Sunny Empowerment to the Remotest Community Service Centres under CDM PoA

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Background

The National e-Governance Plan (NeGP) is a part of the National Common Minimum Program-set up with an aim of facilitating information and government services to the door steps of its citizens. Under this plan, the Ministry of Information Technology, proposes implementation of a network of more than 100,000 internet enabled Information and Communication Technology (ICT) enabled Access points termed as Common Service Centers (CSC's).

It is planned to cover at least 5-7 villages falling under each "Panchayat" of the country. The larger objective is to reach out to the entire rural mass of India, which constitutes about 72% of the total population. Thus such an initiative is expected to unlock the entire potential of rural India, by providing for the following few benefits:

- Economical means of access to information and services to rural citizens
- Exploration of around 100,000 small businesses for rural entrepreneurs
- Improved governance at cheaper costs
- Newer business channels based on e-commerce

The CSC initiative envisages a collaborative model for the delivery of services, information, content and knowledge to reach out to the remotest possible areas in the country. These areas are lying in a state of neglect since decades, with no major connectivity, even in terms of infrastructure (road connectivity) and electricity (grid based) or otherwise.

Objectives

- Setting-up of Community Service Centres (CSCs) to facilitate Rural Development
- Use of Renewable Energy Technologies- to meet the decentralized off-grid power requirements in a sustainable manner
- Use of Clean Development Program of Activities (CDM-PoA) as a tool to partly mitigate the implementation and investment barriers towards setting-up CSCs based upon renewable sources of power, and thereby encouraging Public- Private Partnerships

Major Challenges/Barriers

Implementation of any initiative on such a large scale is always challenging and is accompanied by a number of issues. Since the program involves reaching out to the remotest places in the country, the major challenge at hand is to ensure a consistent and a sustainable source of power to these ICT enabled centres.

Ensuring a consistent supply of energy/power in remote locations – a major Challenge towards implementation of Community Service Centres

There is no definite indication for the implementation and supply of grid connectivity in these areas. Thus, there is hardly any consistent source of power/electricity for these remote locations, while the local villagers keep relying on the traditional means such as fire wood etc. These traditional sources of energy, are in no way sufficient to power the high technology ICT centres.

Therefore, the most viable means of energy source in this case seems to be DG sets. However there are lot of inherent issues in this case as well, including the challenge of transporting diesel to the difficult locations in a consistent manner. Aside of that, the use of DG sets would also mean a heavy reliance on the fossil fuel use, and adding to the already constrained supply. Importantly, the use of fossil fuels would mean increased greenhouse gas (GHG) emissions thus adding to the vexing problem of climate change and global warming.

Another major implementation issue, would be the mobilization of resources needed for a smooth implementation of such a large scale activity., In totality, heavy capital investment would be required besides additional resources so as to ensure proper operation of the established CSCs.

Proposed Solution (s)

Following a series of intensive deliberations, it was agreed upon to tap the potential of renewable energy (RE) technologies so as to ensure a consistent and a sustainable means of decentralized off-grid source of power. Accordingly, guidelines were framed towards implementation of mass scale CSCs coupled with RE based power generation systems.

Various applicable financing schemes were considered for the purpose. However to ensure an all round development, it was deemed appropriate to go ahead with the implementation of the program under the Public Private Partnership model. Considering that the project activity under consideration contributes significantly towards sustainable development in the region, there is a potential to set up such CSCs by utilizing the carbon credit revenues associated with the project, and part mitigate the implementation barriers.

To evaluate the possibilities of utilizing carbon benefits, a leading professional services firm, Deloitte Touche Tohmatsu India Private Limited, is currently in the process of developing a structural framework for the utilization of Clean Development Mechanism Program of Activities (CDM PoA) as a tool towards promoting rural development for harnessing the potential of renewable energy technologies. The initiative commissioned by the British High Commission (BHC), New Delhi, is a part of overall strategy of UK Department for International Development (DFID) towards facilitating sustainable development in emerging economies thus ensuring minimum environmental impact.

Accordingly, the British High Commission, in association with the representatives from Ministry of New and Renewable Energy (MNRE), Indian Institute of Technology (IIT) Delhi and Deloitte, selected a case study for further development. As a model case, Zoom Developers Private Limited, has envisaged implementation and operation of CSCs in the state of Jharkhand. The CDM PoA project development for the initiative is being carried out by Deloitte, under the assistance of BHC..

CDM PoA Outlook

The Programmatic Approach was officially established in 2007 by the CDM Executive Board. Due to high transaction costs involved, it was difficult to undertake the CDM development of small size projects earlier on. The low number of CER's on a stand-alone basis, didn't justify the time and investment inputs towards CDM project development, even if, the projects were additional. Further,on an aggregate basis, these added up to sizeable emission reductions over the baseline scenario. Also, national programs/ policy initiatives towards undertaking sustainable development activities over and above the normal case could not be included in CDM. Thus there was no

incentive for the Governmental Agencies, Non Governmental Bodies and Private Entrepreneurs etc to undertake large scale implementation of sustainable development activities dispersed over a larger span of time.

Under the Program of Activities, the CDM project approval processes for many individual activities, that are distributed over dispersed geographical locations, to be implemented over a wide series of time, are bundled together. A CDM PoA is considered to be "a voluntarily co-ordinated action by a private or a public entity, which co-ordinates and implements any policy/measure or a stated goal, which leads to GHG emission reductions or increase in net GHG removals by sinks that are additional to any that occur in the absence of PoA, via an unlimited number of CDM program activities (CPAs). This implies that CDM PoA is an extension of the conventional CDM, where emission reductions are achieved by multiple verifiable activities executed over a period of time, in direct response to a government measure or a private sector initiative. Unlimited number of activities can be added on the geographical as well as temporal scale under CDM PoA, with the crediting period of the program spanning to 28 years.

Project taking off

Zoom Developers Private Limited, under this specific initiative has planned the implementation of CSCs in Dumka, Devghar, Pakhur, Jamtara, Shaibganj and Godda districts in Jharkhand. Under the program, Zoom plans to roll out 1500 CSCs within the next 8-10 months in the state of Jharkhand. If, the model is proved successful and operationally viable, Zoom envisages setting up of approximately 42,000 CSCs across 8 states of India, within the next 4-5 years.

Table 1. Details of CSC's planned under the project

Timelines	Number of CSCs planned	Number of Users expected to be covered
Year 1	2000	6000
Year 2	4000	16000
Year 3	8000	40000
Year 4	12000	72000
Year 5	16000	112000
Cumulative	**42000**	**246000**

The high capital costs and marginal viability are expected to be partly taken care of by the CDM revenues associated with the project. Thus developing the project under the CDM PoA route has provided the necessary motivation to a private entrepreneur.

Forging of arrangements and alliances

The program being implemented under the Public Private Partnership, would involve development of the infrastructure and operations of the CSCs by Zoom Developers. The private entrepreneur, apart from setting up the infrastructure and operating it, would also identify and train the local manpower Village level Entrepreneur – VLE) for the purpose. This would ensure generation of rural employment and aid towards social development in the region. Collaborations are envisaged with the Banking Services, Insurance providers, Postal services, Agricultural exchanges/markets/mandi's,

Implementation of CSCs a significant contributor towards social, economic and environmental well being of the rural areas

Education and Entertainment service providers and Railway/Airline ticketing etc. to ensure the provision of essential services to the faction of rural community serviced, thus significantly contributing to social and economic development in the region.

The program implementation by Zoom, contributes as well towards the environmental well-being of the region by utilizing renewable sources of energy to power the CSCs. Solar based PV systems are deployed across all CSCs, which are being implemented. Modules of 75/150/300 watt peak, procured on a mass scale, are coupled up with each of the CSCs, as a major source of energy/power. By using the solar PV based technology, Zoom contributes significantly to the environmental sustainability, by ensuring a clean and a renewable source of power to the CSCs. DG sets would have been used otherwise, thus adding to the GHG emissions. Such GHG emissions are hence avoided, thus ensuring better environmental conditions and a significant contribution to sustainable development. The program implementation, of setting up, the CSCs using Solar PV based energy systems is thus, over and above the common practice prevalent, and therefore an additional activity.

The CDM perspective

The fact that, the CSC program involved setting up of large number of community centres spread across various geographical locations and varied implementation timeframes – provided for the need to undertake CDM project development under the Program of Activities. Implementation of CSCs across various villages is a small dispersed activity. The potential CDM benefit available with the implementation of a single CSC is approximately equivalent to 0.554 TCO2e per year, considering the usage of DG sets in the baseline scenario. Lower volumes thus add to the complexity of the project and do no justify the transaction costs associated. For each of the CSC implementation to be developed as a stand-alone conventional CDM project activity, the transaction costs would be sizeable.. Not only that, bundling of these activities would also have its own issues and complications.

However, when implemented under the CDM PoA, an aggregate of 23,268 TCO2e per year is envisaged from the 42,000 centres to be implemented under the program. Transaction costs are significantly reduced, and the risks associated with the registration of the project are also minimized. Monitoring and verification, which would have been tedious, under the conventional arrangement, is also simplified. Main advantage of developing the project under CDM PoA is in terms of significant savings in time of registration, as subsequent CSCs, considered as CPAs would be quickly added onto the program , if they meet the criteria. Also, to emphasize on the sustainable development with a collaborative approach, other CSC implementing agencies apart from Zoom can also be added on to the Program, provided they meet the specific requirements.

Table 2. Estimate of CERs

Timelines	Number of CSCs Planned	Emission reductions estimated (CERs)
Year 1	2000	1108
Year 2	4000	2216
Year 3	8000	4432
Year 5	12000	6648
Year 6	16000	8864
Cumulative	**42000**	**23268**

While physical implementation of the project is being planned out, the CDM PoA development of documentation and related activities is under full swing. The subject matter experts at Deloitte, along with assistance from Zoom's executives have visited the proposed locations and carried out detailed stake-holder consultations. The project documentation has been developed and submitted for host country approval.

Way Forward

It can thus be concluded that, implementation of CSCs can bring about a significant change in the rural landscape of the country, reflecting an increased boost to sustainable development. The major challenges/barriers towards implementation can be taken care of by harnessing the potential of renewable energy technologies, and use of CDM PoA as a tool, thus encouraging private sector participation.

CDM PoA can thus, be effectively utilized as a tool, to overcome the high transaction costs associated with large scale implementation of dispersed project activities, as well as ease the registration process.