

Carbon Credit and Trading: An Overview

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Abstract:- Green Environmentalist works to support legislation and businesses that care about the environment because global warming is now expensive. We are all aware that the amount of carbon dioxide in the atmosphere of the Earth has been rising alarmingly, making it the most major greenhouse gas produced by the burning of fuel. As a result, a global "carbon market" that permits trading of carbon credits both inside and outside the regulated area has been developed. As part of the Kyoto Protocol, constraints on Green House gas (GHG) emissions are implemented in this system of carbon trading, and the predetermined emission limits are subsequently allocated among the various countries, who are then obligated to regulate the greenhouse gas emissions produced by the different business enterprises operating inside them. The main objective of this article is to discuss the essential abstraction and consequence of carbon credit.

Keyword:- Carbon Credit, Kyoto Protocol, Green Environment, Greenhouse.

I. INTRODUCTION

The earth is unique because it has a climate with a unique chemical composition. It also features components that serve as the energy centers for all of its environmental systems. But the main source of energy for the Earth is the Sun. It has been observed that a portion of the solar radiation is reflected back to space by the ozone layer that surrounds the Earth and is kept in place by the gravity of the Earth. The majority of the gases that make up the Earth's pressure including nitrogen, oxygen, and carbon dioxide, make up around 99% of it. The percentages of nitrogen, oxygen, and carbon dioxide in dry air are almost 78% nitrogen, approximately 21% oxygen, 0.036% carbon dioxide, and nearly 0.964% other gases. Oxygen and nitrogen are crucial for maintaining life on Earth. All green plants require carbon dioxide to survive, and it is crucial for photosynthetic activity, which supports and maintains the global food web.

The exchange of heat energy drives the many operations that are carried out by the planet's living things. While some processes release energy, others absorb it. Along with the thermal energy that comes in from the Sun, energy that is emitted by various biochemical processes and artificial means is also present inside the atmosphere. The planet's temperature rises as a result of this. Gases like carbon dioxide, carbon monoxide, methane, and others trap this heat by forming a barrier between the different layers of the atmosphere and obstructing its escape. Greenhouse

Gases are termed as (GHGs). These gases take up heat from the atmosphere to some level and then release it back into the atmosphere. Without these gases, a significant percentage of the thermal energy will escape, causing the temperature of the Earth's surface to drop to a point beyond which life cannot exist. The presence of these gases in the required concentration in the atmosphere is crucial. As a result of industrialization, several destructive human behaviour have evolved, such as the burning of fossil fuels, the burning of plastic and polythene, and the thinning of forests to make space for new towns. As a result, the atmosphere's concentration of greenhouse gases—particularly carbon dioxide—has increased. The atmosphere's roof is currently being served by the average surface temperature, which is gradually rising. This event, known as global warming, poses a major threat to the entire world. The Inter-Governmental Panel on Climate Change (IPCC) also stated that human-caused emissions are significantly raising atmospheric concentrations of greenhouse gases, which will strengthen the greenhouse effect and cause an extra warming of the Earth's surface on average. As people become more aware of the dangers of greenhouse gases (GHG) and the phenomena of global warming that it causes, government agencies and corporate organizations are being forced to implement policies that will help reduce the amount of carbon dioxide in the atmosphere.

➤ Objective of the study

- To understand the fundamentals of carbon credit trading

➤ Scope of the study

This article aims to knowledge about the concept called Kyoto Protocol (KP) and carbon credit and carbon trading in India. Analysis of the state wise report of the carbon emission and manufacturing sectors in India.

➤ Kyoto Protocol in India

The Kyoto Protocol was started by the United Nations Framework Convention on Climate Change, accepted by one hundred and eighty one countries, including the whole European Union, in 1997, and went into effect in 2005. (Ashim Paul, 2011). The International community put forth this accord in an effort to address and reduce greenhouse gas emissions that have contributed to the emergence of climate change. The Protocol imposes obligations on commercial enterprises that emit more carbon dioxide than is permitted, including reducing those emissions to predetermined levels, obtaining certifications of carbon offsets that can be exchanged on the market, or paying a carbon tax, which is a fee for emissions.

This was stated that the third Conference of Parties of the United Nation Framework Convention on Climate Changes (UNFCCC) that developed countries were primarily responsible for the rise in greenhouse gas emissions. After taking into account its negative effects, Annexure-I nations including Australia, France, Germany, the United Kingdom, and others have agreed to quantifiable reduction pledges, which implies they must reduce the amount of greenhouse gas emissions into the atmosphere. In particular, developing

countries like India, China, Saudi Arabia, Israel, and others make up Annexure II countries. The Kyoto Protocol is split into two sections, one based on projects and the other based on allowances. Three tools are made accessible by the Kyoto Protocol Mechanism, assisting developed and developing nations with defined emission constraints and pledges. Joints Implementation (JI) and Clean Development Mechanisms (CDM), the first two mechanisms, are business-based, and International Emission Trading (IET), the third mechanism, is an allowance-based mechanism.

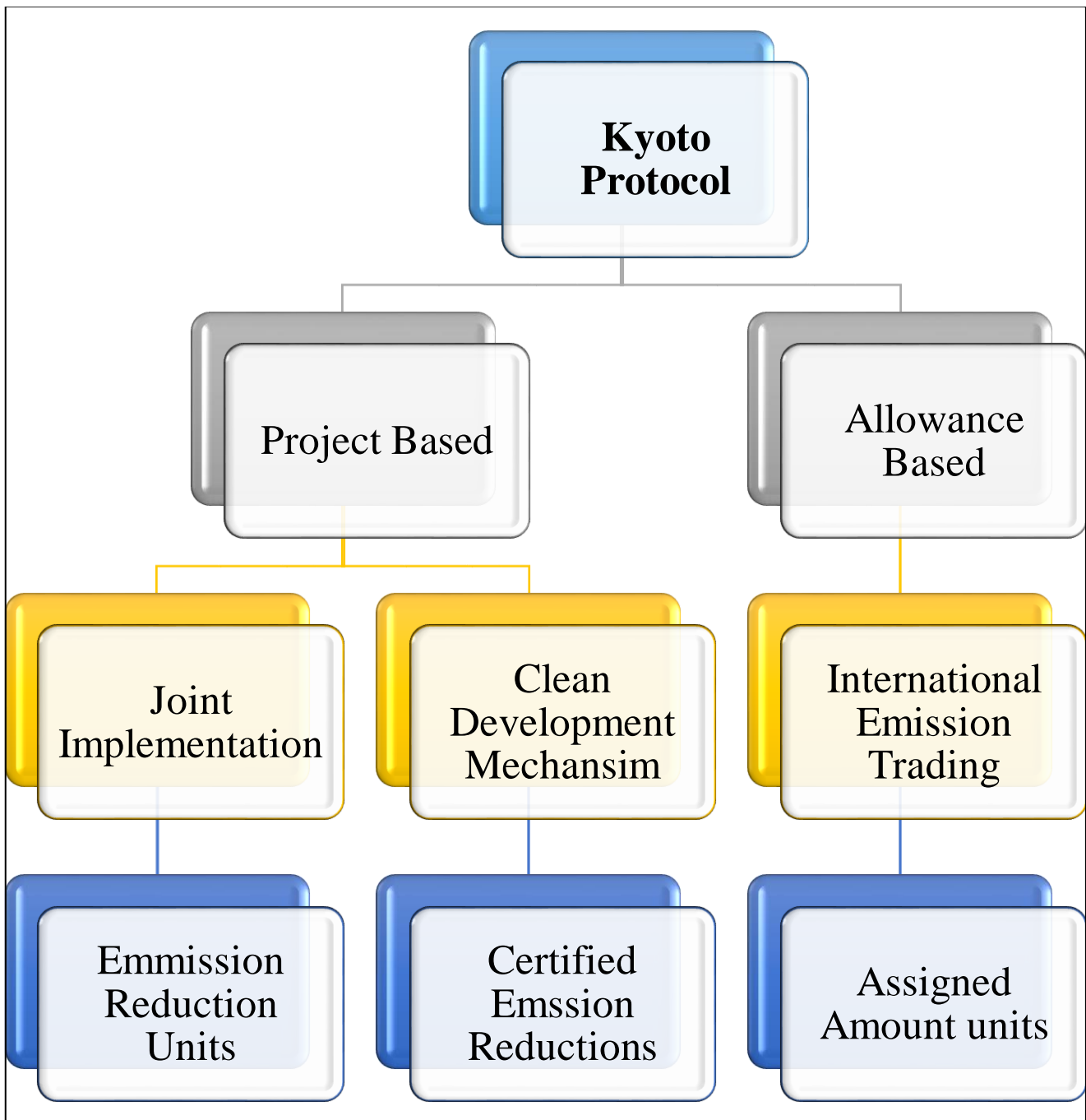


Fig 1 Kyoto Protocol Structure
 Source: United Nations Climate Change 2022

II. REVIEW OF LITERATURE

Rajkumar Adukia (2009) this study analyses carbon credits and considers the potential advantages it may offer Indian businesses. The article conducted research from the perspective of a developing nation and how it might profit from taking part in Clean Development Mechanism projects. It gives information on the Clean Development Mechanism, the process, the stages for registering a project, the risks and advantages, and earning potential.

Ashim Paul (2011) the study entitled that carbon credit and carbon trading Within a very short period of time after its conception, the idea of carbon credit and carbon trading have evolved from their efforts and has gained acceptance on a global scale as a sustainable solution to the issue at hand. The study result that the current state of India's carbon credit and trading markets and outlining their potential for the future.

Yuvika Gupta (2011) the study entitled that carbon credit towards green environment the purpose of the study was to analysis the essential concepts and abstraction of carbon credit. It also emphasises the methods used to safeguard the environment. This article examines the business opportunities in the world emissions market with reference to India.

Avani Nareshbhai Shah (2016) this study indicate that solar and wind technologies are the most often used technologies by Gujarat's energy sector organisations for CDM projects. The article concludes that the practicality of the CDM projects as well as their necessity to be environmentally benign play a significant role among all the other factors. With the safe of the environment in the emission of carbon.

Ayay et..al..(2016) The Kyoto Protocol leads to the creation of the Carbon Credit Trading. The primary objective of this article was to know the exchange carbon credits on the market. In India, this sort of trade is currently one of the most popular. Companies that are not presently carbon limited must get ready for carbon laws in the long run as a low carbon economy. The objective of this study was to examining the advantages and disadvantages of the carbon credits for Indian industry.

Sonal Chonde (2016) the identification of carbon credits as an intangible good that may be exchanged on the commodities market. Carbon Emission Reduction is one way that carbon credits are traded (CER). Projects in developing nations that have reduced the greenhouse gas emissions by one metric ton of carbon dioxide annually are granted a CER by the CDM executive board (20) years.

Areta et..al.. (2021) to present a comprehensive overview of Carbon Credits and Carbon offsets this helps the people help people to understand the development and actual operation of these markets. The study concludes that carbon offset's lifecycle, from creation to retirement. It ends with a few general conclusions on the opportunities and dangers that the carbon markets pose.

Subrata Gorain et..al..(2021) the big issue with the significant international climate change problem of the twenty-first century is global warming. Anthropogenic activities have greatly boosted the atmospheric concentration of greenhouse gases since the Industrial Revolution (GHGs). This study concludes that global carbon market overview and the amount of carbon credits that India may have traded there had the burning of crop residues been ceased in the Indian agricultural sector.

Arimura Toshi (2022) the study focus on carbon sequestration/removal credits are currently expensive to produce on a global scale, and their supply will need to be expanded in the future with increasing investments. To support these initiatives, a supportive environment must be established that can serve as an incentive for those who invest in carbon sequestration and removal projects in order to support future crediting while committing to the long-term acquisition of those credits.

Ueno Takah (2022) the study entitle that the carbon credit and credit off set carbon tradingthe main causes of this growth include excessive industrialization, extensive oil, coal, and gasoline use, urbanisation, and the destruction of forests and certain agricultural practises. India and other developing nations will benefit from the explosive growth of the carbon trading industry.

➤ Carbon Credit

Carbon credit is an instrument used to decrease the degree of carbon dioxide or ozone depleting substance emanation, which is brought about by an undertaking or assembling the items by any element. As indicated by Kyoto Convention the worth of one carbon credit was identical to one ton of Carbon Dioxide Reduction.

One Carbon Credit = One Ton of Carbon Dioxide Reduction

Fig 2 Carbon Credit
(Source: UNFCC 2021)

This idea appears for the explanation that few nations are endeavoring to safeguard the climate. Carbon credit, perceived to survive or forestall the effect of an unnatural weather change, is an essential part of fossil fuel byproduct exchanging at worldwide level which has been giving a method for diminishing the ozone harming substance discharge level on a modern scale alongside money related benefits that can be procured by selling these carbon credits to different associations which are engaged with its exchanging. These credits can similarly be exchanged between the couple of associations or may be bought or sold in the overall market at the normal market cost. Carbon credits might be used to finance the carbon decrease adventures or plans between the exchanging accomplices across the world. This thought was formalized in the Kyoto Convention with a comprehension among 200 countries and these credits are allowed as Affirmed Discharge Decreases (CERs) credits to those elements who have effectively finished their task.

➤ *Carbon credit and trading*

By offering financial incentives, carbon trading is a type of management strategy used to reduce carbon dioxide (CO₂) emissions. The maximum amount of carbon that may be emitted is constrained or capped by central authority [10]. The right to receive allowances and emit a certain quantity must be represented by an appropriate number of allowances (or credits) held by a firm, person, or other organisation. Total allowances and credits combined must not exceed the limitation, keeping overall emissions within that range. Companies that require more carbon credits ought to purchase credits from less polluting or carbon credit-holding companies [11]. In essence, emissions are paid for by buyers, while decreased emissions are rewarded for sellers. This trading has resulted in the growth of carbon markets in recent years.

➤ *Projects under the Clean Development Mechanism (CDM) for Various Sectors in India*

Today, a number of organizations in India are interested in the trading of carbon credits. Ministry of Environment, Forest and Climate Change of Government of India have chosen 13 different sectors for Clean Development Mechanism (CDM) projects, and as of right now, 2938 projects have been registered with the National Clean Development Mechanism Authority (NCDMA). The list of approved CDM projects, broken down by sector. The state wise list of CDM projects is shown in table.

Table 1 State wise Approved Projects

State	Total Projects
Andaman and Nicobar	1
Andhra Pradesh	10
Arunachal Pradesh	1
Assam	1
Bihar	1
Chattisgarh	2
Gujarat	19
Karnataka	9
Madhya Pradesh	21
Maharashtra	10
Orissa	2
Punjab	2
Rajasthan	15
Tamil Nadu	8
Telengana	3
Uttar Pradesh	2
Uttarakhand	1
West Bengal	2

(Source: <https://ncdmaindia.gov.in/ReportsPublic.aspx>)

III. CONCLUSION

The words "carbon trading" and "carbon credit" still need to become widely accepted. Comprehensive education is required to increase public knowledge of the problem in order to provide our future generations with a better, cleaner environment. However, there are signs of increased activity, such as the rise in the price of carbon credits and the emergence of new financing schemes for emission trading. Furthermore, when it comes to developing nations, India is emerging as a pioneer in the creation of cutting-edge carbon trading techniques and portfolios.

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