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COMMENTARY

Will the Green Credit Programme Incentivize Positive Environmental Actions?

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Abstract: The Government of India has launched the Green Credit Programme (GCP)—a market-based voluntary programme—to enhance energy and resource-use efficiency, foster conservation of resources, mitigate climate change, and strengthen adaptive capacity. The programme intends to incentivize the adoption of environmentally sustainable technologies and processes through fiscal and financial nudges and effect behavioural changes. The efficacy of a policy programme depends on its design and implementation, though, in theory, such programmes are designed to be cost-effective, environmentally favourable, as well as economically inclusive. The success of a tradable programme should be judged on the basis of four parameters: design of the programme, minimization of transaction costs, market volatility, and leakage and environmental degradation. The GCP administrators have yet to issue an effective design and implementation framework for the programme.

Keywords: Market mechanism; Property rights; Environmental effectiveness; Cost effectiveness; Equity

1. INTRODUCTION

Recently, the Government of India launched the Green Credit Programme (GCP) to boost energy- and resource-use efficiency and promote the conservation of natural resources. The programme aims to mitigate climate change and augment adaptive capacity. This is a market-based voluntary programme in which entities are incentivized to generate positive environmental outcomes and trade them in the market. This unit of incentive is referred to as “green credit”. The objective of the GCP is to inspire behavioural changes by incentivizing the adoption of environmentally sustainable technologies and processes among businesses, individuals, and local bodies through fiscal and financial incentives.

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The programme falls under the Mission LiFE (Lifestyle for Environment) initiative launched by the Indian government at COP 26, held in Glasgow, as a part of its efforts to realize its Nationally Determined Contributions (NDCs). It seeks to protect and preserve the environment through “mindful and deliberate utilisation, instead of mindless and destructive consumption” (Modi, 2021). Various environmental and ecosystem services involved in LiFE will generate green credits and promote a pro-planet and pro-people way of life. These green credits can be used by business entities to meet their legal requirements under environmental laws. The GCP aims to leverage a market-based mechanism to incentivize individuals and businesses to undertake positive environmental actions.

Markets cannot provide optimal levels of environmental or ecosystem services. These services involve public good characteristics and, therefore, they remain underprovided in a market-based system. Programmes such as the GCP aim to correct these market failures by creating markets through government interventions. These markets, which are driven by regulations, reward the creators of these services instead of using punitive measures such as environmental taxation to correct market failures, which can be easily circumvented by individuals and businesses, especially in countries like India where tax enforcement systems are lax.

The GCP encourages entities to adopt pro-environmental behaviours, that is, it rewards the generation of positive externalities. The carbon credit scheme incentivizes reducing emissions—it penalizes the generation of negative externalities. The effectiveness of such programmes depends on the market apparatus that facilitates the trade of green credits. Therefore, such trade hinges on empowering trading infrastructure and a measurement, reporting, and verification (MRV) framework based on, and comparable to, global best practices. Demand-side management policies should ensure market stability. This article comments on the provision of the GCP vis-à-vis the principles governing a market created through regulations.

2. INCENTIVIZING ENVIRONMENTAL COMPLIANCE

Private markets are expected to work well in the provision of private commodities, such as the production of crops or livestock, if the benefits or costs of these activities accrue mainly to the providers of these goods and services. However, in the provision of conservation activities, such as water purification and conservation or afforestation, the benefits flow primarily to others—that is, the provision of conservation activities generates positive externalities—and markets under-provide these services.

The GCP has essentially been instituted to internalize the environmental externalities that arise in the provision of conservation activities. The

programme, in effect, attempts to put into practice the Coase theorem, which stipulates that the problem of externalities can, under certain conditions, be neutralized through private negotiations between the affected parties (Coase 1960). It solves the externality problem by reworking the economic incentives that are available to private parties. These incentives allow private parties to decide whether and how much to alter their behaviour to attain the social optimal in the provision of conservation activities. Dales (1968) shows that the introduction of transferable property rights promotes environmental conservation at a lower cost in comparison to other policy options. The buying and selling of these property rights gives rise to an open market, thus yielding an optimal price for the externality. The market is thought to predictably ensure an optimal provision of publicness in the generation of conservation activities. Dales (1968, ix) reflects that “if it is feasible to establish a market to implement a policy, no policymaker can afford to do without one.”

A policy such as the GCP should be gauged on the basis of three parameters: environmental effectiveness, cost-effectiveness, and equity. Environmental effectiveness entails that a policy should deliver a set of environmental benefits in terms of well-defined physical environmental parameters. To be environmentally effective, the programme should ensure the “additionality” or “infra-marginality” condition (Jayachandran *et al.* 2017, 267). Some participants may have been engaged in the incentivized activities even in the absence of the programme, in which case, there is very little advantage in terms of environmental benefits—that is, there is no significant environmental gain due to the programme. The other concern is that the gains in terms of environmental benefits from the programme in some contexts cause losses in other contexts. This is known as the problem of “leakage” (Jayachandran *et al.* 2017, 267).

An incentive-based scheme, such as transferable property rights, achieves the desired level of environmental effectiveness and assumes that the marginal benefits of conservation activities are constant. This assumption simplifies the design of a policy, as the expected marginal benefits do not depend on the initial condition. However, the marginal environmental benefits of conservation activities depend on the source, location, and initial conditions; a more complex incentive-based scheme—such as an ambient permit trading scheme in the case of air pollution—is required to obtain the desired environmental outcomes (Stavins 2003). In ecological systems, there are many examples of non-constant marginal values and threshold effects, and, in these cases, it may be challenging to obtain the desired environmental outcomes using incentive-based schemes (Arrow *et al.* 2000).

The cost-effectiveness of a policy implies that the same level of environmental benefits is being realized at a lower cost relative to other possible policy options. The costs of a GCP-type scheme are considered not only in terms of direct implementation costs but also including the transaction costs of the programme and the opportunity costs of the resources used. Transaction costs involve expenses for contract negotiation, performing scientific baseline studies, and monitoring and enforcement. Incentive-based schemes work by changing incentives rather than by making explicit rules or directives (Jack, Kousky, and Sims 2008).

The main attractiveness of incentive-based schemes is their cost-effectiveness. Allocation of production or abatement results in the maximization of total benefits or minimization of the total cost such that the marginal benefits or costs are equalized across producers. Higher variability in benefits or costs across producers results in higher total benefits or cost savings (Newell and Stavins 2003). By offering a common price for environmental service provision, programmes like the GCP induce the producers of these services to join a scheme that can provide services at a lower opportunity cost. In addition, those who face higher opportunity costs can meet their regulatory requirements by purchasing credits. Thus, society as a whole can achieve the desired environmental goals at a lower cost. However, there is an inverse relationship between the number of smallholders of resources and transaction costs. Implementation, monitoring, and enforcement costs are higher when the number of participants (agents) is large. Moreover, transaction costs, especially monitoring and enforcement costs, are lower for point sources than for nonpoint sources. Conservation activities are focused on nonpoint sources or many individual landholders whose collective activities bring about positive changes in the ecosystems (Jack, Kousky, and Sims 2008).

Note that environmental effectiveness and cost-effectiveness are interlinked and depend on the programme design and transaction costs. Moreover, the effectiveness of such an incentive-based programme is also contingent on various existing policies. If the existing policies complement the new scheme, then the stated objectives are achieved easily. Equity can be an important policy consideration for countries such as India, where the prevalence of poverty and unemployment is high.

3. THE GCP AND ENVIRONMENTAL OUTCOMES

The Budget 2023 aims to steer the country on a low-carbon growth path with initiatives such as the GCP. To implement the GCP, the Ministry of Environment, Forest and Climate Change issued rules in October 2023 under the Environmental Protection Act, 1986 (Ministry of Environment, Forest

and Climate Change 2023). The programme is designed to encourage individuals, private-sector producers, farmers, small-scale industries, rural and urban local bodies, cooperatives, and forestry enterprises to initiate positive environmental actions through a competitive market mechanism. Private-sector industries and companies will be able to meet their obligations, including their legal requirements, by purchasing these credits.

The programme covers eight sectors that will be eligible for generating green credits. The included sectors are tree plantation; water conservation, water harvesting, and water use efficiency/savings; promoting natural and regenerative agricultural practices; waste management; air pollution reduction; mangrove conservation and restoration; eco-mark-based green credits; and sustainable buildings and infrastructure using sustainable technology and material. These sectors will earn tradable green credits for their positive environmental actions, which will be available for trading on a domestic market platform. The scheme will be implemented in a phased manner. In the initial phase, the programme will focus on water conservation and afforestation activities. More sectors and activities may be included in the scheme in the future. These activities may earn both green credits under this scheme and carbon credits in the carbon market.

The green credit for every activity undertaken under the programme will be calculated based on the equivalence of resource requirements and parity of scale, scope, size, and other relevant parameters that measure environmental effectiveness. To ensure environmental impact and fungibility across sectors, benchmarks will be set in consultation with stakeholders. However, the ministry's notification does not indicate how parity can be achieved for different activities across sectors. Some indicative methodology is needed on how to arrive at parity in evaluations.

An accredited green credit verifier will administer the programme. The activities of the programme will be administered, monitored, and assessed by an administrator. These functions have been assigned to the Indian Council of Forestry Research and Education (ICFRE). The ICFRE will be responsible for developing the necessary guidelines, processes, and procedures for the implementation of the programme. The administrator will maintain an electronic record of the issuance and exchange of green credits. All entities have to register with the administrator to qualify to generate green credits. The ICFRE will constitute various technical and sectoral committees for each activity to develop suitable methodologies and processes for the registration and issuance of green credits. A credible trading platform will be set up for the green credits. These credits may be exchanged on the trading platform once a steering committee has validated them. Participation in the

programme will be voluntary, and it will be the task of the steering committee to recommend ways to generate demand for the green credits.

The effectiveness of a policy programme is contingent on its design and implementation, though, in theory, programmes such as the GCP are considered cost-effective and environmentally effective as well as economically inclusive. In the case of the GCP, the administrator is yet to release an effective design and implementation framework. The success of a tradable programme can be measured on the basis of four parameters: design of the programme, minimization of transaction costs, market volatility, and leakage and environmental degradation. These categories are not strictly defined, and there is considerable intersection and interdependence among them.

Lessons learnt from incentive-based schemes that have been implemented within and outside the country can be a valuable guide to the designing and implementation of the programme. Market-based credit systems have been applied in the area of environment and natural resources globally, though the Indian experience in incentive-based applications in the environmental domain is limited. Currently, India awards a renewable energy certificate (REC) for enhanced use of green and renewable energy. Similarly, the perform, achieve and trade (PAT) scheme has helped increase energy efficiency in 13 sectors. Both these programmes use a market-based credit system. Numerous applications of tradable permit systems in various sectors for achieving environmental effectiveness can be found in Europe and the US.

When designing an incentive programme that is practicable and has environmental as well as cost-effectiveness, using an appropriate baseline for determining a green credit is crucial. For example, the pan-European Emissions Trading Scheme (EU-ETS) allowed polluters to determine baselines and set their abatement curves, which resulted in the allocation of pollution permits that compromised environmental effectiveness (Hepburn 2007). The GCP involves many heterogeneous sectors and activities, and the choice of offsets should be considered for achieving environmental effectiveness. In the clean development mechanism (CDM), many types of offsets were used that may not have been effective in reducing greenhouse gases. In the GCP, there is no standard unit of measurement of benefits that accrue across various activities, which may be a concern when liquidating the credits while trading them. Even in the carbon market, where there is a homogeneous unit of measurement, tracking carbon credits is a complex exercise and is difficult to regulate.

The PAT scheme was launched in 2012, and an evaluation of the scheme at the end of its second cycle revealed that the thermal power sector—a major energy-consuming and CO₂-emitting sector—could reduce just 3% of its total energy consumption after the scheme was implemented (Yadav *et al.* 2021). Similarly, another study demonstrates that due to the poor enforcement of penalties among electricity distribution companies, there was an oversupply of RECs (Baruah 2022). Moreover, the experience of these two schemes reveals that demand for credits is driven mainly by obligated entities with little voluntary participation.

Further, it should be noted that reviewing, auditing, and evaluating a project should not be excessively time-consuming because such processes involve transaction costs. Generally, transaction costs are higher for offsets than for normal trading. Offsets involve baselines, monitoring, allocation, and compliance oversight, which take time and result in higher transaction costs (Savacool 2011), compromising the cost-effectiveness of the programme. In the case of the CDM, approval and registration processes resulted in higher transaction costs, which were considered major barriers to investing in global carbon markets (Boyle *et al.* 2009).

Since the main objective of the GCP is to achieve positive environmental outcomes through behavioural changes that are cost-effective, it should be ensured that the programme does not promote greenwashing. For example, in the case of carbon trading projects, the participation of polluters in the programme can lower the demand for carbon-intensive products and thus lower the price of fossil fuels. This reduction in the price of fossil fuels encourages overconsumption among non-participants and reduces the effectiveness adopting energy efficiency and conservation measures. The programme should be designed and implemented in such a way that it minimizes such leakage.

The requirements of the GCP and the carbon trading programme need to be reconciled as the former is a national policy requirement and the latter is linked to global commitments. Since these are pursued under different laws, compliance will be evaluated under two different laws, which will complicate the monitoring exercise. Moreover, due to the problems of double counting, reconciling data-generating processes will be challenging.

The GCP is an ambitious programme as it covers various heterogeneous sectors and activities. However, whether the programme achieves its stated objectives depends on how well it is designed and implemented.

Ethics Statement: I hereby confirm that this study complies with requirements of ethical approvals from the institutional ethics committee for the conduct of this research.

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