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European Union Emission Trading Scheme (EU ETS): Regional Efforts to Curb Carbon Footprint¹



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Introduction

The emission trading Scheme of the European Union (EU) is the flagship scheme in the world and has been a significant approach in contributing to curbing carbon footprint. Covering approximately 11,000 installations (power plants and factories including airlines running flights within Europe) across the region, EU Emissions Trading Scheme (ETS) is the biggest carbon market in the world (Creti and Joets 2017 and Abnett 2020) and covers 41 per cent of the total EU emissions (Abnett 2020). The system operates across the 27 EU member states including Iceland, Norway, and Liechtenstein and also has a link with the Swiss ETS (LIFE ETX 2021). The extent of membership to implement the EU's ETS makes the mechanism a viable option for expansion outside the region. However, the major argument made is that due to multifarious issues, the EU system of emission trading cannot be a viable option for most of the developing and least developed countries due to the nature of the economic and political environment.

Background

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EU ETS is considered to be a ‘flagship measure’ (Ellerman and Joskow 2008) adopted by the EU to meet the obligation of the carbon reduction plan and mechanism inspired by the Kyoto Protocol but is independent of the same. The ETS of the EU became operational even before the Kyoto Protocol came into force in 2005. The EU started to strategize the agenda for achieving climate neutrality. The phases for the implementation of the EU ETS are:

i. *Phase I (2005-2007)*

In 2005, the EU launched its maiden carbon trading phase which covered emissions from power plants, steel plants, oil refineries and cement factories in the then-25 EU countries (Abnett 2020). This phase can be considered a preparatory phase for phase 2. Some of the major features of this phase are: the inclusion of only CO₂, granting free allowances, and the imposition of penalties (40 Euros per tonne) for non-compliance (European Commission 2022, a).

ii) *Phase 2 (2008-2012)*

During this phase, the Kyoto Protocol also had the first commitment period wherein the European countries needed to meet their emission targets. However, the EU went ahead with phase 2 of ETS with certain key features like reducing the cap on granting the allowances; this phase also saw the joining of Iceland, Liechtenstein and Norway; the inclusion of nitrous oxide emissions; non-compliance penalty was increased to 100 Euros per tonne; around 1.4 billion tonnes of CO₂ equivalent international credits could be bought by businesses; National Registry and Community Independent Transaction Log was replaced by Union registry and European Union Transaction Log respectively; the aviation sector was brought under the ambit of EU ETS on January 1, 2012 (European Commission 2022, a). By now, the data availability had become easier as a result of which the cap on allowances was reduced in this phase based on emission. The recession of 2008 also had an impact on the carbon price as there was a surplus of allowances and credits.

iii) *Phase 3 (2013-2020)*

Phase 3 has brought considerable change in the framework of EU ETS as compared to the previous two phases. Some of the changes include national caps being replaced by a single EU cap on emissions; instead of free allocation, the auction was chosen as a default method; inclusion of added gases and more sectors; around 300 million allowances were put aside to fund the deployment of new innovative technologies for renewable energy through the New Entrants Reserve (European Commission 2022, a). These policies could also complement the EU’s green scheme by fostering new technologies that would curb carbon emissions.

It is now in the fourth phase of its implementation which started in 2021 and will continue until 2030. Its aim during this phase is to attain climate neutrality in the region by 2050 which is in line with the Paris Agreement of 2015 whose objective has also been to keep the global temperature below 1.5 degrees Celsius (European Commission 2022, b). It is a matter of time

to see if such an aggressive and ambitious aim of the EU would be achieved given the nuanced nature of the scheme itself.

The Working of the EU ETS

The EU ETS functions on the principle of cap and trade which means that the GHG allowances are considered as a product which can be traded on the carbon market in the EU (Environmental Protection Agency 2022). The regulated companies included in the EU ETS included the installations like power plants, industrial plants, companies that use heavy energy, and airlines. The cap is set at the EU level on the sum of the GHGs emitted by companies included in the EU ETS (Environmental Protection Agency 2022). The EU also sets the timeline on how the pace of limiting emissions should be met and the cap moves downwards every year to meet the target of reducing emissions. The cap is divided into several permits for pollution which is known as EU Allowances (EUA) and 1 EUA = 1 tonne of CO₂ emissions (LIFE ETX 2021). The EU ETS installations are bound to surrender allowances which are equal to their emissions in the previous year (LIFE ETX 2021).

For example; if an installation emitted 1 million tonnes of CO₂ in 2020, it would require 1 million EUAs to transfer to the European Commission's central registry in 2021 (LIFE ETX 2021).

The online banking system called the Union Registry was established which holds carbon allowances instead of money and operates electronically (Environmental Protection Agency 2022). Companies under the EU ETS must have accounts on the same to hold carbon allowances. The companies are levied a heavy penalty if not complied to. The EU ETS is essentially a work in progress wherein, more strong regional policies may be concluded in future for its economic gain as well as its effort to curb emissions in the region.

Achievement and the political economy of EU ETS

The cap and trade system of the EU ETS has been successful in limiting emissions in the region because of the nature of its integration. According to Convery (2009), the success of the EU ETS was inevitable because of the Single European Market for the economy, and its ability to impose a carbon energy tax based on qualified majority voting which nullifies the veto of any country, etc. the GHG emissions from the stationary installations under EU ETS has decreased from 1530 million tonnes of CO₂ in 2019 to 1355 million tonnes in 2020 which is a decrease of 11.4 per cent and 43 per cent as compared to 2005 (European Environment Agency 2022). This shows that there has been a drop in emissions which was only witnessed during the time of recession in 2009.

The policymakers in the EU made a political calculation that for their plan to take shape, they need to allocate free allowances based on the emission history of the polluters (known as *grandfathering*) and the economist had also advised that the system would be cost-effective irrespective of the way allowances were allocated (Sato, Rafaty, Call and Grubb 2022). It was also stipulated that allocating allocations for free to the highest emitters can create incentives

to emit more in the present so that they can obtain more allocations for free in the future. Therefore, there was a huge public resentment for reforms in the allocation of allowances as the system of providing free allowances would profit the biggest polluters. The year 2022 saw allowances price hike beyond 90 Euros per tonne of Carbon after years of depression in carbon prices ((Sato, Rafaty, Call and Grubb 2022 and Toplensky 2022). It took almost a decade of political lobbying and economic refinement to reform the existing allocation of the allowances that bore fruit.

It has been observed by Sato, Rafaty, Call and Grubb (2022) that the allowance allocation is not as simple as it seems, it is a “complex tug of war between environmental ambition, principles of aggregate economic efficiency, and the politics of distribution”. Hence, it is essential to look at the politics of lobbying and bargaining among environmentalists, bureaucrats, politicians as well as other stakeholders which impacts the decision-making regarding allowances. It has been highlighted by Toplensky (2022) that the rules can be adjusted according to the needs of the EU objectives as carbon credits are conceptual rather than physical.

An Alternative to Global Carbon Reduction Mechanism?

EU ETS has been functioning in the region with efficiency since its inception but it would be difficult to implement as a global common carbon trading mechanism in future due to multiple reasons. The domestic political economy might be one of the reasons for their failed emissions trading scheme.

Countries worldwide are committed to limiting carbon emissions to address the existential crisis of climate change in the globalising era. Some of the major tools or mechanisms used by governments all around the world to curb greenhouse gases include imposing pollution taxes, emission restrictions, emission trading policies, afforestation, promotion of renewable energy, etc. (Wei, Gong, et.al. 2021). Amongst these measures, the market-oriented emission trading scheme is considered to be a more cost-effective option according to Schmalensee and Stavins (2017). However, this argument can be refuted because the mechanism has not been able to take shape as an environmental policy to cope with climate change as witnessed in the recent 27th Conference of Parties of the United Nations Framework Convention on Climate Change held in Egypt. In this summit, the EU proposed the ‘Carbon Border Adjustment Mechanism’ policy intending to impose a tax on the products like steel and cement which are regarded to be highly carbon intensive and would be effective from 2026 (The Hindu 2022, a). This proposal by the EU has been opposed by India, China, Brazil, and South Africa also known as (BASIC) (The Hindu 2022 a). Instead, the parties including G77 and China insisted on a decade-old demand for the creation of a ‘loss and damage’ fund to compensate target countries that are bearing the brunt of climate-related tragedies (The Hindu 2022 b). Hence, the real issue is to examine if the model emission trading scheme of the EU will be able to bring the parties to agree to a carbon trading scheme to fulfil the goal of reducing global warming to 1.5 degrees Celsius.

Conclusion

The EU's mechanism to curb carbon footprints in the region would continue to drive the enthusiasm of the researchers to study the dynamics of the system and its potential to contribute to the global emission trading scheme. The membership already includes four members outside the EU, therefore it might have an opportunity to involve other countries outside the union. Europe had the mechanism for curbing Carbon even before the Kyoto Protocol came into force in 2005 and has been able to expand and improvise the system since the trial phase of its implementation. Though the EU ETS is regarded as a flagship model for curbing carbon footprints, the question that needs to be reflected is if it could be a global model for emissions trading. In the recent COP27, the EU proposal CBAM was rejected by BASIC. This kind of hindrance might be an obstacle to the EU's policy to curb carbon at the International level. As efforts are being made by countries around the world to achieve carbon neutrality, we must see if the carbon trading scheme becomes a viable option to be implemented globally.

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