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8. Observing Environmental Taxes, Carbon Laws, and Sustainability Rewards in India

Prof. Shailesh Kumar Dubey

Abstract:

A carbon tax is essentially a levy on the amount of carbon emitted. A carbon tax's goal is to lower carbon emissions by motivating emitters to avoid carbon-intensive manufacturing and consumption by delivering a price signal to them. Global concern exists regarding climate change, which if major mitigation measures are not adopted, might have catastrophic implications on the world.

According to projections, even a 2°C increase in global warming could result in extreme heat waves, violent storms, and widespread food shortages. According to the Global Climate Risk Index 2021, India is one of the ten countries most affected by extreme weather caused by climate change. In order to encourage future investment, consumption, and innovation along sustainable and climate-friendly routes and to assist a sustainable pandemic recovery, a carbon price is thought to be a viable instrument. India's renewable energy industry appears to be rebounding in terms of investments after experiencing a setback during the first two years of the COVID-19 epidemic.

Recent research, however, raises concerns about the sector's overall development rate, with finance emerging as a significant barrier. According to the Organization for Economic Cooperation and Development, "green growth" refers to promoting economic growth and development while ensuring that natural resources and environmental services continue to provide the necessities for human well-being on a global scale. This can be accomplished by catalysing investment and innovation to support sustained growth (OECD). Carbon prices are an effective approach to reduce carbon emissions and combat climate change. Internationally, countries' implementation of carbon pricing programmes is becoming increasingly important.

Carbon taxes would incentivize businesses to transition to cleaner, more environmentally friendly production methods, which would benefit both the economy and the environment while also absorbing the costs of negative externalities. As a result, implementing such a tax in India would be favourable.

Keywords:

Green Growth, Green Cess, carbon emissions.

Introduction:

Global concern exists regarding climate change, which if major mitigation measures are not adopted, might have catastrophic implications on the world. According to projections, even a 2°C increase in global warming could result in extreme heat waves, violent storms, and widespread food shortages. It is imperative that there be zero net carbon emissions by the end of the century in order to avoid crossing this threshold; carbon taxes are one of the strategies for achieving this goal.

A carbon tax is simply a tax on carbon emissions. A carbon tax's goal is to lower carbon emissions by motivating emitters to avoid carbon-intensive manufacturing and consumption by delivering a price signal to them. Governments can use the money they receive from the carbon tax to fund research on emission reduction, green technologies, renewable energy sources, and other projects that will help reduce emissions even further.

Governments across the world are implementing sustainability tax policies to cut emissions, achieve carbon neutrality, combat climate change, and collect money for crucial policy goals. Although these objectives are similar, different policies have been put in place to accomplish them. For businesses that want to combat climate change, obtain significant incentives, or avert expensive shocks, being abreast of the changing sustainability tax policy landscape around the world is essential. However, it can be difficult to stay current as policies change quickly, especially for businesses operating internationally.

Carbon taxes have the benefit of shifting the burden of the external costs of carbon emissions—such as land loss due to sea level rise, crop damage from altered precipitation patterns, and medical expenses related to heatwaves and droughts—from the general public to the polluter. As a result, carbon taxes serve to include the costs associated with the negative externalities of carbon emissions within its scope.

Carbon taxes do not have to be imposed exclusively on carbon emissions; they might also be imposed on the use of fossil fuels such as coal and petroleum. The purpose of this chapter is to analyse how carbon taxes have affected India.

The Green Tax is a summary of the environmental taxes, carbon pricing schemes, and other incentives for sustainability that are in place in an increasing number of jurisdictions. Although there are local fuel taxes and incentives for clean energy initiatives, India has well-established national sustainability tax programmes.

In India, there is no formal system for pricing carbon, neither through carbon trading nor as a tax. The Energy Conservation (Amendment) Bill, 2022, has just been amended by the government, paving the way for the government to forward its decarbonization agenda through carbon trading, the requirement to use non-fossil fuels, and energy efficiency standards. There are high taxes on petrol and diesel, a "Green Tax" on old vehicles and lower taxes on electrics vehicles. Fiscal incentives are being considered to encourage domestic production of ACC batteries, solar panel production, and other qualifying activities. For the automotive industry, including the production of electric and hydrogen fuel cell vehicles, a Production Linked Incentive (PLI) programme has been proposed.

A Study of Carbon Taxation in The World':

Various carbon pricing systems have been implemented in a number of countries throughout the world (carbon pricing mechanisms are mechanisms that impose a price on carbon emissions). The UN reports that 23 of these countries have put in place carbon prices, largely at the national level. Countries started imposing carbon fees in the early 1990s. Finland first accomplished this in 1990, and then Norway, Sweden, and

Denmark did it in 1991. Carbon taxes have been implemented in both rich and developing nations over the years (for instance, Chile and South Africa have done so). Every country has its own system and level of carbon taxes, which are being implemented by more countries not only to try to minimise the consequences of climate change, but also to avoid being penalised by the international community.

However, there are compelling arguments for developing nations to seriously examine carbon pricing, and carbon taxation in particular, even in the absence of global collaboration. To begin with, in the absence of a carbon price, people and businesses may invest in technologies that are ultimately ineffective. Power companies, for example, will invest in brand-new power plants that use high-carbon technologies. Later, either of them will have to be abandoned, resulting in a waste of investment, or they will force nations to adopt a higher emissions path in the medium term. Today's strong signal from a carbon price could help prevent these "lock-in" effects.

Second, carbon taxes provide a significant and manageable revenue stream. The COVID-19 pandemic has intensified this requirement while also raising questions about the sustainability of the public finances in some nations. Increasing tax income is a crucial component of the development objectives of many countries as they strive to boost public investment and social safety nets.

Since these products are frequently already subject to some type of taxation (or subsidy), applying carbon prices in the form of taxes on fossil fuels, as has been done in Colombia and South Africa, is administratively possible in most nations. Carbon taxes are therefore expected to be less administratively expensive than other taxes in circumstances where the informal economy represents a significant portion of economic activity.

The Carbon Tax Structure in India:

India is one of the ten nations most impacted by extreme weather due to climate change, per the Global Climate Risk Index 2021. Because we are a developing country, it is critical that we minimise carbon emissions as much as feasible.

Even though India is one of the few countries on track to fulfil its Paris Agreement carbon reduction targets, more has to be done to assist it in the battle against climate change.

Although India does not have a national carbon tax, various state governments have imposed their own fees to offset the costs of adverse externalities, such as the Green Cess in Goa and the Eco Tax on autos entering Mussoorie. Furthermore, while the Government of India (GOI) has not technically adopted a carbon tax, it has already established legislation to collect the costs associated with negative externalities.

The Clean Energy Cess was one policy introduced by the GOI in 2010 with the goal of encouraging the use of clean fuels by increasing the cost of coal usage and donating a portion of the money earned to research and clean energy programmes.

The Clean Energy Cess, however, was abolished with the adoption of the Goods and Services Tax (GST) in 2017; in its place, a Compensation Cess on coal production was implemented at a rate of Rs. 400 per tonne. Often referred to as "India's carbon tax," the Indian Clean Environment Cess (formerly the Clean Energy Cess) was implemented in 2010 and rose from Rs 50 per tonne to Rs 400 per tonne.

To advance renewable energy programmes and R&D, a tax known as the Cess is levied on coal and its derivatives (lignite and peat). In India, in addition to the Cess, the excise duty on petrol and diesel has also been referred to as an implicit carbon tax.

To understand what kind of environmental tax policy India now has, this article primarily explores the fragmented green tax regime in India, which consists of the Cess, the excise on gasoline and diesel, and other tax efforts in the nation. Although there are no taxes or fees on fossil fuels in the country, it is argued that the Cess has several fundamental flaws in both its collection and coverage processes.

In order to encourage future investment, consumption, and innovation along sustainable and climate-friendly routes and to assist a sustainable pandemic recovery, a carbon price is thought to be a viable instrument.

Due to rising carbon prices, more auctioning from emissions trading, and revenue from new instruments, there was an increase in carbon pricing revenue of almost USD 84 billion in 2021, or about 60% above that of 2020. Carbon pricing may also be a practical financial instrument and a significant source of increasing tax income for governments.

Since failing to address policy gaps will have a long-term effect on the future of clean energy and energy security in India, the chapter also identifies problem areas in the way the other "green taxes" are levied under the current "carbon tax" regime. It then offers some solutions and recommendations.

The newly imposed Compensation Cess will remain in place until 2022. However, it only charges the use of coal, not the quantity of carbon emissions produced by coal use. This leads to two problems:

Even if people choose to utilise cleaner coal alternatives, it still penalises taxpayers in two ways: 1. It has no effect on reducing the amount of coal used and, consequently, the amount of carbon generated; and

It penalises taxpayers even if they choose to utilise cleaner coal alternatives.

India's carbon taxation plan is currently at best rudimentary. Additionally, the taxation system lacks a progressive design. Since the external costs of carbon are not adequately captured, this not only affects the country's economy but also potentially has an impact on India's foreign trade.

What Is Carbon Pricing?

The idea of placing a price on carbon pollution in order to reduce emissions and encourage investment in cleaner alternatives is gaining traction among nations and businesses, and the phrase "put a price on carbon" has now gained widespread recognition.

What does carbon pricing imply, and why is it supported by many government and industry leaders?

Governments have a number of options for pricing carbon, all of which lead to the same conclusion. By assigning a value to carbon, they can begin to determine what are known as the external costs of carbon emissions, or costs that the general public bears as a result of other events, such as damage to crops and medical costs as a result of heat waves and droughts, or damage to property as a result of flooding and sea level rise.

Carbon pricing aids in shifting responsibility for the damage back to those who caused it and have the power to stop it. A carbon price sends an economic signal, and polluters choose for themselves whether to stop their polluting activity, cut emissions, or continue polluting and pay for it. Rather than mandating who should reduce emissions and where, it instead prescribes how.

Thus, the ultimate environmental aim is achieved in the most flexible and beneficial way for society's economy. New, low-carbon economic growth drivers are fueled by the carbon price, which also promotes clean technology and market innovation. Emissions trading systems (ETS) and carbon taxes are the two primary methods of carbon pricing.

A cap-and-trade system, also referred to as an ETS, restricts overall greenhouse gas emissions while allowing low-emitting businesses to sell extra allowances to larger emitters. A market price for greenhouse gas emissions is established by an ETS by generating supply and demand for emissions allowances. The cap helps to ensure that the necessary emission reductions will take place so that everyone who emits keeps their total emissions within their pre-allocated carbon budget. By establishing a tax rate on greenhouse gas emissions or, more frequently, on the carbon content of fossil fuels, a carbon tax immediately establishes a price on carbon. A carbon tax differs from an ETS in that the decrease in emissions it will produce is not predetermined, but the carbon price is.

The nation's and the economy's conditions will determine the instrument to be used. The removal of fossil fuel subsidies, the imposition of fuel taxes, and legislation that may take into account the "social cost of carbon" are further indirect methods for more properly pricing carbon. Payments for emission reductions are another method of pricing greenhouse gas emissions.

Emission reductions may be purchased by private entities or sovereigns to fund mitigation efforts through results-based financing or to make up for their own emissions (referred to as offsets).

Nearly 40 countries, as well as more than 20 cities, states, and provinces, already use carbon pricing schemes, and more are expected to do so in the future. About 50% of their total emissions, or 13% of annual global greenhouse gas emissions, are currently covered by the carbon price schemes taken together.

Why Price Carbon?

One of the biggest worldwide issues of our day is climate change. It poses a risk to lives, livelihoods, and economic growth and has the potential to reverse decades of development progress. The science is clear as of right now: Global warming has been caused by human activity, specifically the widespread use of fossil fuels. The environment on which our existing economies were based is already changing. Since the turn of the century, 14 of the 15 hottest years since records have been kept have occurred. Extreme weather-related incidents have become more intense.

Snapshots of the science can be found in recent reports from the Intergovernmental Panel on Climate Change (IPCC) and the Turn down the Heat reports that the Potsdam Institute for Climate Impact Research produced for the World Bank. If nations do nothing, they warn, there will be harmful repercussions on ecosystems, agriculture, water supplies, and human health. We could see severe food shortages, unheard-of heat waves, and more intense storms if the world heats by merely 2°C (3.6°F), a warming that may occur in 20 to 30 years. Studies indicate that we have already locked in a warming of around 1.5°C.

The IPCC estimates that before the century is out, the world must achieve net zero emissions. So, take immediate action. Carbon price is a crucial component of the answer. The economic justifications for taking action are equally strong. The Adding up the Benefits, New Climate Economy, and Risky Business studies all highlight how acting now can lead to opportunity. The IPCC warns that waiting to act will simply drive-up prices.

One of the biggest problems facing the world now is climate change, which might reverse decades of progress and prosperity.

The importance of pricing carbon is made abundantly obvious in the most recent report from the United Nations Intergovernmental Panel on Climate Change. This will help keep the rise in the global mean temperature to two degrees Celsius above pre-industrial levels.

Various tools, such as domestic emissions trading systems, carbon taxes, adoption of a social cost of carbon, and/or payments for emission reductions, can be used to price carbon to efficiently and cost-effectively cut emissions, depending on each country's unique circumstances and priorities.

The governments are acting. About 40 national jurisdictions and more than 20 subnational ones have already put in place or slated emissions trading programmes or carbon levies for 2014. Together, these nations are responsible for more than 22% of all emissions. The process of preparing for carbon pricing is progressing in many more nations and jurisdictions. Together, they account for about half of all GHG emissions. Businesses are reacting. An increasing number of businesses are already operating within carbon price frameworks and honing their emission management skills.

Others are organising their businesses to include goals for reducing greenhouse gas emissions. More than 100 businesses from around the world officially admitted to CDP in 2013 that they already use carbon pricing as a tool to manage the risks and opportunities to their ongoing operations and future financial success. Businesses have expressed support for carbon pricing because they recognise it as the most effective and economical way to reduce emissions.

The force is increasing. If we are to create a set of cost-effective policies to enable scaled up mitigation, carbon pricing is a need.

There are various methods for figuring out the best carbon tax rate, and these methods are frequently based on the goals and policy objectives of the tax system in a particular jurisdiction.

The level of carbon emission reduction the nation aims to achieve can be used to establish the tax rate, as can the social cost of carbon, which measures the monetary cost of damages brought on by each additional metric tonne of greenhouse gas emissions. It could also be decided using the revenue strategy, where the tax rate is based on the regulatory authority's revenue considerations, or by simply using the benchmarking technique, where the tax rate is linked with the rate in nearby jurisdictions, among trading partners, or among rivals.

The premise underlying carbon pricing methods is that profit-seeking businesses would keep reducing emissions until the marginal cost of abatement is less than the societal cost of carbon. To put this into perspective, the marginal abatement cost for an entity is the marginal cost of reducing each additional unit of emissions. It depends on a number of variables, such as the rate of technological innovation in low-carbon products, the cost of compliance, and businesses' and consumers' capacity to switch from high-carbon to low-carbon products.

In order to properly price carbon and create a pathway for carbon reduction, a variety of policy instruments that are based on the market or valuation can be used. Carbon taxes, cap-and-trade programmes, emission reduction credits, renewable energy requirements, and the elimination of fossil fuel subsidies can all be categorised as explicit or implicit carbon pricing strategies.

It is imperative that there be more global cooperation. Governments agree to cooperate with one another, and businesses agree to do the same in order to achieve the long-term goal of an economy-wide carbon pricing by:

- Enhancing cooperation to share knowledge, expertise, and lessons learned on creating and implementing carbon pricing through various "readiness" platforms.
- Strengthening carbon pricing policies to reroute investment proportionate to the scale of the climate challenge.
- Bringing forward and strengthening the implementation of existing carbon pricing policies to better manage investment risks and opportunities.

India's Taxes and 'Subsidies Threaten Clean Energy Growth in The Country:

India's renewable energy industry appears to be rebounding in terms of investments after experiencing a setback during the first two years of the COVID-19 epidemic. Recent research, however, raises concerns about the sector's overall development rate, with finance emerging as a significant barrier.

Studies show that subsidies for renewable energy are being cut, taxes are rising, and imports of machinery for solar and wind energy projects are being restricted. One such analysis is a collaboration between the International Institute of Sustainable Development (IISD) and the Council on Energy, Environment, and Water (CEEW), which finds that since 2017, the subsidy for the renewable energy sector has decreased by 59%. Additionally, it stated that the country's public financial institutions were not sponsoring renewable energy projects in a way that was consistent with the energy targets.

In order to decarbonize its energy industry and keep its promise to become a net-zero nation by 2070, India wants to install 450 GW of renewable energy capacity by 2030. India now has 111.39 GW of installed renewable energy capacity. According to the most recent data, India added 15.5 GW of renewable energy capacity in the most recent fiscal year (2021–22) with investments totalling $14.5 billion (Rs11, 338.8 crore).

According to the CEEW report "Mapping India's Energy Policy 2022," the subsidy for the renewable energy sector was Rs 16,312 crore in 2017 but only Rs 6,767 crore in the following fiscal year (2021–2022). The incentives for electric vehicles, however, roughly increased throughout that time. The research emphasised that non-banking finance companies (NBFCs) and certain private banks provided the majority of the country's assistance for clean energy projects, whilst public sector lenders focused more of their investments on fossil fuel-based energy projects. Such a scenario, according to experts who co-authored the paper, might slow the nation's progress toward meeting the 2030 goal. They want increased subsidies as well as actions to remove obstacles and financial bottlenecks.

"Solar manufacturing, green hydrogen, and potential decentralised renewable energy technologies will need more subsidy assistance in order to scale up. The supporting ecosystem, which includes storage and transmission, would also need government assistance and further investment to handle the sector's cyclical nature and the grid integration component, according to Prateek Aggarwal, a programme associates at CEEW and a co-author of the report.

According to him, the industry will require more investments from various financial institutions because the current circumstances necessitate a significant capital mobilisation through debt instruments.

According to the CEEW analysis, the installation of just the generation capacity would cost $200 billion, compared to the combined existing exposure of banks and NBFCs to the whole Indian power sector, which is currently around $160 billion.

"It is obvious that the banks and NBFCs lack the headroom needed to meet the funding requirement. Solutions like subsidised credit enhancement hold the key to opening up the flow of financing from the bond market to the RE sector, Aggarwal stressed, in order to address this problem.

According to the research, the sector received Rs5.4 lakh crore in total financial support for 2021–22 through subsidies, investments by public sector utilities (PSUs), and loan disbursements from banking institutions through debt. It stated that among the obstacles to the industry's expansion are a lack of openness in reporting on financial support by banking institutions and a failure to have a clear mandate of financial aims for the sector.

Financial Rules Are Required:

When asked if the Reserve Bank of India (RBI), India's central bank, needed to make any special measures to encourage clean energy funding in India, there hasn't been much of a "green" component in the reporting of annual loan disbursements for India's public sector banks, according to ‘Swasti Raizada, a policy advisor at the IISD (PSBs).

"Because the PSBs have a broad range of assets, it is challenging to evaluate the funding for renewable energy that is routed via them due to the lack of precise sectoral data. This demonstrates that regulators, like the RBI, have a clear responsibility to increase transparency through mandates and support policy efforts that would increase the amount of renewable energy funding provided by PFIs (private finance initiatives), she said.

PSUs play a crucial role in India when it comes to their control over vital energy resources including coal, oil, natural gas, clean energy, and others. The report advocated a clear roadmap for these PSUs to enable target-specific movement of these governmental organisations on their approach to decarbonization by ensuring a sustainable energy mix for the country. "PSUs must determine clean energy diversification choices that best fit their current operational procedures. They then need to commit to investment goals and consistently raise their desire.

According to 'Raizada, "such planning is essential to study a company's diversification options, capital allocation strategy, and the kinds of strategic acquisitions that may be financed with its current balance sheets".

Clean Energy Vs. Coal:

There are concerns that the growth of the clean energy sector would compromise India's security of energy. How might the Indian economy be affected by the phase-out of coal?

According to a recent analysis by the think tank Centre for Study of Science, Technology and Policy (CSTEP), switching from fossil fuels to renewable energy will actually have a net beneficial impact on the Indian economy.

According to the report, increasing the proportion of renewable energy in power generation boosts household income and the GDP, with rural households benefiting more than urban households.

In rural areas, increased usage of renewable energy might increase yearly per capita income by an average of Rs2,172.

The research advocated for more renewable energy subsidies rather than higher taxes on fossil fuels because these measures could have a greater positive impact on the economy.

Instead of raising taxes on fossil fuels, Krithika Ravishankar, a co-author of the study and an analyst at CSTEP's Climate, Environment and Sustainability sector, advised investing in renewable energy and the associated subsidies to Mongabay-India. "The former has greater economic advantages, particularly in the near term."

"A tax on fossil fuels won't be helpful in limiting their use until there are enough readily available, affordable alternatives. Then, in order to incentivize businesses to invest in low-carbon technologies and lessen the tax burden, taxes might be put on unrefined fossil fuels. Since the tax burden is carried by the industry, this would simultaneously discourage the use of fossil fuels and prevent any unfavourable effects on households, she said.

Furthermore, according to the CSTEP analysis, reducing the percentage of coal-based power alone was inadequate to reduce the demand for coal as a whole. Since it was predicted that industrial demand for coal would increase over time, this was done.

To ensure significant emissions reduction and the phase-out of coal, it was emphasised that decarbonization of important industries (such as iron and cement) was also necessary.

Energy expert Vibhuti Garg's assessment for the Institute of Energy Economics and Financial Analysis (IEEFA), published in June 2022, asserted a post-covid-19 comeback in terms of investment in the industry. Compared to 2020–21, when it was 72% more than the year prior to the pandemic of 2019–20, investment in the sector increased by 125% in 2021–22.

The UK still has to invest about twice as much if it wants to fulfil its 2030 clean energy goals, the report claims, despite $14.5 billion being invested in the renewable energy sector in 2021–22. By 2030, India's annual budget must climb from $14.5 billion to $30-40 billion, according to the estimate.

The Indian government asserts that it has been supporting the industry through a number of subsidies and other programmes to expand it.

In March 2022, RK Singh testified before the parliament that India had declared a trajectory for renewable purchase obligation for 2022, waived interstate transmission fees for interstate sales of solar and wind power, and allowed 100% foreign direct investment (FDI) in the sector in order to attract investment.

Utility of Carbon Taxes:

Several benefits of carbon pricing are listed below:

Carbon taxes encourage the adoption of renewable energy sources by discouraging the consumption of highly emissive materials and energy sources. Such levies will encourage businesses to look for greener sources by raising the cost of highly emissive inputs.

Carbon taxes shift the public's share of the external costs of carbon emissions to the polluter. This forces polluters to use less-emitting, more environmentally friendly production methods. Additionally, they give the government the ability to raise money that can be used to lessen any possible calamities brought on by climate change.

Carbon taxes could be a progressive system of taxation if a maximum emission threshold is established, above which such emissions would be subject to taxation. Furthermore, a carbon tax system would benefit the nation without affecting the very people it intends to protect because it taxes emissions rather than the usage of fossil fuels, which are necessary for people who are economically disadvantaged.

From the standpoint of international trade, India would safeguard itself from being shunned or punished for not enacting a carbon tax. India will also be able to defend itself against any negative effects on its exports.

Carbon Tariffs Have Drawbacks:

Although carbon taxes offer several benefits, they also have a number of drawbacks:

If carbon tax systems are not created with the economy in mind, they could have negative effects. If the system is not built to handle economic demands, it may be very difficult for people who are already having financial difficulties. As a result, a strategy for building such a mechanism must be carefully thought out and implemented.

When some necessities are made, carbon emissions are released. Carbon taxes on emissions could drive up the price of such needs and ultimately hike consumer expenditures. For a nation like India, where a sizeable portion of the populace cannot afford to pay a higher price for such commodities, this is immensely problematic. In order to avoid paying carbon taxes, businesses may hide their actual carbon emission levels, which would hide the real extent of the issue. Instead of relying on voluntary disclosure, governments would require the manpower and infrastructure, which may be time-consuming and expensive to establish, to audit corporations' emissions.

Budget 2023 – Green Growth:

Budget 2023: Union Finance Minister Nirmala Sitharaman stated that initiatives to promote green growth assist in lowering the economy's carbon intensity and create numerous chances for green employment.

Union Budget 2023: On February 1, during the presentation of the Union Budget 2023, Union Finance Minister Nirmala Sitharaman made various announcements regarding green growth. Many analysts had predicted that this year's scientific budget will emphasise clean water supply and green energy, and the Union Budget did place emphasis on these sectors.

The PM Vishwakarma Kaushal Samman (PM Vikas) Scheme, which was unveiled by Sitharaman, will provide not only financial assistance but also access to information on cutting-edge digital methods and effective green technology, among other things.

According to Sitharaman in her address, the budget for this year selected seven priorities that work in harmony with one another and serve as the "Saptarishi" directing the nation through Amrit Kaal.

The top priorities are "Inclusive Development", "Reaching the Last Mile", "Infrastructure and Investment", "Unleashing the Potential", "Green Growth", "Youth Power" and "Financial Sector".

'Green Growth' – Announcements:

"Green growth" is defined by the Organisation for Economic Cooperation and Development (OECD) as promoting economic growth and development while ensuring that natural resources and environmental services continue to provide the necessities for human well-being on a global scale. This can be accomplished by catalysing investment and innovation to support sustained growth (OECD). Green growth offers a practical and adaptable strategy for achieving verifiable progress across sustainable development's economic and environmental pillars, but it does not replace it.

The finance minister stated during this year's budget that the government would adopt a number of initiatives for green transportation, green building, and green equipment, as well as measures for energy efficiency in a variety of industries. The minister added that these initiatives to promote green growth contribute to a decrease in the economy's carbon intensity and create numerous chances for green employment.

Fuels generated from biomass sources utilising a variety of biological, thermal, and chemical processes are known as "green fuels." They are chemically equivalent to petrol, diesel and jet fuel made from petroleum. They are also referred to as drop-in fuels or renewable hydrocarbon biofuels. Because they are formed of plant and animal materials, green fuels are meant to be environmentally friendly.

A type of energy known as "green energy" is generated from natural resources like sunlight, wind, and water. One method that green energy does not harm the environment is through the release of greenhouse gases into the atmosphere.

Common forms of green energy include hydroelectric power, wind power, and renewable energy sources like solar power.

However, not all forms of renewable energy are favourable to the environment. Power generation from organic material from sustainable forests is renewable but may not be environmentally benign due to the carbon dioxide released during the burning process.

Green farming is an agricultural system that uses biological pest controls and fertilisers made primarily from plant and animal wastes and nitrogen-fixing cover crops in response to the harm that chemical pesticides and synthetic fertilisers used in conventional agriculture cause to the environment. Green farming has a number of ecological advantages.

With regards to greenhouse gas emissions, noise pollution, and air pollution in particular, green mobility aims to reduce the unfavourable consequences of travel on the environment. The United Nations defines green mobility as favouring networks that don't depend on fossil fuels to operate, urban walking and cycling, and the notion of "moving people than automobiles."

An environmentally friendly structure, also known as a sustainable structure, aims to uphold or raise the quality of life in the area in which it is located.

Green building, as defined by the US Environmental Protection Agency, is the technique of developing and utilising systems that are resource- and ecologically conscientious throughout a building's life cycle, from site selection to design, construction, operation, maintenance, renovation, and deconstruction. This approach conserves energy, water, and other resources, lessens waste, pollution, and environmental deterioration, and protects occupant health.

Green technology is energy-efficient gear that is primarily solar-powered and has a battery life of many hours. Fuel, which comes from non-renewable resources, is not consumed by this machinery.

Sitharaman claims that actions to encourage green growth aid in reducing the economy's carbon intensity, which lowers carbon emissions. The actions to support green growth will also lead to a large number of green job opportunities.

Whether they are in more recent green industries like renewable energy and energy efficiency or in more established green industries like manufacturing and construction, "green jobs" are legitimate jobs that assist protect or restore the environment, according to the International Labour Organisation.

Green jobs aid in adaptation to the consequences of climate change, boost energy and raw material efficiency, decrease waste and pollution, lower greenhouse gas emissions, and protect and restore ecosystems.

The purpose of "LiFE," or Lifestyle for Environment, is to "spur a movement of ecologically conscious lifestyle," according to Sitharaman. Prime Minister Narendra Modi has described this as his vision.

She continued by saying that India is making steady progress toward the goal of having net-zero carbon emissions by 2070 in order to bring about a transition to a green economy and industry. According to Sitharaman, "This Budget expands on our commitment on green growth."

Green Hydrogen Mission:

On August 15, 2021, the National Green Hydrogen Mission was unveiled, with a budget of INR 19,700 crore. The mission will help the country establish technological and commercial leadership in the sunrise industry, reduce reliance on imported fossil fuels, and transition to a low carbon economy. The sunrise industry is a new or relatively new sector that is anticipated to experience rapid growth in the coming years. According to Sitharaman, the government's goal is to produce five MMT (million metric tonnes) year by 2030.

Green Growth for Clean India:

‘Energy Transition

Among the energy transition projects are battery energy storage systems and energy storage systems. The Union Budget 2023–24 allocates Rs 35,000 crore for high-priority capital expenditures to support net zero and energy transformation goals.

‘Battery energy storage systems

Additionally, 4,000 megawatt-hour battery energy storage systems funded by viability gap funding will be introduced. Viability gap funding reduces the amount of money needed to pay costs and give a profitable return for the private sector. It is intended to provide capital support for public-private partnership projects.

Systems for storing energy in batteries will direct the economy toward sustainable growth. Additionally, the government will create a comprehensive structure for pumped storage projects. Unused electricity is captured by a pumped storage system during periods of low demand.

‘Inter-state transmission system

13 gigawatts of renewable energy from Ladakh will be evacuated and integrated into the grid through interstate transmission infrastructure to ensure green growth. A total of Rs 20,700 crore would be invested, including Rs 8,300 crore for central funding.

‘Green Credit Programme

Under the Environmental (Protection) Act, a Green Credit Program will be announced in an effort to promote behavioural change. Businesses, individuals, and neighbourhood organisations will be encouraged to engage in environmentally conscious behaviour through the programme, which will also help to mobilise additional funding for such initiatives.

‘PM' -PRANAM

The introduction of the "PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth" (PM-PRANAM) is intended to inspire states and union territories.

The programme will also promote the moderate use of chemical fertilisers and alternative fertilisers.

Waste to Wealth:

‘GOBARdhan scheme

In order to assist the circular economy, which strives to keep resources, goods, and services in use for as long as feasible, 500 new "waste to wealth" facilities will be constructed as part of the GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) programme.

The 500 "waste to wealth" facilities will include 75 urban plants, 200 compressed biogas (CNG) plants, and 300 community- or cluster-based plants. There will be investments totaling Rs. 10,000 crores.

The finance minister also announced the establishment of a 5% compressed biogas (CBG) tax for all companies that sell both natural and biogas. CBG is very methane-rich purified biogas.

Both the distribution of bio dung and the collection of biomasses will be adequately funded. ‘Bharatiya Prakritik Kheti Bio-Input Resource Centres

According to the finance minister, the government will assist one crore farmers in switching to natural farming over the next three years. 10,000 Bio-Input Resource Centers will be established to create a distributed national micro-fertilizer and pesticide manufacturing network in order to accomplish this.

Protecting ‘Wetlands and Mangroves’:

Protecting Our Wetlands and Mangroves

‘MISHTI

Wherever possible, the MISHTI effort, which stands for "Mangrove Initiative for Shoreline Habitats and Tangible Incomes," will be undertaken to establish mangroves along the shoreline and on salt pan lands. Salt pan lands are flat, mineral-covered areas of land that are often white in the sunlight and found in deserts.

‘Amrit Dharohar

Wetlands, or places where water dominates the environment and the plant and animal life that goes with it, are crucial ecosystems that support biological variety. Ramsar sites are another name for wetlands. The Prime Minister stated in his most recent Mann Ki Baat that there are now 75 Ramsar sites in our nation as a whole. whereas there were only 26 prior to 2014."

The government will utilise Amrit Dharohar to highlight the distinctive conservation values of local communities, which have historically been at the forefront of conservation efforts. According to the Finance ministry, this plan will be executed over the course of the next three years in order to promote the best possible use of wetlands, improve biodiversity, carbon stocks, and ecotourism potential, as well as promote local communities' ability to generate revenue. Coastal shipping

Coastal shipping is an energy efficient and lower cost mode of transport, and hence, it will be promoted. It is energy efficient both for passengers and freight. Coastal shipping will be promoted through public-private partnership mode with viability gap funding.

"Green mobility via car replacement"

In order to green the economy, the administration claims that old, polluting cars must be replaced. The finance minister announced that she has set aside enough money to demolish out-of-date Central Government cars. She continued by saying that states would get support for updating old vehicles like ambulances.

Conclusion:

Implementing carbon prices is an excellent approach to reduce carbon emissions and prevent climate change. The importance of nations implementing carbon pricing policies grows on a global scale. Carbon taxes, which would benefit the economy and the environment while simultaneously absorbing the costs of harmful externalities, would push companies to switch to cleaner, more environmentally friendly methods of manufacturing.

Therefore, it would be desirable for India to introduce such a tax. However, it must be kept in mind that such a system must be developed while considering the particular needs of the Indian economy. By replacing carbon subsidies with carbon taxes and increasing taxes on fossil fuels (petrol and diesel), India transformed a carbon subsidy regime into one of the most onerous in the world. There is still a long way to go with the potential for significant gains from altering coal pricing and further reforming petroleum pricing regulations, even if annual CO2 emissions have declined and the price of petrol and diesel has risen dramatically. Overall, the implementation of a sizable carbon tax and India's ambitious solar energy initiative suggest that India can make a big contribution to the upcoming climate change summit in Paris.

The creation of a Climate Club has been discussed by international organisations working on climate policy. William Nordhaus popularised the concept in his 2015 paper "Climate Clubs: Overcoming Free riding in International Climate Policy." In addition to other requirements, the Climate Club aims to set a global target carbon price (of an incremental type) that all member countries must abide by.

Although a system of this size and scope has a long way to go before it is institutionalised, there is consensus that carbon pricing should be a crucial component of the global framework for climate policy.

Presenting a unique and appropriate opportunity to advance a global carbon pricing framework with a redistributive mechanism and in accordance with the Just Transition Declaration and Common but Differentiated Responsibilities (CBDR) principles is the current G20 Troika, led by three developing countries: Indonesia, India, and Brazil. India would have a significant advantage in an increasingly competitive world if local carbon regulations and preventative measures were designed in accordance with global policy trends. It is clear that carbon pricing is prepared to become and stay the cornerstone of the international framework for climate policy.

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