

RENEWABLE ENERGY



ROUNDTABLE
REPORT
1

ROLE OF RENEWABLES

IN CREATING EMPLOYMENT OPPORTUNITIES

RE EMPLOYMENT

Overview

The Renewable Energy Programme at the Centre for Science and Environment (CSE) has been working extensively to help shape policies and build public awareness to accelerate renewable energy (RE) deployment, strengthen energy access for the poor, and facilitate the creation of opportunities for people for making the best use of RE technologies.

India is one of the fastest growing economies in the world. But this development is not percolating to all section of the society, because the gap between development and employment is widening, resulting in 'jobless growth'.

So, while addressing the greening of India's energy usages and energy access to all through renewable energy-based supply solutions, the prospects of job creation with growing renewable energy deployment; the role of various renewable sub-sectors—manufacturing, utility-scale projects, distributed renewable energy (DRE), etc.—in social and economic uplift of the people are important tenets. DRE can be trusted as an avenue that benefits rural population, which is 65 per cent of India; while providing substantial socio-economical co-benefits all around.



The roundtable

CSE organized its first 'renewable energy roundtable' on 24 November 2020 to discuss the potential of job creation with growing RE deployment. The background research is available in the form of a factsheet, which highlights the need for developing DRE to maximize socio-economic co-benefits. The discussion explored ways of leveraging renewable momentum to stimulate job creation in a COVID-19 affected market; models under which both centralized and decentralized systems can have symbiotic relation rather than a competitive one; medium-term and long-term policy interventions; how to divert public and private finances to the distributed energy sector and innovations; the challenges, such as cultural or gender bias, impeding women's enrollment and requirement of skill-development programmes; and a way forward to maximize socio-economic development.

Mr Samrat Sengupta

Director, Climate Change and Renewable Energy, CSE

Samrat is a development and operations management professional with 24 years of experience in sustainable energy and climate change cross-sectoral domains. His specific interests include renewable energy power projects, low carbon development and mainstreaming climate change in developmental planning. He has worked with power producers (solar, onshore and offshore wind, and hydro), management and engineering consulting houses, international trade associations for renewable energy promotion, national and international civil society organizations, and government research institutions. Samrat holds an MBA with a specialization in energy management from the Indian Institute of Social Welfare and Business Management (IISW and BM), Calcutta. He has also represented Indian and South Asian civil society in various multilateral forums like the UNFCCC, IPCC and G8.



Mr Sengupta moderated the Roundtable.

Dr Harish Hande

Founder and CEO, SELCO

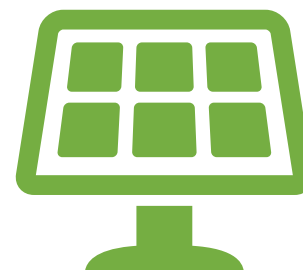
Dr Harish is an alumnus of Indian Institute of Technology, Kharagpur. He has a masters and PhD from University of Massachusetts. He is recognized as a pioneer of rural energy service across the globe. He wanted to bust the myth of solar energy being very expensive and through SELCO he has successfully demonstrated that decentralized energy solutions, particularly those powered by solar, can be truly sustainable. For his pioneering efforts, Harish has received many national and international awards, including the recent Skoll Award for Social Entrepreneurship (2018) and Asia's prestigious Ramon Magsaysay Award (2011).



Professor Avanish Kumar

Management Development Institute, Gurugram

Dr Kumar is a master in social anthropology and has a PhD and MPhil from Department of Anthropology, University of Delhi. At the Management Development Institute, he teaches courses on state and civil society; sustainable development; qualitative methods for policy research; social conscientization and corporate social responsibility; and business, society and government. Dr Kumar explores questions at the intersection of policies and practice that promote sustainability, inclusion and participation in organizations and society. Through over two decades of work, he brings the experience of working with NGOs, governments, corporate houses and academic institutions. Currently, he is an advisory member SEEP and BIMTECH, Greater Noida; and an expert member of Curriculum Moderation Board (CMB), International Institute of Democracy and Election Management, Election Commission of India and Board of Academic Studies at the TERI university.



RE EMPLOYMENT

Mr Prem Shankar Jha

Eminent journalist, writer and economist

Mr Jha is a former editor of the Financial Express and Hindustan Times, and economic editor of the Times of India. In 1990 he was the Information Adviser to Prime minister V.P. Singh.

He has written extensively on renewable energy since the early 1980s. He was a member of the Energy Panel of the World Commission on Environment and Development (The Brundtland Commission) from 1985 till 1989. In 1988, he was named the Energy Journalist of the Year by the International Association of Energy Economics.

He is the author of *Dawn of the Solar Age—an End to Global Warming and to Fear*, published in 2018. He is currently a Visiting Fellow at the School of Engineering and Applied Sciences, Harvard University. He is an alumnus of Oxford University.



Dr Swayamprabha Das

Programme Analyst, UNDP

Dr Swayamprabha Das holds a doctorate from Jawaharlal Nehru University in international relations. She is a Hubert Humphrey Fellow and was based at University of California, Davis. She is presently a member of two IUCN Commissions—the Commission on Environmental, Economic and Social Policy (CEESP) and the Commission on Ecosystem Management (CEM).

Dr Das has a progressive work experience of 22 years in the development and environment sectors. Her areas of work include natural resource management, climate change, and human and skill development (with a focus on women's empowerment).

As part of her present assignment with UNDP, she is working towards developing the green growth portfolio (with focus on green jobs and eco-entrepreneurship) and also supporting the development of the water governance portfolio.



Mr Samit Mitra

Senior Director, Mini-Grid, Demand and Innovation, Smart Power India

Mr Samit is responsible for Smart Power's mini-grid programme in India and also supports Rockefeller Foundation's global initiatives across the mini-grid domain. His team's goal is to work towards rural economic development through energy access. He leads the facilitation support to 12 ESCOs for 353 mini-grid plants in UP, Bihar and Jharkhand.

Samit has over 20 years of experience as a business leader in P&L, business development and rural marketing initiatives for consumer products, renewable energy and social impact organizations.



Mr Gaurav Pandey

Head of Operations, Mlinda

Mr Pandey is an engineer-cum-business professional with over 15 years of experience in the engineering, construction, aerospace, RE and development sectors. At present, he is Head of Operations in the Mlinda Group. Mlinda is playing a key role in the RE and development sectors. It is supporting communities to build financially and environmentally sustainable businesses from the energy produced.



Mr Pandey has rich experience in bringing together investors and consumers on market-based models for sustainable economic growth. In particular, at L&T, he was part of a project that electrified 38,500 households across more than 234 villages with over 400 micro-grids, 100 MWh of battery storage and 600 km of LT lines.

Ms Pratha Jhawar

Deputy Programme Manager, Renewable Energy, CSE

Pratha is a renewable energy and climate change researcher and analyst, currently associated with Centre for Science and Environment. She has more than eight years of experience in areas ranging from engineering, development, management, policy research and advocacy. Her work on various projects has had a significant impact on the adoption of decentralized renewable energy systems in India.



Earlier, she worked with Bharat Heavy Electricals Limited (BHEL), Bangalore for more than four years in the capacity of a product engineer for solar photovoltaics. She is a Chevening scholar for an MSc in environmental technology from Imperial College London and BTech in electronics engineering from Indian Institute of Technology, Banaras Hindu University (IIT-BHU), Varanasi.



Centralized systems were disrupted by COVID-19. At the same time, DRE is a great intervention for the democratization of livelihoods, health, energy, innovation and entrepreneurship

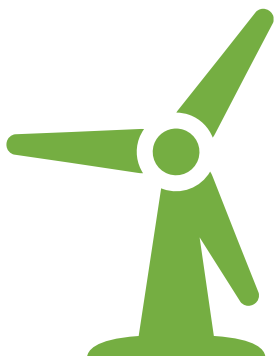
Harish Hande



Youth and rural women are not looking only for income through jobs or livelihood, but also an identity which reduces insecurities.

DRE provides an absolute solution as it addresses multiple problems India is facing, whether it is partial exclusion, geographical exclusion or social exclusion

Avanish Kumar



Agenda and discussion

In April 2018, World Bank's South Asia Economic Focus (SAEF) report highlighted jobless growth in India and underlined the need to create 8.1 million jobs a year to maintain the employment rate. Data from the report highlighted the continuously decreasing employment-to-population ratio since 2005, from 55 to 46.5 per cent in 2020. COVID-19 has exposed the cracks in the present job structure and employment system as well as a glaring migrant issue in the country. As per SAEF's fall-2020 report, unemployment will be further exacerbated as India's Gross Domestic Product (GDP) is expected to contract by 9.6 per cent in the fiscal year 2020-21.

Under such circumstances, renewables can be seen as a potential job-creating sector as:

- » The sector exhibited resilience and endurance during the COVID-19 disruption
- » The sector experienced remarkable growth in India and worldwide because of gained competitiveness in the energy market and as an alternative to polluting fuels to drive the energy transition.

Renewable to be a potential job generator

RE's prominence in the global energy mix is increasing. In 2019, renewables had a 72 per cent share in the net capacity expansion in terms of installed capacity of electricity, of which 90 per cent was associated with solar and wind power.

The RE sector should now create jobs and cater to the employment requirement for the following reasons:

- » **Increasing share:** The share of RE in the primary energy supply will grow from less than one-sixth today to nearly two-thirds in 2050 in a scenario where warming is limited to 'well below' 2 C.
- » **Improved investment scenario:** This transition in the energy sector will attract an investment of around US \$900 billion annually, between 2015 and 2050. This sum should also be reflected in the creation of jobs.
- » **Government targets:** Now that RE is taking a mainstream role, as countries have Nationally Determined Targets (NDCs) based on RE installations (under the Paris Climate Accord, 2015), deployment of RE will improve and will be strategic to policy decisions. Here, governments have a chance to ensure synergies between clean energy accessibility, affordability and employability. Indian government has a target of installing 175 GW by 2022, expanding it to 450 GW by 2030.
- » **Energy transformation:** The climate change debate and the related clean energy transformation will take away jobs in the fossil fuel sector. Renewables will absorb people affected by such transformation. A socially just transition will be needed.
- » **Sustainable, equitable and inclusive development:** At last, renewables are seen as a tool for sustainable development, but this development has to be extended to equitable and inclusive aspects. Renewables should not only generate direct, full-time and industry-based jobs, they should also empower people to pursue their endeavours from rural and remote areas.

International Renewable Energy Agency (IRENA), an intergovernmental organization, maintains that RE has the potential of creating almost three times the jobs the fossil fuel sector creates and 7.5 full-time employments for every US \$1 million investment. However, a shortage of skilled labour could obstruct the sector's growth. Moreover, the issue of gender inequality persists in RE as well.

Current status

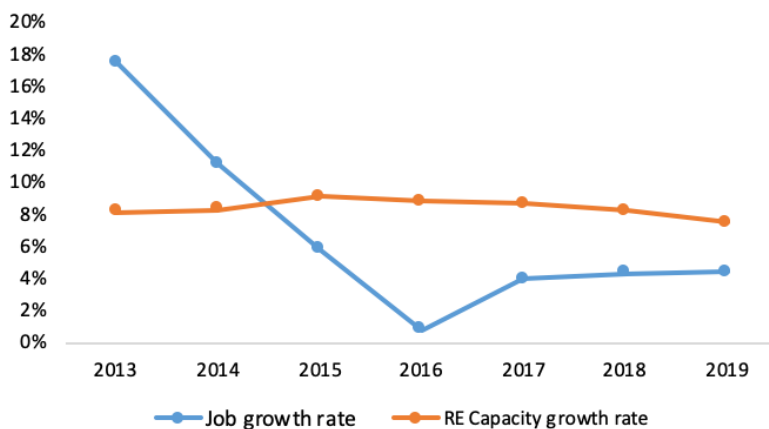
By the end of 2019, 11.5 million people were employed in the RE sector globally, according to IRENA, which supports countries in their transition to a sustainable energy future. The agency maintains that energy employments globally will be increasingly driven by renewables, as the RE sector is constantly growing.

Of the 11.5 million people globally employed in RE, almost one-third are working in the solar PV sector, then come bio-fuel and hydropower employments. In India, of the 8.25 lakh jobs in RE, hydropower employs the maximum workforce (44 per cent), followed by solar PV (25 per cent), and solid biomass and biogas together (17 per cent).

The number of jobs in the RE sector has been rising in the last three years, and increased at a compounded annual growth rate (CAGR) of 6.7 per cent during 2012-19. However, this growth was less than the RE CAGR for the same period, which was 8.4 per cent (see Graph). The disproportional growth in employment generation as against growth in the RE sector can be attributed to large-scale deployments and increasing automatization.

Comparison of growth rates of jobs and renewable energy

RE capacity is growing at a steady rate but it is not reflected in job generation in the sector



Source: CSE analysis

Indian scenario

India's RE growth can be attributed to large-scale installations of solar and wind energy plants, which obviate the direct requirement for labour, except during project development and commissioning phases. Reduction in wind deployments led to a decrease in turbine manufacturing, which is making the job creation profile of the wind sector even grimmer in India.

Solar, the major growth sector, is almost devoid of manufacturing in India, and has so far been import-dependent. In this process, India is outsourcing all manufacturing jobs to China, while developing its solar energy sector. Solar rooftop and mini-grids are not growing fast enough.

The employment generation potential of large-scale solar and wind is not very significant. While the distributed RE sector—which includes small-hydro, biomass, mini-grids, solar rooftop, solar agricultural pumps, solar lamps and pico devices, etc.—has much higher potential of employment generation and a major part of it is in rural and remote areas.

National Institute of Solar Energy (NISE), an autonomous institute under the Ministry of New and Renewable Energy (MNRE), is entrusted with skill impartation through its Suryamitra Skill Development Programme. So far, it has trained some 30,000 professionals. More efforts are required in this direction to make renewables a standard sector for employment.

Distributed renewables

Deliberating on the need for creation of employment through renewables, the panellists agreed upon the larger and more significant role of distributed renewable energy (DRE), especially in rural areas. Villages with mini-grids are doing well in terms of revenue generation and new business developments. A regular and reliable source of energy brings tremendous opportunities for generating income at the ground and can be linked to long-term gains. It is not only about accessibility, but the entire value chain should be supported. This includes financial linkages, forward market linkages, technical knowhow and capacity building—these are all required in a rural setup. The end-result of DRE is not restricted to electricity generation but extends to the generation of livelihood, translating into the development and empowerment of people, giving the poor a chance to grow. This also helps in creating opportunities for youth and women.

At present, only 21 per cent of the Indian workforce comprises of women, which will further decrease due to COVID-19. The participation of women in the RE sector is particularly dismal. Only the solar sector has a sizable women workforce at 11 per cent, while in other sectors it is minuscule. Factors affecting enrollment of women include: The double burden of domestic and professional responsibilities (social issues and attitudes), the question of mobility (safety and security), absence of safe and gender-responsive workplaces, etc. Therefore, a gender-sensitive policy framework which provides them equal opportunities is required to improve women employment in DRE.

Innovation and proper utilization of RE sources can translate into full-time direct and indirect jobs beyond the power sector. For instance, rice and wheat straw could be converted into transport fuel. Similarly, plasma-assisted gasification of rice straw could result in lean-gas fuel, which can be utilized in cold storage.



It is important that government policies and programmes are gender-responsive and encourage women in rural areas to come forward, empower them, train them and promote them as strong managers in the value chain

Swayamprabha Das



DRE has a very indirect and at the same time exponential impact on employability as well as livelihood

Samit Mitra



The way forward

The impact of COVID-19 on the relatively small DRE sector is upsetting. A mechanism needs to be developed to support small enterprises working in the DRE sector, which are more prone to risks and shocks. Further, a paradigm change in thinking is required to address the gender issue in employment. Renewables are experiencing a remarkable growth but DRE is the most suitable sub-sector for generating employment, and providing people livelihood and, above all, an identity, especially to the youth and women. Concerted efforts are required in this direction to streamline the process of creating linkages at different levels to ensure maximum opportunities. It is important to address the disconnect between people on the ground and policies. Policies should be made available in vernacular languages and efforts should be made for the adoption of a bottom-up model of development. More interlinkages need to be created for making people aware of the various options available within the DRE domain. It is important to create an ecosystem of appropriate financing and market opportunities as well as institutes that will function as centres of excellence for improving income levels in rural areas.