum and efficient use of the existing resources and the reduction of the deleterious outcome of their use. A tax on the consumption of fossil fuels is therefore a cost effective and cost-efficient scheme that ensures reduction of consumption of fossil fuels thereby creating need for the use of alternative technologies for production. Carbon taxation also gives more flexibility when it comes to internalization of the costs of emissions. These carbon taxes thus directly concern all those industries that have the capacity to pollute. But in the long run the carbon tax would burden the energy and transportation sectors. The need of the hour therefore is that apart from imposing the tax on the transport and the energy sector, the same be also imposed on other industries. For instance, taxing the industries dealing with plastic production would encourage such industries to engage in production of durable plastics or to improve the recyclable viability of their products.

### **LEGISLATIVE ASPECT OF CARBON TAXATION - INTERNATIONAL ASPECT**

The risks associated with the carbon emissions impact countries worldwide, whereas the impact of certain forms of air, water and soil pollution is felt where they take place. The need for containing and controlling carbon emissions therefore requires cooperation at a global level for its obvious consequences. At present, imposition of the carbon tax on the imports with carbon content and to provide rebate on exports with carbon content is allowed under the World Trade Organisation (WTO) regime, the General Agreement on Tariffs and Trade (GATT), and other tax and trade treaties similar in nature [3]. Thus, the rebates by virtue of Value Added Tax (VAT)

that are imposed on exports are permissible just like the VAT is imposed on the imports. The main issue here is that the carbon being consumed in the process of manufacturing is not included in the finished product, just as the carbon is used during the manufacturing of steel. Unfortunately, only the consideration of the product contents is permitted by GATT and not the process in which the product is produced. The need of the hour is therefore to amend and permit taxes and rebates. The obligation should be made mandatory and not like the Kyoto Protocol where the obligations are optional. The replacement, it is submitted needs to be not merely about permitting carbon taxes, but it should both encourage and require them. Imposition of the regulations by the signatories of the treaties such as the Kyoto Protocol may not be much effective since the political pressure in the home country is generally against the regulation that has the potential of harming the domestic businesses and in turn fail to respond affirmatively to the apparent long-term domestic threat. Imposing of the carbon tax by the signatories at the domestic level would be possible only if other taxes are considerably harmonised with the carbon tax so that it does not put unnecessary burden of excessive tax on domestic companies. Another step that can be taken in the direction of making carbon tax more acceptable at the domestic level is by extending carbon tax rebates on the exports and by imposition of carbon tax on the imports which would prove beneficial to both the businesses and workers. It has been noticed that most of the developing countries instead of implementing policies for reduction of carbon emission, subsidise the fuel costs which result in the subsidising of the carbon emissions. Hence, the need of the hour is to have a gradual shift towards the taxing of carbon emissions so that the stress on both the citizens and government is considerably reduced globally. The concept of international carbon taxation is not a new concept in the scholarly circles but most of the time it is relegated to a mere footnote in substantive conversations concerning international environmental issues.

## **LEGISLATIVE ASPECT OF CARBON TAXATION - NATIONAL CONTEXT**

In India coal is responsible for powering half of the total electricity generation of the country. It was on 01.07.2010 that India for the first time put forth a pan India carbon tax of Rs. 50 per tonne of coal that was both produced and imported into India [4]. Subsequently, same was revised and increased to Rs. 100 per tonne in 2014. At the time when the carbon tax was introduced in India, the then Finance Minister, Pranab Mukherjee contended that the carbon tax, also known as clean energy tax, would be crucial in financing National Clean Energy Fund (NCEF). A need was also felt that there should be a tax on domestic carbon emissions when a comprehensive global carbon tax was being deliberated at a global level. However, various industry bodies were apprehensive that such a carbon tax would inflate the prices of coal and hence did not favour the tax [5]. Introduction of carbon tax in India was a step taken so that by 2020, 25% amount of carbon dioxide released per unit of gross domestic product in 2005 be reduced. The de-facto carbon tax was however neither successful in putting a stop at the demand for the fossil fuels nor the incidental impacts on the climate. Further, in 2015 the Government of India, revised the carbon tax from Rs. 100 per tonne to Rs. 200 per tonne.

NITI Aayog, a premiere think tank of Government of India made certain important observations in its Report released in the year 2018. According to the Report, the inclusion of carbon tax in India has gone a bit too far for ensuring clean energy and a need for easing out the carbon tax was felt. The reduction of carbon tax was required to support the industries that are energy intensive to stand up to the competition they face from global players. The Report of the NITI Aayog comes at a time when America is easing out a number of environment protection rules that were straining the domestic industries by being overly stringent and India has taken the centre stage in the global deliberations on climate change policies. The observations made by the

NITI Aayog reiterate that the steps meant to dissuade the consumption of coal and boost the use of solar and wind power has resulted in penalizing the downstream industries who are burdened by the prohibitive energy costs. The Report of NITI Aayog calling for rationalization of the carbon taxes also resonates with the view of the Chief Economic Advisor Arvind Subramanian according to whom we need to ensure that our country's future energy needs be secured by both realistic and rational planning and that the narrative of carbon imperialism would only put a strain on the progress. NITI Aayog proposed a need for separate and specific energy policies for the power-intensive industries such as the aluminium industry and the defence industry. The same was echoed in a Report by a member V.K. Saraswat and the economist Aniruddha Ghosh titled "*Need for an Aluminium Policy in India*". The Report highlighted that the carbon tax resulted in higher power cost and that the power distribution firms were also burdened due to the obligation of purchasing renewable power and the payment of the coal tax of Rs. 400 a tonne. The production cost of the second most used metal has been escalated by the carbon trading system and the electricity duty levied by the states on the power generation. A tonne of carbon dioxide emission thus incurs \$9.71 of cost after combining all the above-mentioned expenses. The carbon tax was thus regarded as disproportionate and excessive from the perspective of India being a developing country. High energy sectors are subject to higher carbon cess by virtue of various taxes and duties and a separate energy policy on the basis of globally competitive rates is therefore needed so that the domestic industries are put in a position where they can compete with industries at a global level. The recommendation provided was that there was a need of rationalization of the electricity duty charges, coal cess and the renewable purchase obligations and only then these sectors could be made more competitive and also more profitable [6]. The firms that are involved in the power distribution are also supposed to purchase a certain stipulated part of their total power purchase from the suppliers dealing

with solar and clean energy. Although India has a competitive edge over other countries in coal sector yet producing coal-based electricity is most expensive in India in comparison to other countries. The Report went on to elucidate by citing the example of China that provides both coal subsidies and grid tariffs at a cheaper rate. This resulted in strengthening of the domestic aluminium industries in China and they were able to compete with the global players. All this happened when there was a decline in the total contribution of world aluminium output of US between 2001 to 2017 from 11% to mere 1%. To counter this and to safeguard the domestic industry an enhanced 10% tariff was imposed on the aluminium products that were being imported into US. This shift in the policy indicates the nature of the trade war that exists between the two countries and how the two countries dealt with the situation by simple amending their domestic policies. Various energy experts have observed that with the recent decline in the prices of clean energy, the firms involved in power distribution will be easily able to fulfil their renewable purchase obligation. The worrying climate concerns attached with the use of coal has led to the decline in its consumption in majority of the economies excluding India. At this juncture it is difficult for India to pull back its policies meant to promote usage of clean energy and use of carbon taxes and therefore some amendment in the law is needed to address the issue.

### **IMPORTANCE OF CARBON TAX IN PRESENT TIMES**

The most effective solution for the reduction of the carbon emissions globally is the system of carbon taxation. In case of any eventuality when the severity of climate change aggravates, a new system has to be introduced to trim down the carbon emissions. The present carbon taxation systems are considered to be least invasive measures implemented by the government which if implemented strictly has the potential of producing desired results of reducing carbon emissions. Any polluter acting in a rational manner will outright try their best to bring down the carbon emissions since not doing the same would mean losing

both profitability and viability. This means that the cost that the polluter will incur by virtue of the carbon tax system will make it impossible to keep on emitting the carbon beyond the acceptable level and beyond a certain time. The importance of robust carbon tax system can be ascertained from the fact that if the tipping point that would warrant carbon tax to be incurred is decided properly then the same would also reflect the damages to the climate accurately [7]. In most of the cases at the time of fixing the carbon cess to be imposed, the same is set a bit higher to avoid any consequences that might prove catastrophic to the climate. Another advantage of carbon taxation is that it is totally compatible with other systems meant to protect climate such as the cap and trade system or the command and control system. Although a carbon tax that is imposed on the goods results in the subsequent rise in the price of the goods, still the price we pay for the same product with enhanced price is lower than the damages to the climate that have resulted in production of that product. This is also one of the reasons why carbon tax is unpopular politically worldwide for its obvious inevitable negative impact. Therefore, to undo this negative effect that the carbon tax has on the economy and on the poor, a number of experts have opined that a collateral subsidy must be provided while imposing carbon tax. The money collected as part of the carbon tax should again be invested back into the industry to promote innovation and it may be reimbursed back in the form of tax credits to the poor to deal with the subsequent inequities created by the carbon tax. However, this notion of double dividend did not manifest in countries that implemented carbon tax. The issue of climate change is not only multifaceted but also complex problem that has resulted as a result of the excessive use and emission of the carbon dioxide. The solution of this issue will directly impact our lives and will result in reduction in our standard of living. But considering the long-term benefits of reduction in carbon emissions, a change in our lifestyle is a very small price that will ensure a brighter future for generations to come. A carbon tax is the first among many steps that will secure our future

from getting bleak. It is only with the imposition of carbon tax that the government will be successful in creating such conditions in society that would send a positive signal across the industries that a change is crucial and much needed [8]. A carbon tax will foster the need of evolving technological solutions to confront the issue of carbon emissions. Therefore, the same industries that were once called out for causing climate change through continuous carbon emissions will also play an active role in finding a solution for the same.

### **CARBON TAXATION – CHALLENGES AND SOLUTIONS**

A carbon tax being a tax on consumption is regressive. The importance of carbon can be understood from the fact that we find carbon in both manufacturing and distribution of literally all products such as steel, iron, surgical instruments, cars, plastic, air conditioners etc. In terms of consumption carbon plays an important role in our lifestyles as well wherein some people lead a carbon intensive lifestyle. Generally, some form or percentage of carbon is involved in either the products or the services, people consume [9]. A carbon tax therefore is considered to be a tax on the consumption of an individual and is deemed regressive since it forms high percentage of the lower income groups than that of high-income groups. With the increase in the amount of global carbon emissions it has become important than ever before that a law, treaty or a convention be proposed and put into force at international level to combat climate change. A harmonised and a unified carbon tax policy at a global level is crucial to deal with the issue of climate change in hand. Carbon tax thus helps in creating a capital pool for adaptation cost and devising alternate means of energy production. Once the carbon tax is finally put in place and implemented it will also deal with the issue of non-participation of countries in the Kyoto Protocol. As a treaty, Kyoto Protocol deals with the twin domains of economics and trade and the countries willing to tax the imports of non-participatory countries can do so under various exceptions mentioned under Article XX of GATT [10].

## **ISSUES IN ESTABLISHING A COMPREHENSIVE CARBON TAX LAW**

Even though extensive deliberations have taken place worldwide yet the reason for the non-implementation of the carbon tax law can be described to be because of following several reasons:

### **Absence of comprehensive implementation strategy for carbon tax:**

The foremost reason as to why there has been a major impediment in the implementation of the carbon tax both globally and domestically is that a sound strategy and a proper implementing agency is missing. For the purpose of deciding the percentage of the carbon tax to be imposed requires tax and energy specialists and extensive research on the energy requirements of each and every country. Research personnel are required for carrying out audits and surveys, on the basis of which further rulemaking and enforcement of the tax can be done. This will ensure the development of carbon tax regime at a domestic level and for the international consequences, various tax treaties and World Trade Organisation would ensure the compliance at the international level. It is only with time that the sound administrative precedents would be established to streamline the entire process for implementation of carbon tax [11].

### **Ratchet ability**

The foremost reason that made it imperative for the carbon tax to be implemented was to channel the economic strength and contain a grave issue plaguing the environment. The aim thus was to create an avenue for the reduction of the emission of the greenhouse gasses which in turn save the countries from the exorbitant costs of rectifying damages connected with climate change. To make sure that the reduction in the carbon emissions is actually happening on the ground and not merely letting people to keep on paying more to pollute the environment, a study of the ratcheting mechanism would be a great help. The ratchet will be a great help since it will result in increase in the tax rate periodically on the basis of the achieved emission reductions reached and the same can be evaluated

periodically after every five years. The periodical assessment will create a price signal that will be consistent and will encourage the building up of technologies that reduce carbon emissions, ensuring a shift in the mindset of the business houses to deploy less carbon intensive commercial practices.

### **Carbon taxation is not a feasible option for the transportation sector and commercial buildings**

Carbon tax will not yield the desired results when it comes to the transportation section or the sector dealing with the commercial buildings. While dealing with the transportation sector, the improved and updated fuel efficiency standards for the passenger and the non-passenger vehicles will leave a positive impact on the transportation sector [12]. The green buildings would greatly benefit from the periodic market evaluation relating to the energy efficiency improvements. Recognising and auditing the forestry and the agricultural impacts of the commercial buildings would be a great add on to the improvement of the carbon markets.

### **Comprehensive overhaul and amendment of the tax code**

With the finalisation of carbon tax provisions to be implemented domestically and globally require amendment to the present tax laws i.e. existing legislations. Apart from that the already present inconsistent and outdated laws should also be scrapped in case they are not in consonance with the new carbon tax provisions. To start of things, a basic tax or fee on the CO<sub>2</sub> emissions could be levied and this would help in understanding the alteration in the tax is needed or not. Subsequently, sector and market permissible emission levels could be decided that would ensure transparency and uniformity [13].

### **Social stewardship in present times**

Implementation of the new law all of a sudden would stress out the neediest strata of citizens of our country. Therefore, out of the total amount of fund that has been collected from imposition of the carbon taxes a certain fund must be set aside for the betterment of low-income families. This fund would help in

providing access to people with affordable housing energy assistance and the same may be administered at district levels. The carbon taxation regime thus ensures valuable social stewardship.

### Understanding the water impact analysis

Finally, a robust carbon tax system warrants a credible water analysis viz a vi the technological impacts and subsequent future strategies. The analysis in question, should include research on water availability and the impact of the technology on remaining water resources.

### CONCLUSION

The objective of the paper was to understand the concept of carbon tax and the relevance it has over other measures to deal with the issue of carbon emissions. The issue of climate change is directly connected to the issue of carbon emissions and the same has to be dealt with domestically and globally to attain desired results. The prospects of implementing the carbon tax system would take time and a lot of due diligence. But the apt time for implementation of the same is right now. The catastrophe is largely the outcome of unhindered and unmonitored development process by the developed countries, yet even other countries are equally to be held responsible for it. The benefits of proactive steps taken to combat the carbon emissions will flow directly to the future generations because the costs of carbon removal today are less expensive than they would be in future. The benchmark to consider any carbon removal program as effective is that it should be successful in removal of excess carbon from the atmosphere. The carbon tax system should also be made mandatory rather than merely optional and voluntary like the Kyoto Protocol. There is a certain segment of people who believe that the issue of carbon emission causing climate change does not warrant immediate action since it is not severe enough. But the research done by IPCC dealing with climate change on the basis of statistical models accurately establishes varying degrees of threat posed by carbon emission on climate

change. Thus, the need of robust carbon taxation system globally and nationally cannot be denied and must be fulfilled by the global communities at the earliest.

### REFERENCES

1. Freeman, J. (2015). Efficacy of carbon taxes and recommendations for cutting carbon emissions. *Houston Business and Tax Law Journal* 15(2), 268-299.
2. Kendall, K. (2012). Carbon taxes and the wto: carbon charge without trade concerns. *Arizona Journal of International and Comparative Law* 29(1), 49-90.
3. Waggoner, M. (2008). Why and how-to tax carbon. *Colorado Journal of International Environmental Law and Policy* 20(1), 1-34.
4. Dogra, Sapna (July 3, 2010). "India sets \$1/mt clean coal tax for domestic producers/importers". *Platts International Coal Report*.
5. Pearson, Natalie Obiko (July 1, 2010). "India to Raise \$535 Million From Carbon Tax on Coal". *Bloomberg Businessweek*. Retrieved May 14, 2011.
6. Specht, S. (2016). Developing an international carbon tax regime. *Sustainable Development Law Policy* 16(2), 28-37.
7. Zimmer, M. J. (2008). Carbon tax: Ready for prime time. *Sustainable Development Law Policy* 8(2), 67-72.
8. <https://www.livemint.com/Politics/h55jAWHSdzUq1djhcFN7eK/Need-to-ease-carbon-taxes-to-help-energyintensive-industri.html> (last accessed on 20.02.2019).
9. Kendall, K. (2012). Carbon taxes and the wto: carbon charge without trade concerns. *Arizona Journal of International and Comparative Law* 29(1), 49-90.
10. Sewalk, S. (2014). carbon tax with reinvestment is wto compatible. *Fordham Environmental Law Review* 25(2), 338-392.
11. Deng, H.; Wang, A. (2014). Constructing the Legal Safeguard for China's Carbon Taxation. *Journal of Sustainable Development Law and Policy* 4, 4-21.

12. Colin, D.; Herbet, J. (2013). Carbon finance, patronage and taxation. *International Business Law Journal* 2013(4), 389-394.
13. Cashman, M.; Hutchinson, M. (2010). Taxation and the trading of carbon credits. *International Tax Review* 21(5), 45-47.

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