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Clean energy innovations for livelihoods worth USD 50 billion market in rural India – CEEW study

New Delhi (16 October 2018) – A market opportunity of more than USD 50 billion exists for clean energy innovations to power livelihoods in rural India. An independent study released today, by the Council on Energy, Environment and Water (CEEW), finds that a majority of this opportunity exists in India’s farm sector. For instance, only three activities – rice transplanting, pesticide spraying and harvesting of grains – have a total market potential worth USD 40 billion. Beyond agriculture, an opportunity of more than USD 13 billion also exists in the non-farm sector, where clean energy innovations could transform activities, such as spinning, weaving, milling, refrigeration, and heating.

Ninety-two per cent of India’s electricity-deprived population lives in rural areas. Farm power availability in India is a third of that in China. In the farm sector, clean energy has the potential to mechanise many activities including irrigation, fertiliser application, seed-sowing, and cold chain. It could reduce input costs and improve agricultural productivity.

More than four million rural micro-enterprises in India mention lack of reliable electricity as the top bottleneck to their businesses. Clean energy-powered energy-efficient machines could help meet existing demand and significantly boost rural businesses such as automobile repair, beauty salons, *beedi* manufacturing, furniture manufacturing, jewellery making, post-harvest processing, poultry farming, restaurants, and custom tailoring.

The farm sector market is more difficult to cater to than the non-farm sector due to low utilisation rates of agricultural equipment and the high capital expenditure of clean energy solutions, according to The Council’s analysis. The economic viability of these solutions could be improved by reducing battery costs and developing cost-effective, super-efficient and small-sized motors. Energy efficiency is also a critical factor in making these solutions economically viable. However, existing livelihood appliances prevalent in rural areas are not designed for efficiency, but for unreliable and subsidised electricity.

The Council’s study, supported by GoodEnergies Foundation, also found that currently only about 20 clean energy innovations for livelihoods exist in India. These include solar-powered pumps, milk chillers, milking machines, sewing machines, charkhas, looms, cold storages, knapsack sprayers, and many more. But the deployment of most of these technologies is limited to a few hundreds, compared to millions of farmers and rural enterprises in India’s 600,000 villages. High upfront cost, low and fragmented rural demand, and paucity of long-term debt to end customers remain major challenges to realise the market potential.

Dr Arunabha Ghosh, CEO, CEEW, said, “Clean energy innovations could boost India’s rural economy by providing reliable energy access to farmers and micro-enterprises. This would not only create new livelihood opportunities but also improve productivity, product value, and incomes. However, currently, very few clean energy innovations have been deployed in rural India at scale. Most of them, except solar-powered irrigation systems, are at an early, pre-commercial stage, with limited revenues. Scaling up such deployment needs robust support ecosystem, enabling large pilots for such technologies to prove their commercial viability and unlock support from investors, policymakers and financiers.”

Sanchit Waray, Programme Associate, CEEW, and lead author of the study, added, “Clean energy and energy efficiency innovations could complement the government's household electrification efforts under the *Saubhagya* scheme by bridging gaps in electricity supply and powering rural income-generating activities. By increasing rural incomes, these innovations could become the catalyst for improving household energy consumption, further amplifying the effectiveness of *Saubhagya*.”

The large-scale deployment of clean energy innovations needs partnerships among philanthropic foundations, impact investors, incubators, financiers, private firms, international development community, and governments. The Council, through these partnerships, aims to support such innovations by facilitating commercial pilots, unlocking finance for enterprises and customers, as well as gaining policy support.

Link to the study

<https://www.ceew.in/publications/clean-energy-innovations-boost-rural-incomes>

About the report

The report 'Clean Energy Innovations to Boost Rural Incomes' is part of a CEEW initiative 'Initiative on DRE and Energy Efficiency Innovations to Support Income in the Rural Economy' (I-DESIRE). I-DESIRE began with a research phase and this report is the culmination of the same. Among other insights, the report also identifies critical gaps in the innovation and entrepreneurial ecosystem that hinder the development and commercialisation of clean-energy-powered livelihood appliances. Based on the research findings, I-DESIRE aims to help plug these gaps by working with the ecosystem players and a broad range of stakeholders.

About CEEW

The Council on Energy, Environment and Water (CEEW) is one of South Asia's leading not-for-profit policy research institutions. The Council uses data, integrated analysis, and strategic outreach to explain – and change – the use, reuse, and misuse of resources. The Council addresses pressing global challenges through an integrated and internationally focused approach. It prides itself on the independence of its high-quality research, develops partnerships with public and private institutions, and engages with wider public.

In 2018, CEEW once again featured extensively across nine categories in the '2017 Global Go To Think Tank Index Report', including being ranked as South Asia's top think tank (14th globally) with an annual operating budget of less than USD 5 million for the fifth year in a row. In 2016, CEEW was also ranked 2nd in India, 4th outside Europe and North America, and 20th globally out of 240 Think tanks as per the ICCG Climate Think Tank's standardised rankings. In 2013 and 2014, CEEW was rated as India's top climate change think-tank as per the ICCG standardised rankings.