

GREEN JOBS



NEWSLETTER

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SKILLING FOR Green Resource Management

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MESSAGE

From the CEO's Desk.

Technological change, global supply chains, demographic trends and climate change will significantly shape skill needs for both current and emerging jobs across the country. Transition to a green and climate resilient Indian economy has the potential to create millions of jobs across multiple sectors and levels. Skills development activities will continue to play a major role as the successful transition to a low-carbon Indian economy will only be possible by ensuring that our youth get suitably skilled, certified and subsequently employed across the fast-growing Green Business sector.

Whether it is about replacing conventional energy by deployment of new and renewable energy technologies, implementing cleaner & innovative practises, accelerating digitisation and automation, or creating new business and work models – our economy needs skilful workforce with forward looking approaches. Given India's unique position in the demographic dividend; investments in skilling is a critical pathway for powering country's transition towards a green and sustainable economy. As a country, we need to ensure that our workforce have the right skills needed to deliver the Green Transition at the required pace. This transition must be inclusive with ensuring opportunities for all including marginalised groups while also safeguarding those whose livelihoods currently depend on traditional sectors undergoing fundamental changes. In the process of this transformation, it is of utmost priority that we address the existing challenges in the skill landscape by ensuring the delivery of quality trainings on industry relevant skills across the country, supported with a strong cadre of trainers and training partners with robust infrastructure. Accelerating the delivery of low cost and high value targeted skill interventions with a focus on industry relevant and supporting employability skills and facilitating suitable employment is crucial to make India the skill capital and an engine for a global growth.

Recently a range of transformative measures have been taken by the Government across both education and skill landscape, notably with the National Education Policy (NEP), 2020 that lays emphasis on making education more holistic and effective by integration of academic and vocational education while ensuring the vertical and horizontal mobility of learners between streams. The recent launch of National Credit Framework (NCrF) which enables the education and skilling ecosystem in implementing one single credit-based framework in line with the vision of NEP, 2020 is also a very significant step towards bridging the gaps between quality education, skilling and industry. SCGJ has incorporated the requirements of NCrF across all its old and new qualifications and other skilling initiatives and is gradually implementing vocationalisation in concerned thematic areas in schools and institution of higher learning. An effective nationwide 'just transition' strategy must include green jobs and skilling across multiple sectors.

To this effect, the recently completed Green Jobs Landscape mapping study which was commissioned by J. P. Morgan to partners; Skills Council for Green Jobs (SCGJ) and Sattva Consulting is a timely and significant work.

This study shared valuable insights on green jobs and skilling in key sectors, outlined skilling priorities and provided overview on India's journey of Green Growth with a lens of equity and justice. To continue its efforts to promote green skills, SCGJ has been implementing various CSR funded projects across domains. With the support of SBI card, a cumulative capacity of 750 KWp of grid interactive rooftop solar was recently installed across select public buildings in Delhi NCR. SCGJ is also implementing an HPCL supported project on skill development of farmers/aggregators/FPOs in biomass aggregation and usage of specialized farm equipment; to develop business model from agro-waste in select districts of Uttar Pradesh. SCGJ with the support from GIZ is also mapping the existing status of greening the job roles across all sectors of the economy. After training over 4 lakhs candidates on various aspects of solid waste management, now we have ventured into skilling in Bio-medical waste management with the support of the World Health Organisation (WHO). Our efforts towards capacity development and promotion of learning across green business area is also continuing through the series of weekly webinars on the occasion of "Azadi Ka Amrit Mahotsav" and through delivering a range of virtual trainings across new and emerging technology and business areas like Green Hydrogen.

As we move towards a more inclusive and environmentally conscious future, the green business sector in the country continues to expand and present numerous opportunities. To thrive in this dynamic landscape, it is crucial for our organization to understand and prioritize the specific skills required by the diverse industry and accordingly design & implement the required skill interventions. This newsletter outlines some of the recent work undertaken by SCGJ, with an aim to encourage a culture of continuous learning and supporting readers in staying updated with our activities. .

Dr. Praveen Saxena

Chief Executive Officer
Skill Council for Green Jobs



“ India emerging as one of the world leaders, it has the potential to create up to 35 million green jobs by 2047”



Arpit Sharma
Chief Operating Officer
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Skill India
कौशल भारत - कुशल भारत

India – Moving towards ESG



The 2021 Conference of Parties (CoP26) on climate change was held in Glasgow, Scotland with the global community negotiating ways to manage climate change and mitigate the impact while ensuring that there is no adverse effect on employment, food security, and living standards of the people. Addressing climate change is one of the most urgent tasks in front of the world, particularly for India, the third largest polluter in the world and due to the rising threats from drastic physical events, such as floods, droughts, hurricanes, rising temperatures, and other climate change related events. It has become necessary to take immediate and consequential steps towards climate change adaptation and mitigation, otherwise, the global community is set to suffer a major loss in terms of finances, employment, health and others. Thus, India, at CoP26, pledged to achieve net zero emissions by 2070, reach 500 GW Non-fossil energy capacity by 2030, forecasted that 50 per cent of its energy requirements would come from renewable energy sources by 2030. India also pledged to reduce the total projected carbon emissions by one billion tonnes from now to 2030. This is in line with the policies adopted by Indian regulators over the past few years, which indicate that India has made an aggressive move towards decarbonization, by nudging as well as mandating market players to adopt sustainable ways of doing business. One of the indicators of the same is the introduction of comprehensive sustainability and Environment, Social and Governance (“ESG”) related disclosures to nudge companies to look beyond the traditional finance-centric models.

ESG disclosures are highly relevant for all stakeholders involved in a business process:

Investors – If a business is not conscious about sustainability, there are chances that either the business processes might become redundant in the future, due to legal and regulatory changes, which might forbid particular ways of doing business, or demand for its business products or services might go down. Therefore, ESG disclosures are highly consequential for investors for the following reasons: Including climate related considerations in asset valuation and finance allocation processes; determining the environmental and social impact of a company’s business processes; and assessing how climate change could affect a company’s financial stability in the future.

Businesses – ESG disclosures allow companies to identify potential transition risks, self-assess its ability to sustain in the future, and undertake necessary steps to adapt to the likely future changes. In case companies are not conscious of this exercise, they not only stand the risk of losing profit-making capacity, but also market reputation. At the same time, ESG disclosures help companies in identifying certain opportunities for innovation that might yield high results in the future. They also help companies in reassuring their stakeholders about their values and respect towards responsible business.

Consumers – ESG disclosures aid consumers in identifying responsible businesses, which not only concentrate on maximizing profits, but also on growing in a responsible manner. Businesses could also use their disclosures as a part of their marketing strategy to attract more consumers. This demonstrates that ESG disclosures are significant from the perspective of all stakeholders involved in the business processes. Therefore, special focus must be given to preparing the foundational principles and framework for such disclosures. India is gradually moving towards developing regulations around ESG. With the introduction of the BRSR framework, SEBI has joined the group of countries and international organizations to have released comprehensive sustainability reporting frameworks. Though the reporting mandate is presently restricted to the top 1,000 listed companies by market capitalization, the experience with BRR indicates that a wider range of companies would soon be covered under the BRSR framework.

The importance of this can't be overstated because it makes it possible for leadership to work together to identify opportunities, set targets, and get buy-in across the organization. The transformations is not only the concern, it build the impact on business operations and bridge the trust gap by communicating their progress to stakeholders through transparent reporting.

This often involves behavior change, new supply chain strategies and scaling new technologies—which can be anything from green innovations to dashboards that measure a company's progress in real time. Before companies can implement this approach successfully, they need to determine whether they have the right leaders with the right qualifications in place to drive change and there is no one-size-fits-all approach that works for every organization. For instance, some businesses need a Chief Sustainability Officer with a science or engineering background. Others need someone with deep institutional knowledge who can learn the sustainability piece on the job. The breadth of skills required to meet the commitments for a sustainable future.

Recently Securities and Exchange Board of India(SEBI) decided to introduce the BRSR Core for assurance by listed entities based on the recommendations of the ESG Advisory Committee and pursuant to public consultation. The Board further decided to introduce disclosures and assurance for the value chain of listed entities. The provisions of SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 (“LODR Regulations”) in this regard, have been amended vide Gazette notification no. SEBI/LAD-NRO/GN/2023/131dated June 14, 2023.

SCGJ play a pivotal role to include the qualification at National Level on how to assess carbon credits, evaluate risks associated with climate change, and comply with new reporting standards. SCGJ may work with colleges and universities and implementing their own training initiatives resulting into preparation of graduates and their existing employees to take on a range of sustainability challenges right from the start of their careers.

Arpit Sharma
Chief Operating Officer
Skill Council for Green Jobs

Biomass as green fuel

Dr. (Mrs.) Parveen Dhamija

Advisor, SCGJ



Government of India has set an ambitious target to achieve 50% of cumulative electric power from non-fossil fuel based energy by 20230 and achieving net zero by 2070. Modern Bioenergy is a non-fossil fuel based clean energy source that will help to mitigate air, water and land pollution and also create local jobs and business opportunities. Hence there is a need to promote and deploy modern efficient bioenergy technologies built robust supply chains and attract entrepreneurs and investors interest in the sector.

On November 2, 2022, the Ministry of New and Renewable Energy (MNRE), Government of India has notified the National Bioenergy Programme for the period from FY 2021-22 to 2025-26.

The National Bioenergy Programme comprises of the following sub-schemes:

1. Biomass Programme: MNRE has been implementing the programme to promote Biomass Power and Bagasse cogeneration in the country since 1990s. The programme which were earlier focused on cogeneration will now support the manufacturing of the pellets and briquettes for use in power generation. The scheme will support the implementation of National Mission on Co-firing of Biomass in the Thermal Power Plants. More than 800 Biomass Based Power Plants(IPPs, Bagasse/Non-Bagasse Cogeneration) of cumulative capacity of about 10,248 MWeq have been installed in the country as on 30.06.23.
2. Waste to Energy Programme: MNRE is implementing Programme on Energy from Urban, Industrial and Agricultural Wastes /Residues and Municipal Solid Waste since 2018 for recovery of energy in the form of Biogas/BioCNG/Power from urban, industrial, agricultural and municipal solid waste(excluding MSW to Power projects). As on 30.06.23, a cumulative capacity of 249 MWeq of waste to power and 315 MWeq of Waste to Energy(Off grid) has been installed.
3. Biogas Programme: MNRE is promoting installation of small biogas plants since the year 1981-82 under New National Biogas and Organic Manure Programme(NNBOMP) to provide clean gaseous fuel mainly for cooking and lighting purposes in rural areas. support setting up of family and medium size Biogas in rural areas. Similarly the Biogas Power Generation(Off-grid) and Thermal energy application Programme(BPGTP) for medium size biogas plant in decentralized applications (25 m3 to 2500 m3/day and 3-250 kW). As on 30.06.23, a cumulative capacity of 10813 MWeq plants has been installed.

The Government of India had also launched the GOBAR-DHAN (Galvanising Organic Bio-Agro Resources) scheme in 2018 to ensure cleanliness in villages and generate wealth and energy by converting cattle dung and solid agricultural waste into compost and biogas and improve the lives of villagers. The scheme is promoted by Ministry of Jal Shakti which proposed to cover 700 projects across the country in 2018-19. Under the GOBAR-DHAN scheme, there is a plan to systematically create a pool of skilled people to cater to setting up of biogas plants, its operation, maintenance and continuous availability of feed stock. This activity will also help in addressing the issue of stubble burning through waste aggregation and its utilization for energy purpose. Development of local entrepreneurs, who not only manage the surplus agri residue and animal manure but also develop avenues for livelihood generation in villages, improve the service quality and efficiency of manpower would be a very important and necessary component for the success. A total of 635 Biogas/Compressed Biogas Plants have been set up so far in the country.

Another innovative initiative titled Sustainable Alternative Towards Affordable Transportation (SATAT) initiative was launched by MoPNG on 1.10.2018 to promote Compressed Bio Gas (CBG) as an alternative, green transport fuel for efficient management of biomass and organic waste. PSU Oil Marketing Companies (OMCs ,i.e. IOC, BPCL and HPCL) invited Expression of Interest (Eoi) from potential entrepreneurs to set up Compressed Bio-Gas (CBG) production plants and make available CBG in the market for use in automotive fuels. This significant move has the potential to boost availability of more affordable transport fuels, better use of agricultural residue, cattle dung and municipal solid waste, as well as to provide an additional revenue source to farmers. It is planned to roll out 5,000 Compressed Bio-Gas plants across India in a phased manner, with 250 plants by the year 2020, 1,000 plants by 2022 and 5,000 plants by 2025. These plants are expected to produce 15 million tonnes of CBG per annum, which is about 40% of current CNG consumption of 44 million tonnes per annum in the country. At an investment of approx. Rs. 1.7 lakh crore, this initiative is expected to generate direct employment for 75,000 people and produce 50 million tonnes of bio-manure for crops.

Under SATAT initiative 3263 Letters of Intent (LoI) has been issued by June 2023. These projects are being taken under Priority Sector Lending under White Category of Industries and Bio manure produced from CBG plants has been included under Fertiliser Control Order. The status of implementation is given below:

Company	Number of LOIs issued	Land Finalized	Financial Closure	CBG plant commissioned/ sale initiated (No. of CBG Plants)	CBG sale initiated (No. of Retail Outlets)	CBG sale initiated (No. of CBG injection points)
IOCL	2249	156	37	18	31	0
BPCL	299	37	7	7	12	0
HPCL	413	64	28	3	1	0
GAIL	255	45	18	6	1	1
IGL	47	26	7	1	0	1
TOTAL	3263	328	97	35	45	2

Source: MoPNG

To address the burning issue of air pollution particularly in National Capital Region (NCR) due to farm stubble burning and to reduce carbon footprints of thermal power generation, the Ministry of Power launched the National Mission on use of Biomass in Thermal Power Plants (SAMARTH) on 12th July 2021 and the revised biomass policy was issued on 8th October, 2021, mandating all TPPs in the country to use 5% of biomass pellets in the co-firing with coal. A customized window has been made available on the GeM portal for Biomass pellet procurement and Biomass has been notified under Priority Sector lending by the RBI. CPCB issued guidelines for “One-time financial assistance scheme for setting up pellets plant in NCR. So far around 2 Lakhs Metric Tonnes (MT) of biomass has been co-fired in Thermal power plants till June 2023 leading to reduction of carbon dioxide emissions and moving toward goal of sustainable energy transition.

Government of India, with the aim to enhance India’s energy security, reduce import dependency on fuel, save foreign exchange, address environmental issues and give a boost to domestic agriculture sector, has been promoting the Ethanol Blended Petrol (EBP) Programme. The ‘National Policy on Biofuels’ notified by the Government in 2018 envisaged an indicative target of 20% ethanol blending in petrol by year 2030. A “Roadmap for Ethanol Blending in India 2020-25” was also released by the Hon’ble Prime Minister in June, 2021 which lays out a detailed pathway for achieving 20% ethanol blending. This roadmap also mentioned an intermediate milestone of 10% blending to be achieved by November, 2022.

However, due to the coordinated efforts of the Public Sector Oil Marketing Companies (OMCs), it has been reported that the target of average 10% blending under the programme has been achieved across the country which has translated into substantial saving of foreign exchange and reduction of greenhouse gas emission.

The National Biofuel Policy of India 2018 also envisaged setting up of 2G Ethanol plants will help achieve the target of Ethanol blending in Petrol. Oil PSUs, in line with vision laid down by Government of India, are planning to set up twelve (12) 2G Ethanol Bio-refineries across 11 States viz. Punjab, Haryana, U.P., M.P, Bihar, Assam, Odisha, Gujarat, Maharashtra, Karnataka and A.P. It has been reported that the first 2G ethanol plant located in Panipat set up by Indian Oil Corp (IOC) with the capacity of 100 kilolitres/day (Kl/day) is operational.

All the above initiatives envisages a bioenergy production system which is dependent on a feedstock supply chain to be managed properly for constant supply for the energy conversion process. The processes of developing the chain need to be spread into several distinct steps as identifying locally occurring biomass resources, the roles of individuals and organizations in the supply chain and examination of the quality control and pre-processing needs for the feedstock. Storage concerns are another large part of a supply chain and should be well thought through. Skill Council for Green Jobs (SCGJ) along with KPMG, India has carried out sector analysis, skill gap studies, occupational mapping and process flow along with identification of job roles in the domain of biomass management in India. Keeping in view the need to address the issue of stubble burning and manage the biomass supply chain, SCGJ has developed Qualifications Packs for Agri-residue Aggregator, Biomass Depot Operator and Manager- Waste Management (Elective: Biomass Depot/Compost Yard/Dry Waste Center) to skill local youth in collection, aggregation and storage of farm waste and also be trained for developing business in supply chain management of agri residues. These job roles have been prepared as per the National Skill Qualification Framework (NSQF) for imparting skill training for these sectors. SCGJ has been continuously interacting with stakeholders involved in the setting up of the CBG/ Bio-CNG plants being set up under the various programmes to organize trainings activities to enhance the skills of the workforce. SCGJ trained Trainers from M/s Bio-Urja and M/s Mailhem to their operators for managing CBG/BioCNG plants.

Currently SCGJ is implementing a project supported by Hindustan Petroleum Corporation Limited training on Agri-residue Aggregation and Biomass Depot operation. The objective of training is to strengthening Biomass Supply chain to CBG Plant at Budaun, UP to ensure proper storage and availability of the biomass feedstock to the Compressed Biogas Plant is located at Village Sainjani, Tehsil Dataganj, District Budaun, Uttar Pradesh, with design capacity of 100 Tons/day processing of biomass, which will produce approx. 14.25 MT/day of CBG and approx. 65 MT/day of organic manure. The plant is consuming approx. 40,000 MT of paddy straw annually which needs to be supplied on a sustainable basis. Under the project, SCGJ trained 4 Trainers from M/s Bio Trend Energy, Delhi on both the job roles of Agri-residue Aggregator and Biomass Depot Operator for training the farmers identified under the above project. A total of 21 training were organized for 777 Farmers/Aggregators which included about 124 women farmers spread over in different villages in 5 Districts viz. Bareilly, Budaun, Pilibhit, Shahjahanpur and Hardoi which were identified by HPCL as the sources of the biomass for their supply chain. Representative from M/s New Holland, manufacturers of the Balers and M/s Praj industries, the technology developers were also participated in most of the trainings.



HPCL Plant, Budaun



Kona Yakubpur, Shahjahanpur



Nawabganj, Bareilly



Lunhara, Hardoi



Khandhar, Shahjahanpur



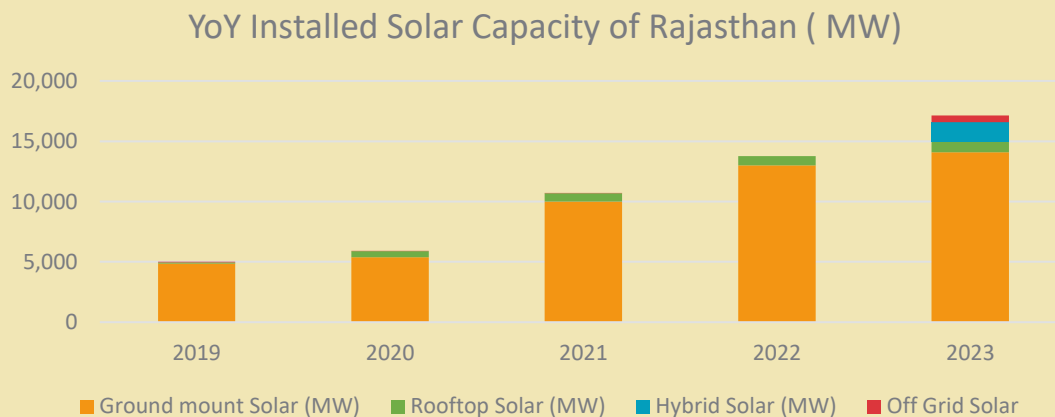
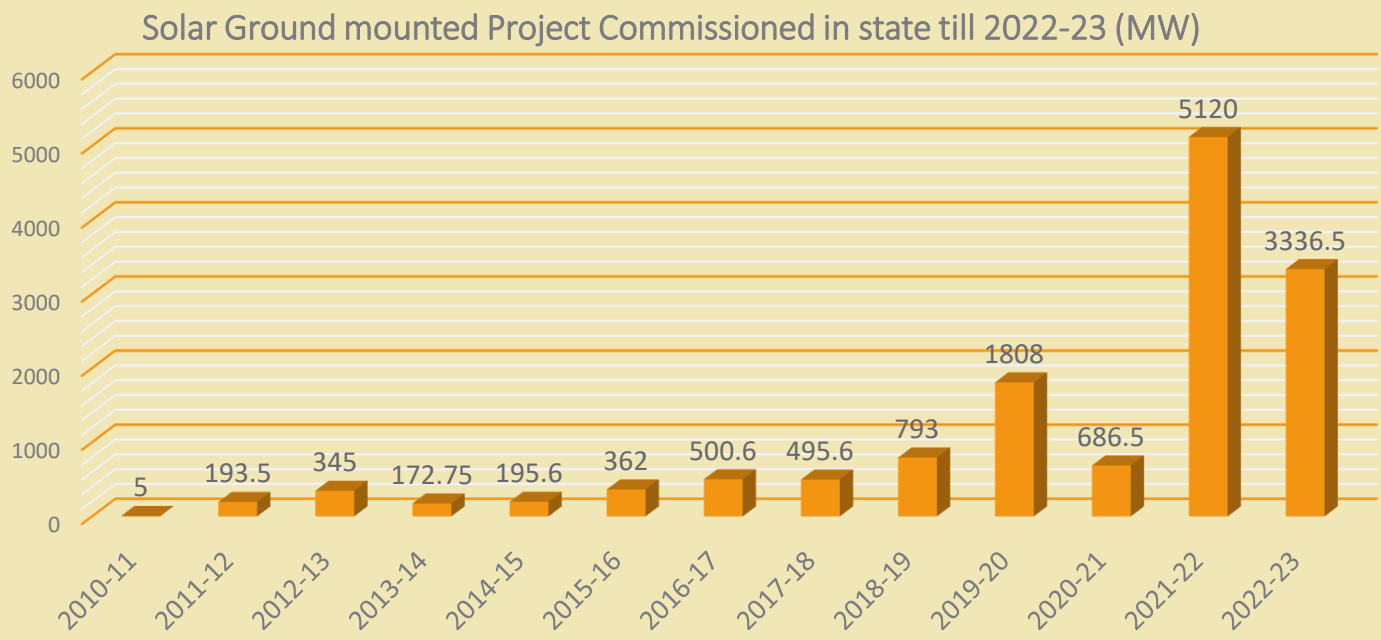
Murja Khurd, Pilibhit

The project will benefit the local farmers in creating awareness about the issues of stubble burning and also skill them in collection of agro-residues and aggregating as bales through mechanized equipment, transportation to treatment plants and storage at the biomass depot. This will lead to additional source of income generation for farmers and also create avenues for entrepreneurship. This project can thus serve as a pilot for replicating in other States for future trainings in collection, aggregation and storage of farm waste for various end utilization.

Rajasthan Demographic	
Capital	Jaipur
Area	342,269 km ²
Number of Districts	33
Population	68,621,012 (As per Census 2011)
Coordinates	26°34'22"N 73°50'20"E
Time zone	GMT+5:30 Hours
Main language	Rajasthani, Hindi and Marwari

Following is the present status of Solar PV Projects in the State of Rajasthan :

Installed Ground mounted solar projects in Rajasthan, as on Apr 2023 : **14,024 MW**



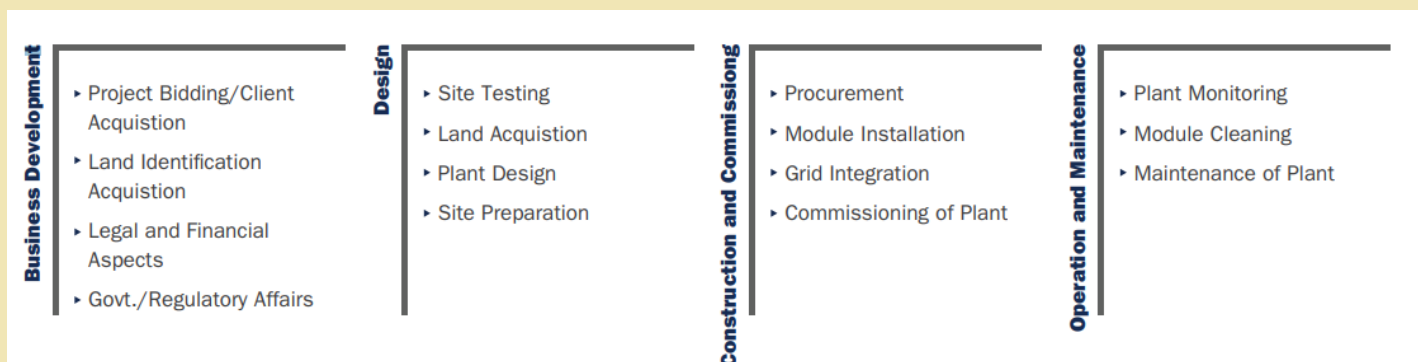
Keeping in view the targets of State solar policy and current installed capacity, **during 2023-24 and 2024-25 about 10 GW of Ground mount SPV projects will be installed in the state.** Further, based on registration of the projects an additional capacity of about 21 GW of ground mounted projects is under pipeline for implementation. It is estimated that up to 75,000 jobs shall be created to execute and operate this additional capacity of solar ground mounted projects by 2027. Further, Over 93000 jobs are also expected to be created to install 3.8 GW of grid interactive solar rooftop projects

All job numbers correspond to full-time equivalent employment and are estimated using the full-time equivalent (FTE) coefficients which is 3.45 for Ground mounted and 24.72 for rooftop solar respectively. These coefficients were previously developed by CEEW-NRDC, and are also employed during the annual jobs and skills study in wind and solar sector conducted by CEEW-NRDC- SCGJ. The FTE formula translates short-term or one-time employment into a full-time equivalent or job-year

Jobs creation through ground mounted solar projects

Year	Solar Capacity Addition (MW)	Estimated Jobs Creation during Design construction & Commissioning phase	Post Commissioned Jobs Creation during O&M
Year 2010-2023	14,024		7,012
FY 23-24	4,085	12,051	2,043
FY 24-25	8,015	23,644	4,008
FY 25-26	2,300	6,785	1,150
FY 26-27	7,310	21,565	3,655
Total	35,734	64,045	17,868

Project Phase and FTE Coefficients



Employment in Ground mounted solar projects

		Annual Capacity Addition			
		Capacity Addition Until FY 2023-24 (MW)	FY 2024-25 (MW)	FY 2025-26 (MW)	FY 2026-27 (MW)
		4085	8015	6610	3000
Project Phase	FTE Coefficient by segment	Annual Employment Added			
Business development	0.05	204.25	400.75	330.5	150
Design	0.2	817	1603	1322	600
Construction and commissioning	2.7	11029.5	21640.5	17847	8100
Operations and maintenance	0.5	2042.5	4007.5	3305	1500
Total		14093.25	27651.75	22804.5	10350

Employment in Rooftop solar projects

		Annual Capacity Addition*			
		Capacity Addition Until FY 2023-24 (MW)	FY-2024-25 (MW)	FY-2025-26 (MW)	FY-2026-27 (MW)
		918	1074	1256	1470
Project Phase	FTE Coefficient by segment	Annual Employment Added			
Business development	1.53	1404.54	1643.22	1922	2249
Design	8.85	8124.3	9504.9	11116	13010
Construction and commissioning	13.84	12705.12	14864.16	17383	20345
Operations and maintenance	0.5	459	537	628	735
Total		22692.96	26549.28	31048	36338

* Projected data for annual rooftop solar capacity addition based on YoY Growth rate

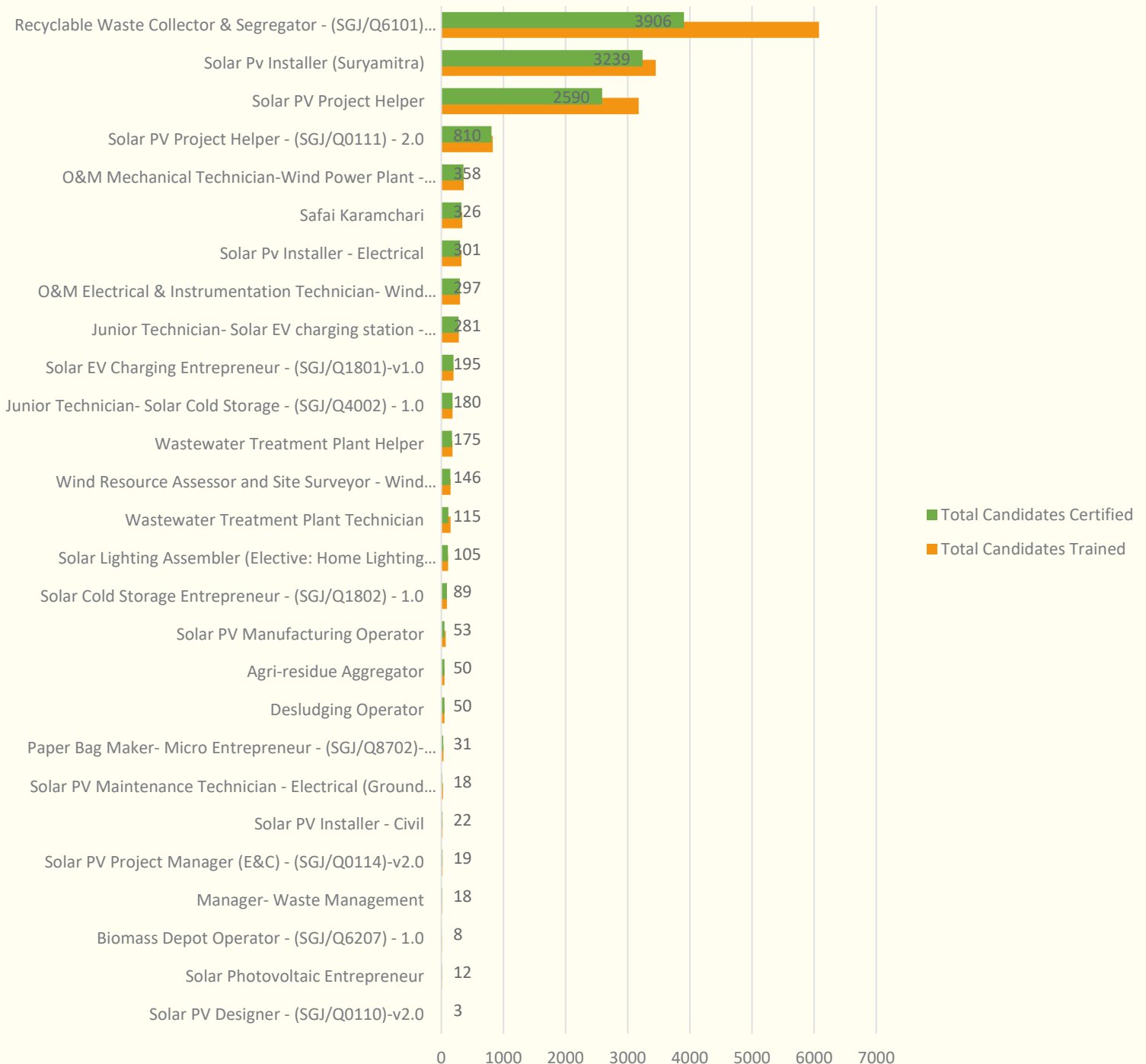
Q1-Q3 Trainings

SCGJ Statistics through 2023

Total Training = 16524
Cumulative Training = 552959

Job Role Wise

Chart Title

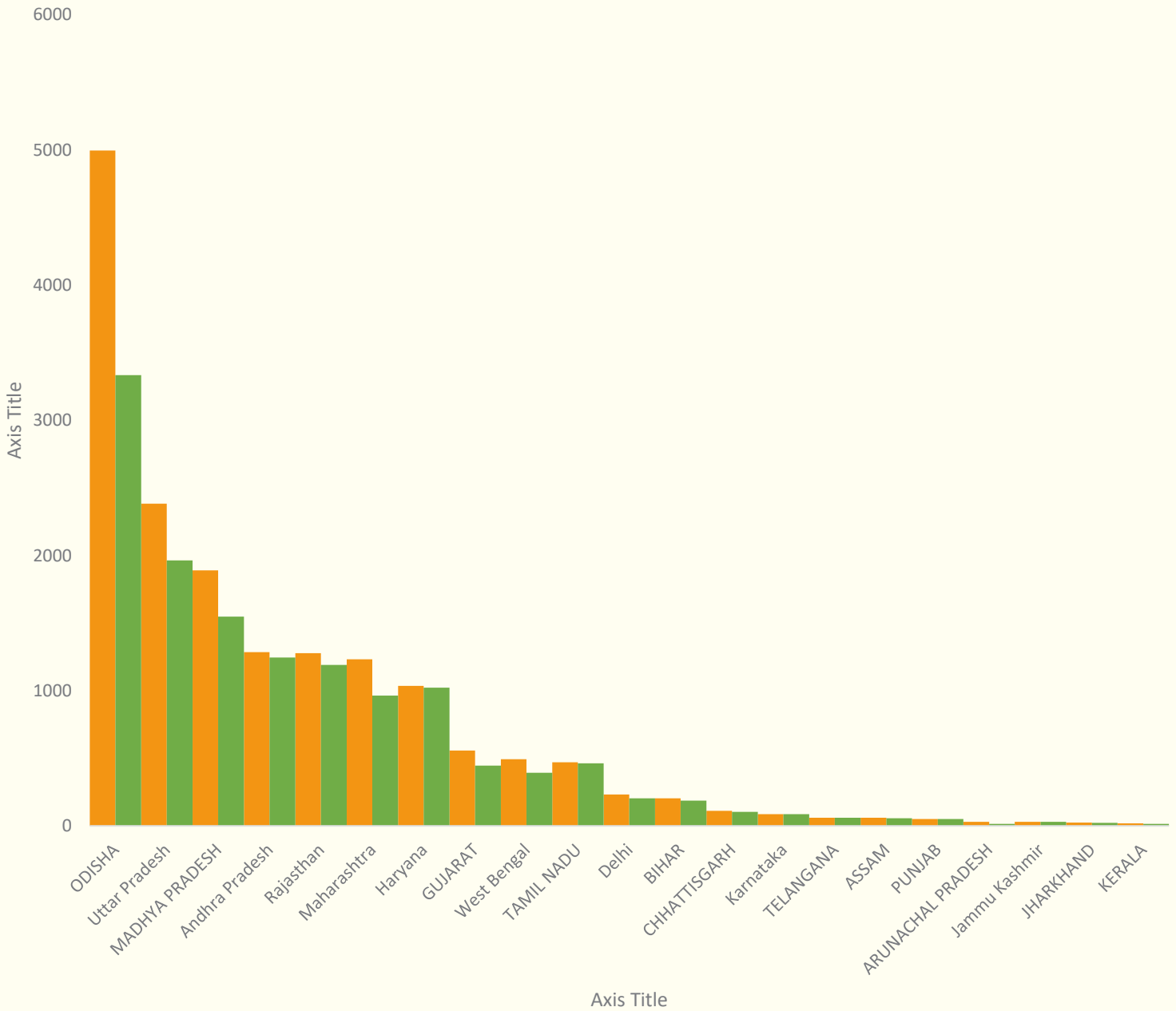


Q1-Q3 Trainings

SCGJ Statistics through 2023

Total Training = 16524
Cumulative Training = 552959

State Wise



Projects

SCGJ Statistics through 2023

Ongoing Projects

HPCL Supported Project

SCGJ is implementing CSR project supported by Hindustan Petroleum Corporation for training on Agri-residue Aggregation and Biomass Depot operation Under the project, SCGJ conducted 22 training for 775 Farmers/Aggregators which included about 150 women farmers spread over in different villages in 5 Districts viz. Bareilly, Badaun, Pilibhit, Shahjahanpur and Hardoi which were identified by HPCL as the sources of the biomass for their supply chain. Representative from M/s New Holland, manufacturers of the Balers and M/s Praj industries, the technology developers were also participated in most of the trainings.



WHO Supported Project

WHO is currently supporting SCGJ in implementing a project which aims to develop electronic self-learning modules for training of all the levels of healthcare staff (Doctors; Nurses/ Paramedics/ Technicians; Ward boys/ Class IV employees).

The key objectives of the project are developing a training resource on BMW to bridge the knowledge gap in the healthcare sector and increase the compliance of BMW Rules 2016. Designing electronic self-learning modules for training of all the levels of healthcare staff (Doctors; Nurses/ Paramedics/ Technicians; Ward boys/ Class IV employees) and making organizational tie-ups to host this module on various platforms for increased visibility, dissemination, and use.



SCGJ made a significant progress and developed a draft e-learning modules (SCORM compliant) on biomedical waste management for Ward boys/Class IV Employees.

GIZ Supported Project

GIZ engaged Green TVET Expert of SCGJ for compiling a baseline desk study on the existing green skill development programme in India under Indo-German Programme for Vocational Education and Training (IGVET) which aims to address the challenge of integrating over 250 million young people into India's labor market in the next 15 years. Inspired by the successful German VET model. IGVET promotes a demand-driven vocational education and training system involving private enterprises. SCGJ made a progress and identified sector wise list of all potential job roles focusing green skills among the 36 Sector Skill Council in India. SCGJ also identified various curriculum of Directorate General of Training and Skill Universities focusing green skills. On the next step, SCGJ is identifying various institutions offering these courses across the country.

Projects

SCGJ Statistics through 2023

Completed Projects

SBI Card Supported Project

SCGJ had received CSR Project funded by SBI Card to install Rooftop Solar power plant of cumulative capacity of 750 kW under phase manner. During the first phase of execution, installation was done at two of highly occupied hospital in Delhi at Madan Mohan Malviya Hospital (120 kW) and at Safdarjung Hospital (180 kW). Under the phase –II installation was proposed and subsequently completed at Civil hospital sec-10 and at Govt. College of Girls sec - 14 in Gurugram.

The project aimed to encourage use of clean energy and bring sustainable practice in Hospital and College. In order to make the hospital green and clean and promote the clean energy technology and gradually reduce the reliance from utility grid for their power consumption.

Solar Project at Madan Mohan Malviya Hospital



J P Morgan Supported Project

Skill Council for Green Jobs and Sattva Consulting supported by J.P. Morgan conducted a study that mapped the landscape of green jobs in India, with an aim to identify vibrant sectors creating green jobs, opportunities in the skills ecosystem, and outline needs and challenges of vulnerable groups. In this context, the study report titled “Gearing up the Indian Workforce for a Green Economy” was released by Shri Atul Kumar Tiwari, Secretary, Ministry of Skill Development and Entrepreneurship during an event organised on May 16 2023 at New Delhi. The report identifies employment potential in the green economy and the catalytic role that philanthropy can play in addressing skills needs and ensuring equitable access to green jobs. It estimates that up to 35 million green jobs will be created by 2047 across emerging and traditional sectors. Sectors such as renewable energy, green hydrogen, waste management, electric vehicles, sustainable textiles and green construction are key sectors that will drive green growth in India and host the highest number of green jobs, especially in urban and peri-urban areas.



The report further states that the promised green growth is an opportunity for the country to create meaningful livelihoods through two interconnected strategies -- leverage the global need for skilled human resources to help itself and other countries achieve net zero targets and ensure just and well-managed transitions for labour in traditional industries that are impacted as a result of these shifts. The research outlines five Big Bets initiatives that have the potential to create jobs at scale including for people from disadvantaged socio-economic backgrounds. These include reskilling and upskilling existing workforce, training entry-level workforce, supporting entrepreneurship-led models, fostering diversity & inclusion, and ensuring formalisation, and protections and working conditions of green jobs.



Given the nascency of the skills ecosystem, vis-à-vis the growing demand for green jobs, there is an urgent need to enable green skill development in India. Philanthropy can take **five big bets** to address skill-building needs and propel the country's transition to a green economy.

- 1 Reskill and upskill existing workforce**
Enabling existing workforce to adapt to changes in jobs due to greening
- 2 Train entry-level workforce**
Training incoming youth to meet the demand for new green jobs
- 3 Support entrepreneur-led models**
Creation of self-employment that can amplify job opportunities
- 4 Foster Diversity and Inclusion**
Ensuring diversity and inclusion in skill-building and jobs in the process of greening the economy
- 5 Formalisation and decent jobs**
Ensuring safety and social protection in the existing jobs

Redington Supported Trainings

The project awarded to Skill Council for Green Jobs (SCGJ) under the CSR funding from Redington Foundation was for developing the skills of youth in “Optimum design of Solar PV power plants” to improve their employability and entrepreneurship opportunities in the Green Energy sector. The project aimed at skill training programme and was focused to increase the capability of unemployed fresh Engineering and Science graduates and diploma passed candidates through 300 hours of technical trainings in Solar PV designer and Entrepreneurship course. Built on the survey and analysis conducted by SCGJ for the skill gaps in solar sector to gauge the awareness levels of the trainees and professionals on the solar domain. SCGJ has developed and deployed a skill training model for imparting employability skills training to the unemployed Indian students between 19 & 30 years of age. The aim was to train under privileged students, with a family income of INR 5- 7 lakhs, to become independent and competent solar professionals. In this pilot project the geographical focus areas were the States of Karnataka & Maharashtra.

SCGJ trained and certified 55 candidates, out of which 45 have got placed in Solar companies.



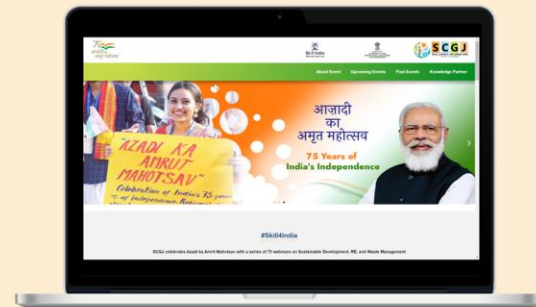
Proceedings of Webinar Series Azadi Ka Amrit Mahotsav



Webinar Series Celebration

By Skill Council for Green Jobs

#Skill4NewIndia



Webinar Hosted
Every Friday

SCGJ celebrates Azadi ka Amrit Mahotsav with a series of 75 webinars on Sustainable Development, Renewable Energy and Waste Management

Visit: scgj.azadikamritmahotsav.in

We thank all our eminent speakers from India and Overseas



Celebration of 75 years of India's Independence

Government of India is commemorating 75 years of progressive India and the glorious history of it's people, culture and achievements by celebrating 'Azadi Ka Amrit Mahotsav'. The 75th anniversary of India's independence is a testament to its march from a young nation to an economic superpower today. Much of this journey has been possible due to the rich heritage of skills and craftsmanship that has strengthened the country. It is indeed a step towards aligning all its efforts with the larger vision of building a New India. As a part of the 'Azadi ka Amrit Mahotsav' 2021-22, Skill Council for Green Jobs (SCGJ) is organizing a series of Webinar on Sustainable Development, Renewable Energy and Waste Management by inviting eminent and learned Speakers so as to deepen the understanding of recent developments in these sectors.

The first in the series was launched on 24th September 2021 by Mr. Sameer Gupta – Chairman (SCGJ) and Dr. Praveen Saxena – CEO (SCGJ). SCGJ is continuing to bring eminent Speakers in diverse field/sectors so to enhance knowledge and learning and bring forth various development and innovation in Renewable Energy(RE) and waste management as a part of the 'Azadi ka Amrit Mahotsav' 2021-22.

By June 2023, a total of 83 webinars have been organized on different topics.

SCGJ is presenting the proceeding of the events in this and upcoming newsletters.



Webinar on Citizen Science and its Application to Energy, Environment, and Health Issues

Dr. Sumeet Saksena, Senior Fellow
The East-West Center, Honolulu, USA



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Webinar Summary

Citizen science is a dynamic and burgeoning field that leverages the power of collective intelligence to augment scientific research. This webinar delves into the realm of citizen science, highlighting its significance, methodologies, and potential it holds for technical readers who seek to explore new avenues of research collaboration.

It represents a paradigm shift in scientific inquiry, transforming the role of the public from passive recipients to active contributors. It involves the engagement of volunteers, enthusiasts, and non-experts in various stages of the research process, including data collection, analysis, and interpretation. This approach facilitates large-scale data acquisition, offers diverse perspectives, and fosters interdisciplinary collaborations that can yield novel insights and discoveries. One of the key strengths of citizen science lies in its ability to gather vast quantities of data that would otherwise be impractical or cost-prohibitive for traditional research teams. Technical readers can appreciate the impact of this scalable data collection approach, which allows for broader coverage, long-term monitoring, and improved spatial-temporal resolution. By harnessing the power of crowd-sourced data, researchers can address complex research questions and uncover patterns that would be challenging to discern using conventional methods.

While the inclusion of non-experts in scientific research can raise concerns about data quality, citizen science projects have developed robust mechanisms for data validation and quality assurance. Technical readers can explore the methodologies employed, such as calibration exercises, training modules, and peer validation processes. Rigorous protocols and statistical analyses ensure that the contributions of citizen scientists are reliable and conform to scientific standards. Advancements in technology have revolutionized the field of citizen science, offering technical readers a plethora of innovative tools and platforms to facilitate data collection and analysis. These technological solutions enable efficient data capture, real-time monitoring, and seamless collaboration among researchers and citizen scientists.

The involvement of citizen scientists in research opens doors for collaboration and innovation. The fusion of domain expertise and public participation can lead to unconventional problem-solving approaches, spark innovative ideas, and generate transformative outcomes. To conclude, citizen science presents scientists with a realm of opportunities to expand their research horizons and engage with a wider community of collaborators. By embracing citizen science methodologies, technical experts can tap into the power of collective intelligence, harness scalable data collection, and foster innovative research collaborations. Moreover, citizen science provides a means to bridge the gap between scientific research and public engagement, promoting scientific literacy and nurturing a shared responsibility for the advancement of knowledge.



Webinar on Electric Vehicle Charging Infrastructure: Beginner's Guide Made Easy

Er. Neha Sakka, Electrical Engineer
Jaipur Vidyut Vitran Nigam Ltd. (Undertaking of Rajasthan Government)



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Webinar Summary

To make India independent of fuel imports from other countries and make it more pollution free and self dependent, E- mobility is a marvelous solution. As any other industry, EV sector has its own set of challenges, and mass adoption is one of the major factor. The lack of general awareness and technical knowledge is causing a lot of loss. The same challenges are met by gratis EV education program “TRUST EV AWARENESS OATH: EMPOWERING YOUTH & WOMEN” by providing free awareness and technical education to youth all over India.

In this webinar, Basic technical terms involved in various streams of EV sector were discussed in the most simplest form. The basic technical foundation was laid for an EV enthusiast entering into the industry as well as for an EV owner (commoner without technical know -how).

Concept of following were discussed:

- AC & DC charging
- Slow & Fast Charging
- On board charger and Charging rate,
- Types of Connector guns/ chargers (Type 1, Type 2, CCS-1, CCS-, Chademo, Bharat AC001, DC001),
- Basics of EVSE
- Modes of charging(Mode 1, Mode 2 , Mode3 , Mode4),
- Communication in Electric Vehicle Charging Infrastructure (OCPP, CMS, OCPI, E-roaming) ,
- Types of Charging Station (Public Charging Station, Battery Charging Station, Battery Swapping Station, Captive Charging Station)



Webinar on Floating Solar design, Engineering and Opportunities

Mr. Sachin Rele, Managing Director,
Autonic Energy Systems Pvt. Ltd., Mumbai



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Webinar Summary

Floating photovoltaic (PV) solar is an innovative technology that allows solar panels installed on water bodies, such as reservoirs, lakes, and oceans. The panels are mounted on floating platforms anchored to the water body's bottom. Floating solar has several advantages, including higher energy production due to the cooling effect of the water, reduced land use requirements, and reduced evaporation rates in water reservoirs. It is a promising solution to meet the increasing demand for renewable energy sources while minimising environmental impact.

India's reservoirs have 18,000 sq km of the area with the potential to generate over 200 GW of with use of floating solar power plants as per findings in TERI report. The report has calculated the potential for floating solar photovoltaics (FSPVs), or 'floatovoltaics', based on 10 per cent of the water surface area of the country's medium and large reservoirs.

The report provides state-wise details of floating solar potential in the form of a web-based interactive tool called India Floating Solar PV-Tool, which has also been developed under this study. According to its findings, Maharashtra has the highest floating solar potential and can generate 57,891 MW of electricity on 3,173 sq km of water surface area in reservoirs.

Advantages of floating solar project

1. Increased energy production: Floating PV systems can produce more energy than traditional solar systems due to the cooling effect of the water, which helps to reduce the temperature of the panels and increase their efficiency.
2. Land Conservation: Floating solar systems can be installed on existing water bodies such as reservoirs, ponds, and lakes, allowing for land conservation and reducing the need for additional space.
3. Reduced water evaporation: Floating solar systems can help to reduce water evaporation from reservoirs, ponds, and lakes, which can be particularly beneficial in arid regions.
4. Reduced algae growth: Floating solar systems can help reduce algae growth in water bodies by shading the water and reducing the amount of sunlight that reaches the surface.
5. Easy installation and maintenance: Floating solar systems can be easily installed, maintained, and quickly relocated if necessary.
6. Reduced environmental impact: Floating solar systems have a lower environmental impact than traditional solar systems because they do not require land excavation or heavy machinery.
7. Increased safety: Floating solar systems are often safer than ground-mounted or roof-mounted solar systems because they are less prone to damage from storms, floods, or other natural disasters.

The issues and challenges for design and technology construction, financial investment, Operation maintenance, were also highlighted during the webinar.



Webinar on Environmental, Social and Governance (ESG) and Environment Compliance

Dr. Manoranjan Hota, Former Adviser

Ministry of Environment, Forest and Climate Change (MoEFCC), Adviser - Skill Council for Green Jobs (SCGJ)



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Webinar Summary

Environmental sustainability is a component of sustainability practices. Environmental sustainability adopted by industries and services industries which satisfies the needs of individuals and firms in the environment without adversely affecting the capacity to meet future needs by taking proactive measures including emission reduction, waste treatment, reduction of pollution, production of quality products, conservation of energy, reuse of materials and treatment of water etc. ESG has evolved from other historical movements that focused on health and safety issues, pollution reduction, and corporate philanthropy, etc.

It brings awareness to different environmental issues that are occurring and encourages businesses to adopt practices and policies that are better for the environment and more so for reporting and compliance on Environmental, social and governance (ESG). There are three key elements which impact on how businesses view compliance viz. the customer's perspective, the competitor's perspective and the regulator's perspective.

In 2012, the SEBI formulated the Business Responsibility Reports (BRR) which mandated top 100 listed entities (which was extended to top 500 listed entities in 2015) by market capitalization to file BRR as part of their annual report. In 2021, SEBI replaced the existing BRR reporting requirement with a more comprehensive integrated mechanism, the Business Responsibility and Sustainability Report (BRSR). Therefore, a comprehensive ESG Report should adequately cover all the different parameters reducing the need to have separate reports on separate concerns. Reporting guidelines are not absolute and differ according to various requirements. There are certain globally accepted standards for reporting.

Technological change, globalization, demographic trends and climate change will significantly shape skill needs for new and current jobs alike. The growing importance of sustainable development and the shift to a low-carbon and climate-resilient economy will require new skills and qualifications, offering great potential for the creation of green jobs but also implying structural changes and a transformation of existing ESG reporting.



Webinar on Green hydrogen production through advanced biomass-steam gasification technology and a detailed comparison with the electrolysis process

Dr. P Raman, Director
Energy Efficiency and Environment Pvt. Ltd., New Delhi



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Webinar Summary

Biomass is a potential renewable energy source and it is carbon neutral. In the remote and rural areas 90% of the total energy demand is met by biomass (agricultural residues). Biomass is a low cost fuel compared to fossil fuels. Biomass gasification is a technically and economically viable option for decentralized power generation. Green hydrogen production through biomass gasification is highly efficient technology in comparison to hydrogen production from natural gas or through electrolysis from renewable power. Hence, biomass gasification is an efficient clean energy solution for power generation and hydrogen production to meet the energy requirement in the transport sector.

Biomass gasification technology is more than a century old technology. However, biomass gasification could not become popular due to several issues and challenges related to gasification technology. The main problem associated with biomass gasification was the impurities (like tar) and the gasifiers are fuel specific. Energy Efficiency and Environment Pvt. Ltd. designed and developed an advanced three stage (ATS) biomass gasification system, which will produce high quality syngas (without tar) The ATS biomass gasifier system is designed to use multiple types of biomasses (woody biomass, loose biomass or briquette/pellets). ATS biomass gasifier is designed as a containerized system which reduces the duration and complexity involved in field installation. Cleaner syngas of ATS gasifier is highly suitable for power generation and green hydrogen production.

Biomass -steam gasification using oxygen as oxidizing agent for gasification produces hydrogen rich syngas. Biomass-steam gasification without using any catalyst can produce the syngas with 50% of hydrogen content. Biomass-steam gasification with use of catalyst can produce the syngas with 73% of hydrogen content. With conventional gasification technologies, presence of tar was a great problem in separation of hydrogen from syngas (using pressure swing adsorption (PSA) equipment). The tar-free syngas from ATS gasifier is suitable for a trouble-free and durable operation of PSA, and hydrogen production.

The efficiency of hydrogen production using natural gas and coal are 78% and 62%. The hydrogen production through electrolysis process using the power generated from wind and PV are 35% and 14%. The estimated value of green hydrogen production through ATS biomass-steam gasification is 79%. Use hydrogen. Efficient use of energy is very much essential as in case of production efficiency. Efficiency of an electric car with a battery storage will be 66%. Whereas, conversion of electricity to hydrogen (through electrolysis) and using fuel-cell power will be 28%.

Green hydrogen production using biomass-steam gasification is highly efficient than production of hydrogen from any other source/process. It is possible to produce green hydrogen from biomass at a cost of less than one \$/kg.



Webinar on Paradigm Shift in Energy Sector through Green Hydrogen: Strengths and Gaps

Dr Perminder Jit Kaur, Senior Policy Fellow
Indian Institute of Science, Bangalore, India



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Webinar Summary

The environmental effects of expensive and non-renewable fossil fuel-based energy sources have motivated the government and industrial sector to explore alternative clean, renewable, and low-cost energy sources. Hydrogen, with a high energy density (122MJ/Kg), is a renewable, non-carbon-based, environment-friendly fuel. Hydrogen is graded as blue, brown, and grey depending on the raw materials and technology adopted. Renewable energy like solar or wind-driven electrolyzers can generate environment-friendly Green Hydrogen (GH). The paradigm shift in the energy sector will require coordinated efforts of various stakeholders working on the four major domains of GH, i.e., production, storage, transportation, and application. The National Hydrogen Mission by the Government of India also focuses on developing a national production capacity of 5 MMT annually. Stakeholder analysis suggests that financing hydrogen production and applications is vital to this transition. There are associated challenges like designing, developing, and deploying suitable scalable skills programs in the country. Skill Council for Green (SCGJ) is also taking timely actions to build skill sets in these emerging areas of the energy sector through suitable courses and programs.

Further, to strengthen the renewable energy sector, reasonable steps are required to generate a talent pool in different GH domains. Providing concessional funding, capacity building of industries, academic institutes, and multi-stakeholder trans-disciplinary collaboration can help ease this transition in energy sector. To effectively control climate change and global warming collectively, international cooperation in developing standards and technologies can play an essential role in creating a global hydrogen energy market. With proper policy support, enhanced public-private partnership, and skill-set generation, India can become a worldwide leader in the energy sector and achieve its target of net zero-carbon emission by 2070.



Webinar on 75 actions to contribute to UN SDGs

Mr. Abhijeet More, United Nations Digital Influencing Volunteer for SDGs | Senior Green Ambassador | Climate Change Ambassador | ATAL Mentor of Change (NITI Aayog)



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Webinar Summary

The Sustainable Development Goals (SDGs) represent a global initiative aimed at ending poverty, protecting the environment, and promoting prosperity for all. Every individual has a responsibility to contribute to these goals and ensure a sustainable future for ourselves and future generations. I discussed all 17 SDGs and how individuals can incorporate sustainable practices into their daily lives to work towards achieving them. I provided practical examples of activities that can help support all the SDGs, including reducing our carbon footprint, conserving natural resources, supporting ethical practices, and promoting social justice. By taking these small yet significant actions, we can create a meaningful impact and encourage others to join us in our efforts. Working together, we can achieve the SDGs and build a better world for everyone.



Webinar on Marketing Management for Micro, Small and Medium Entrepreneurs

Mr. Rakesh Bhan, AGM and Technical Officer (Retd.), State Bank of India (SBI)



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Webinar Summary

MSMEs form the backbone of Indian economy with a very significant share in Gross Domestic Product as also exports from the country. Various functional Management areas pertaining to MSMEs are those of Operation Management, Human Resource Management, Financial Management and most importantly Marketing Management. The notion of a customer being a controlling function with marketing as an integrative one ultimately crystallizes into a genuine need for best evolved marketing regime.

The starting point of Selling concept is factory and the focus is on selling the products while as, it is other way round in marketing concept. The starting point of which is Target market and the focus is on customer needs. Marketing drive initiates from needs and wants of customers, based on which the factory designs a product to satisfy the needs of customers. Thus, need of the customer becomes wants when these are directed on specific products and the demand is considered to be there when the customer has a desire and ability to pay for it. The value or satisfaction is the ratio of what the customer gets and what he gives back. The benefits to the customer include both the functional and emotional aspects and the costs are monetary, time and energy specific. There are different market segments much in accordance with geographic, demographic, psychographic, behavioural patterns which are used for product positioning in target market.

Product or Service is an offering that satisfies needs or wants and Brand is an offering from a known source. The brand of sellers promise to deliver specific set of features, benefits and services to buyers. The presentation takes a close look at five product levels as defined by famous Economist Philip Kotler. Further, it delves into a key concept of product life cycle in the backdrop of introduction, growth, maturity and decline phases of the products. Taking this further, the market segregation in tandem with the promotional measures as deemed necessary for MSME growth appear in the concluding part of the presentation on Marketing Management.



Webinar on Watershed Management activities and relevance In India

Mr. Chirag Minocha , Freelancer, Worked with Bharat Petroleum Corporation Limited



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Webinar Summary

India is a vast country with diverse weather conditions which support myriad types of flora, fauna and lifestyle of people. Water plays a very important role to support this ecosystem.

However, the availability of water is a growing concern. The per capita yearly fresh water accessibility (in cubic meters) is estimated to be 1140.00 in 2050 which was 1368.00 in 2019 and 5177.00 in 1951. The reducing availability of water may be attributed to the following:

- Change in climate- changes in rain patterns/ monsoon and prolonged dry season
- Pollution of rivers- untreated sewage, industrial wastes, religious activities in and around rivers
- Groundwater extraction and irrigation- According to Central Groundwater Board continued exploitation of groundwater from 2007 to 2017 reduced the levels by 61%
- Wastage of water- India catches only 8% of its annual rainfall due to poor rainwater harvesting
- Recycling of water- Approximately 80% of domestic wastewater is drained out as waste and end up into other water bodies which lead to salt water sources such as Bay of Bengal and the Arabian Sea. Cues can be taken from Israel and Singapore which have not major freshwater sources but have recycled and reused the water.
- COVID 19- To some extent this too has impacted the scarcity of water. People are now in habit of washing hands with soap or hand wash more frequently as compared to earlier to maintain the right hygiene conditions.

The scarcity of water greatly impacts people, ecosystem and the agriculture. A possible solution to this can be seen in various watershed management activities. Watershed may be understood as the integrated use and management of land, vegetation, and water in geographically discreet drainage area. To have an effective and result oriented watershed management activities government, citizens and various other organizations which include NGOs, SHGs and Corporates have to work in perfect synergy. Government has developed and implemented interventions like Neeranchal Watershed Program, Integrated Watershed Management Program and others which have given very encouraging outcomes. NGOs too have taken initiative and created programs of water conservation. The programs have been participatory and have had a socio economic impact on the lives of people.



Webinar on Entrepreneurial Opportunities in Solar

Mr. Vamsi Krishna , Director, Institute of Solar Power Energy & Vocational Training



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Webinar Summary

India as a responsible country of the world community is committed to the wellbeing of all the children of the world (Vasudeva Kutumbham) and has taken upon itself a gigantic task of adopting lifestyles that are carbon neutral without hampering the opportunities of growth for its own children.

India today is home to largest pool of young population which is not only educated but also very restless in making their country World's problem solver and we are witness to a start-up & Unicorn explosion that has gripped the country with a great focus on eco-friendly solutions.

Renewable Energy Sector is one such sector where a lot of activity is happening and special focus is also being given by the Government of the Day. As the potential to generate employability is very high. As I write this piece it has a potential of generating 1million entrepreneurs and 10million jobs through this enterprises. Channelising the Energies our most deserving youth is the focus and thrust that SCGJ is working upon creating Entrepreneurs.

Solar, Wind, Hydel, and Micro Hydel were the backbone of our great journey in Renewables Now we are talking about the Electric Vehicles (EV) and Hydrogen which is propelling the opportunities manifold for entrepreneurship in this great country. You might be thinking that the older backbones will vane slowly as the new technologies take over the reins but the beauty is that they are going to play a much larger complimentary role, let it be EV Charging infrastructure or Hydrogen Generation Plant infrastructure Solar is going to compliment these capacities as a power generation source.

Our Prime Minister's promise of becoming Net Zero by 2070 is very much achievable and India in its journey towards NET ZERO will through up lot of challenges which will eventually turn into entrepreneurial opportunities for our young nation and its much younger youth.

Let us all Join hands in saluting the nation on its 75th year of Independence, by creating more employment generators than employment seekers.



Webinar on Inclusive Circular Economy: Upskilling waste workers for a dignified livelihood

Mrs. Anita Ahuja, President, Conserve India



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Webinar Summary

Circular Economy in the industrial value chain aims to revolutionize the current take-make-dispose culture by returning all sorts of waste into the economy and using them more efficiently through models such as reuse, repair, recycle or return. It works on the principle of circulating products and materials so that waste and pollution are eliminated leading to the regeneration of nature. Adopting circular business models enhances the avenues for businesses to earn profit i.e. through resource recovery models, sharing models, product life extension models etc, unlike linear business models where profits can only be earned at one point i.e. by selling the product/service. For circular business models to flourish, an enabling environment needs to be created in terms of policy, market, financial and operational aspects. This can be achieved by a favourable regulatory environment, stable material and commodity prices, active corporate responsibility & willingness to take risks and being resilient.

Apart from these, there are many pathways by which start-up Circular Businesses can gather the necessary support required by them with the help of Accelerators, Development aid agencies, Collaborations, or circularity competitions. Such strategies enable start-ups to gain more recognition and move ahead in their operation in a more guided manner.

A home-grown circular business model of Conserve is Lifaffa that recycles and upcycles plastic waste to create fashionable products meant for sale in international markets while providing training to the urban poor in their proprietary technologies thereby creating sustainable livelihoods sources for them. By taking care of the plastic waste crisis, Lifaffa also contributes towards environmental conservation. In this context, Inclusivity in Circular Economy means serving the triple objective of economic prosperity, environmental protection, and social equity by including the waste workers in formal waste management operations. Following such an approach of inclusion will generate multi-fold employment opportunities and more just partnerships for the marginalised. MRFs have also lot of potential to generate Green Jobs in the future. But we have to ensure that the emerging models are more inclusive and financial tools like EPR help filling the financial gaps.



Webinar on Burnout to Burn bright Ms Navroop Sood, Chief Executive Officer, Heal with Nav



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Webinar Summary

On popular demand, Ms Nav, psychotherapist from Singapore was invited to continue the series of Workplace wellness. This session highlighted the fact of how build up of toxic stress in our work place can lead to Burnout. We all may experience burnout at some point in our work life if we ignore the signs of it settling in and don't do anything to reverse it. These indicators may range from physical, emotional exhaustion, dreading work, trouble sleeping, short temper, depression, no time for non- work related things and overwhelm.

Participants were asked the reflective question -“Is their professional role- meaningful and rewarding or difficult and painful” which will give them a clear cue if the burnout is setting in.

The interactive session discussed practical tools and tips of how organizational efforts and employees own individual efforts can promote the wellbeing.

Goal is to Burn bright- achieving “flow state” at work and not Burn out. Three M's - Mastery, Mindfulness and Mattering of achieving the same were discussed and very well received.



Webinar on Transition to Clean Cooking: Implementation and Evaluation Challenges

Dr. Abhishek Kar, Senior Programme Lead
Council on Energy, Environment and Water (CEEW), New Delhi



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Webinar Summary

Clean cooking solutions, on the other hand, use cleaner fuels as well as more efficient stoves that emit less smoke and pollution such as Biogas, Liquefied Petroleum Gas, Electricity, Ethanol, Natural gas and Solar which stands together as BLEENS. These energy sources can be used individually or in combination to provide energy for a variety of purposes, including powering vehicles, generating electricity, and heating homes and businesses.

BLEENS access in global south areas like east asia is 36%, south asia is 27% and sub saharan africa is only 10%. Lack of BLEENS acts as a barrier to multiple SDG's for example good health and well-being (SDG 3), gender equality (SDG 5), affordable and clean energy (SDG 7), climate action (SDG 13) and life on land (SDG 15). Cooking with solid fuels costs the world \$2.4 trillion per year that is equivalent to 2.5% of global GDP. There is an investment requirement of \$150 billion per year for universal access to BLEENS by 2030. So promoting clean cooking is a critical global goal for long-term development and public health, particularly in underdeveloped nations where traditional cooking practices persist.

Challenges to clean cooking

- **Affordability/Technology Price** - There is a recurring cost for LPG and electric stoves, one time capital cost for biogas and solar cookstoves whereas firewood is free, so people tend to go for free items without having a second thought of what harm it will do to them. Import dependence of LPG, solar panels and also government subsidies for LPG plays an important role in the pricing of clean cooking technologies.
- **Value for money** - This refers to the perception among some households that the benefits of clean cooking solutions do not outweigh their cost and that traditional cooking practices are more affordable and effective.
- **Distribution** - LPG has a mature, extensive and reliable supply chain, but the other BLEENS fuels, like electricity based induction stoves, are not guaranteed everywhere in developing countries. There is a lack of quality control mechanisms as well when LPG is considered which leads to accidents.

Monitoring and evaluation of clean cooking programs is critical to ensuring that resources are used effectively and that programs are achieving their intended outcomes. The different methods were presented and the Challenges were also discussed.

Common methods for monitoring and evaluation are:

- **Household surveys** - They are the most common surveys but are also prone to biases.
- **Technology adoption rates** - Helps in monitoring sales figures for installation and recurring purchase.
- **Health outcomes** - Measurement of health outcomes at local level like respiratory illness and deaths.
- **Carbon emissions** - Monitoring emissions at village, regional and satellite based grid approach to quantify the environmental impact of clean cooking programs.

Challenges of cooking energy surveys are:

- Social desirability bias - People tend to answer the positive things because of cultural norms which might not even be true for example in case of usage of drugs.
- Demand characteristics - Participants caters to the demands of researchers and tries to be the 'good subjects'.
- Face-to-face interview - This shows lack of anonymity which leads to stronger social desirability bias.
- Bystander effect - The gathered crowd worsens the social desirability biases

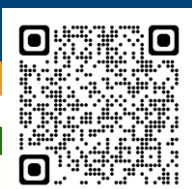
A device sensor for LPG can be a useful futuristic approach to ensure that there is no tampering with LPG, which can improve carbon credit quality. Such a sensor can be installed in LPG cylinders or tanks and can detect any tampering with the contents of the cylinder.

The sensor can detect changes in pressure, temperature, and other variables, which can indicate whether the cylinder has been tampered with or not. By improving the quality of carbon credits, we can encourage more investment in clean energy projects, which can help reduce the overall emissions of greenhouse gases. This can lead to a more sustainable future, where we rely on clean energy sources and reduce our dependence on fossil fuels.



Webinar on Sustainable Development Programs: Information Interchange & Transparency with Youth

Prof. (Dr) Niranjan Bhattacharyya, Professor & Director IQAC of ADGITM, Affiliated to I.P. University, Delhi



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Webinar Summary

The Webinar highlighted Environmental, Social, Economic and described in detail UN Sustainable Development Goals on no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, partnerships for the goals

Importance of Youth in SDG was presented.

- Young people as essential contributors to our collective future
- Our youth have the power to improve civilization and bring about social change.
- Future crises, country leadership, policymaking, innovation, and the preservation or destruction of democracies and justice systems will all be handled by this group.

YOUTH & SDGs

- The United Nations works closely with 9 Major Groups to ensure widespread participation and representation from all segments of society; among these groups is the youth sector, whose contributions to the path towards sustainable development are recognized by the SDGs.
- Sustainable development, defined as progress that doesn't sacrifice future needs to meet current ones, necessitates treating future generations with the utmost deference from the get-go.
- Within the next 15 years, SDGs will reach adulthood, and so will today's youth. They will be the ones to see firsthand whether or not the 2030 Agenda achieves its goals. For this reason, it's crucial that we involve and equip today's youth in our fight for a greener tomorrow.

PROBLEMS OF YOUTH

- I can't find work or get a fair wage.
- While driving, I am exposed to more dangers.
- I am currently experiencing severe financial hardship.
- I can't afford a good education.
- For my mental illness, I cannot get the help I need.
- I'm expecting a baby but didn't get any prenatal care.
- No one speaks for me in the political system.
- For me, life in the city means exploitation, trafficking, and abject poverty.

Importance of International & National Youth Day

- The UN celebrates 12th August as International Youth Day, on which youth around the world are encouraged to organize activities to raise awareness about the situation of youth in their country
- National Youth Day (The Yuva Diwas) to honour Swami Vivekananda's birthdate, the Indian government designated January 12th as National Youth Day in 1984. Since then, the holiday

In conclusion SDSN Youth Priorities were presented

- Educate young people about the SDGs and create pathways for achieving them.
- Connect young people globally to exchange ideas, share experiences and collaborate to achieve the SDGs.
- Support young people in the creation and scaling of innovative solutions for the SDGs.



Webinar on Implementation of Engineering Solutions in the domain of waste management for sustainable development and the societal benefit

Dr.A.Gangagni Rao, Chief Scientist & Professor in Engineering Sciences (AcSIR), CSIR-Indian Institute of Chemical Technology (IICT), Tarnaka, Hyderabad



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Webinar Summary

Approximately 350 to 400 million tons of organic waste (food waste, livestock waste, agriculture waste etc.) is generated in India and the scientific disposal of the waste is highly essential. In this context, resources recovery through eco-friendly and economically viable processes are gaining significance under Swachha Bharath Mission (SBM) initiated by Government of India (GoI). Keeping this in view, our CSIR-IICT has made intensive research efforts and developed a state of art high rate biomethanation technology called “ANAEROBIC GAS LIFT REACTOR (AGR)” (PT-609/0207NF2012) for the generation of biogas and bio-manure from organic solid waste and Accelerated Anaerobic Composting (AAC) Technology for the conversion of water hyacinth and organic waste to soil conditioner. Following is the brief review of these technologies.

In this context, the technology developed by CSIR-IICT plays a major role for the recovery of bioenergy and nutrient rich fertilizer from the waste. This technology is superior in terms of biogas and bio-manure production as it incorporates novel pre and post processing technologies required for the biomethanation of organic solid waste as per the characteristics of waste in contrast to the existing conventional digesters that have numerous drawbacks. Based on CSIR-IICT’s technology there are about 22 biogas plants operational across India and 8 more are under installation for the treatment of variety of organic wastes. One of the recent achievements made by CSIR-IICT is the installation of a 10 TPD biogas plant at Bowenpally vegetable market yard in Secunderabad wherein the market waste is treated inhouse for the generation of biogas based electricity to meet the power requirement in the market along with nutrient rich fertilizer. Further, a part of biogas is used in canteen to replace LPG consumption. This plant has received appreciation from the Prime minister of India for promoting effective waste management in a remunerative manner at waste generation source. This technology has gained tremendous significance in the area of waste management sector in India under Swachha Bharath Mission (SBM) initiated by Government of India (GoI) as this is proven to be eco-friendly, sustainable, remunerative for decentralized applications. There are numerous tangible and intangible benefits associated to this technology and one amongst them is the reduction in GHG emissions.

A noble thought to give back something to the society and environment which gives us lot many things triggered to work on accelerated anaerobic composting of water hyacinth that resulted in the development of Accelerated Anaerobic Composting (AAC) Technology by CSIR-Indian Institute of Chemical Technology (IICT), Hyderabad. In addition to this, abundant availability of water hyacinth which is a hazard to majority of the aquatic flora and fauna. This technology aims at conversion of green waste into good quality organic fertilizer within a span of 30 days. CSIR-IICT intensively worked on composting water hyacinth in the laboratory and based on the nutrient content obtained in the output i.e. Final Compost, the technology has been optimized. The characteristics of final compost obtained through AAC of water hyacinth were compared with the characteristics of organic fertilizer stipulated by the Fertilizer Control Order (FCO), Ministry of Agriculture, GoI. The nutrient value in the compost obtained from AAC of water hyacinth is notable. Hence, this technology has been carried forward from laboratory level to land to practically assess its impact at higher scale. The technology has been transferred to KHAR Energy Optimisers who took the initiative of abundant Water Hyacinth available to be reused for a good cause by taking up lake cleaning program at Kapra Lake which is filled with water hyacinth through IICT's AAC Technology. This Fermented Organic Manure (FOM) derived from AAC is rich in soil organic carbon, which is deficient in most soils of our country. The Nutrients like NPK are present in the organic form make the plants immune and make the plants resist pests to a larger extent, and the large value of C/N ratio makes the excess un consumed nutrients available be consumed reducing the usage of additional Chemical fertilizers. It is tested and observed that mere 50 Kg/ Acre is making the plants rejuvenate and give better results. We have tested it with 5000 farmers in around 8000 acres of farm land and the feedback from the farmers is positive and impressive. We have extended the same method to Organic waste generated at all Agricultural market yards to generate 7 Tons of FOM per month from each AMC. We are installing 46 such AAC units in all market yards in Telangana. We are now marketing the same at all gated communities generating bulk waste, as an economically viable solution to meet the new MSW norms.



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