Shri Deepak Gupta, Former Chairman UPSE and Secretary MNRE addressing the CEO panel discussion during the solar conference at smart cities expo in New Delhi on 22nd May, 2019

Incentivise green businesses based on economic cost of pollution

For millenniums, ecological balance was maintained by the nature itself, which was disrupted by the advent of the industrial era. Thereafter, unrestrained growth in industrialization, vehicular transportation, exploitation of natural/ mineral resources and unplanned urbanization disturbed the harmonious relationships between the environment and human beings. This disruption was not immediately manifested, since, for most of the 20th Century, economic progress was limited to the "western economies", constituting a small share of population as well as geographical area. The impact of lasting damage like ozone layer, greenhouse gas emissions and deforestation came into public consciousness towards the end of the 20th Century and lead to UN protocols. However, this coincided with saturation in economic growth in the "developed economies", while large emerging economies were going through their growth phase. Hence, restraints on "developing economies" are perceived, to some extent, as a form of "neo colonialism".

Furthermore, even within the "emerging economies", there is lack of congruence as to what represents "sustainable development". For most governments, alleviation of poverty and socio-economic development takes priority and they tend to "slur over" environment damage, which is rationalized as "small sacrifice for larger good".

While there is merit in such school of thought, the costs of environment degradation are so high that an unambiguous approach is required to revive a

International

India Singapore cooperation – Meeting in New Delhi

A meeting between Ministry of Education, Government of Singapore and Ministry of Skill Development and Entrepreneurship was held in New Delhi on 6th June, 2019 todiscuss possible collaborationsin skill Domain. The Singapore delegation was led by Hon'ble Minister of Education Mr. Ong Ye Kung . Hon'ble Minister MSDE, Secretary and other senior officials of MSDE were present.

balanced relationship between human activity and the environment. This necessitates widespread community awareness of the feasibility to adopt judicious exploitation of natural resources along with restraint in consumption as well as increased use of regenerative resources, without compromising on economic or lifestyle needs.

Ushering in new set of societal values needs to be done in calibrated manner and with tenacity. It's easier to achieve traction with issues that are manifest in public consciousness. Air pollution, water scarcity and untreated municipal solid waste impact health of citizens in most cities of India. Hence, highlighting these environment issues, analyzing their causes and showcasing efficacy of remedial measures based on advanced technologies could catalyze widespread awareness and broad-based acceptance. It's emphasized that this needs to be done in a holistic and technology agnostic manner avoiding knee-jerk reaction or eschewing hype, which is a distinct risk with the influence that social media now has on citizens and policy makers.

In case of "Clean Air", particulate emissions from Diwali crackers and vehicles occupy significantly higher mindshare than their actual contribution to particulate emissions. Green crackers and green transport systems are definitely to be mandated and incentivized. At the same time, there needs to be recognition that particulate emissions linked to inefficient burning of biomass (including stubble burning) and construction activity are equally critical issues, which cannot be addressed only through environment laws. There is need to put an economic cost on such environment pollution and resultant health hazards, which should set the norm for extending fiscal incentives to "Green Businesses" that mitigate such environment pollution. Advanced bio-fuels from bio-waste, if adequately incentivized, would make an economic case for organized collecting, aggregating and processing of biomass/ agri-waste to assured quality solid/ gaseous/ liquid biofuel products that can replace fossil fuels at affordable prices. Likewise, green construction materials and construction practices, if incentivized, would mitigate adverse environmental impact of buildings and infrastructure projects.

"Clean Water" availability is perhaps the biggest challenge that India faces. Niti Aayog's "Composite Water Management Index (CWMI)" Report of 14th June 2018 indicates that (i) 600 million Indians experience high to extreme water stress (ii) 75% households do not have access to drinking water on premises, while 84% of rural households do not have piped access (iii) 70% of water is contaminated, which ranks India as 120 out of 122 countries in terms of water quality. The crisis is huge and its imperative that water conservation and treatment/ re-use is rapidly scaled up. Behavioral change in water use can come only though the levers of pricing and controlled supplies, while extending DBT support to economically weaker sections of society. Rain water harvesting and used water treatment and re-use (for all applications, beyond those involving human intake) must be mandated for all establishments, commercial and industrial (C&I) as well as residential. To achieve this, apart from laws and regulations, it is necessary to establish an enabling eco-system, comprising green entrepreneurs and supportive financing instruments. This will enable implementation of sustainable water management schemes under "green business" framework, with efficacy and accountability. Likewise, for water conservation in agriculture, solar irrigation pumps scheme must mandate downstream "micro-irrigation" systems, which will incentivize low water intensive farming.

"Waste Management" has seen a reasonable amount of traction, through the Swatch Bharath Abhiyan. However, there is need to institutionalize systems and introduce technology interventions to ensure (i) source segregation of solid waste (ii) collection and aggregation of segregated waste (iii) appropriate processing of green waste along with controlled disposal of segregated 'dry' waste and hazardous waste (iv) deployment of advanced bio-technologies for higher value products from processing solid waste. In case of solid waste, too, implementation should be under "green business" framework, with efficacy and accountability.

In conclusion, I will recount a Cree Indian proverb, "Only when the last tree has died and the last river has been poisoned and the last fish has been caught, will we realize we cannot eat money" as well as quote Robert Swan, "The greatest threat to our planet is the belief that someone else will save it".

KOLLURU KRISHAN
Chairman SCGJ

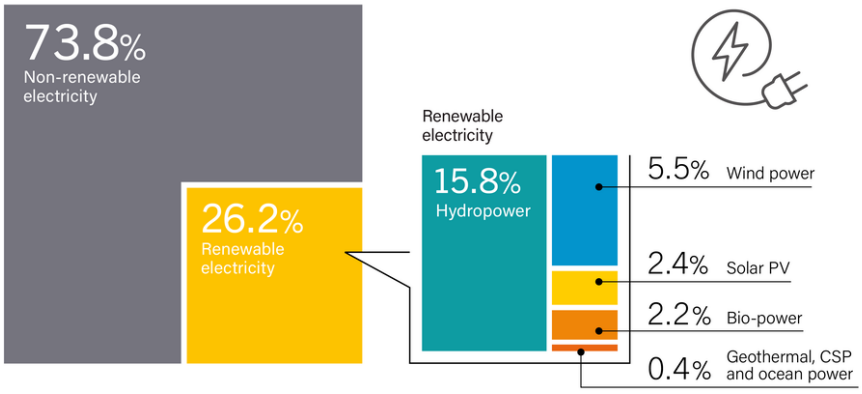
REN21
RENEWABLES NOW

(Extracts of REN 21 Report)

RENEWABLES 2019 GLOBAL STATUS REPORT A COMPREHENSIVE ANNUAL OVERVIEW OF THE STATE OF RENEWABLE ENERGY.

The year 2018 saw a relatively stable market for renewable energy technologies. Total renewable power capacity grew at a consistent pace compared to 2017, and the number of countries integrating high shares of variable renewable energy (VRE) continued to rise. Corporate sourcing of renewables more than doubled compared to 2017, and renewables have spread in significant amounts all around the world.

Estimated Renewable Energy Share of Global Electricity Production, End-2018



Note: Data should not be compared with previous version of this figure due to revisions in data and methodology.

REN21 RENEWABLES 2019 GLOBAL STATUS REPORT

Renewable energy has been established globally as a **mainstream source of electricity** generation for several years. The estimated share of renewables in global electricity generation was more than 26% by the end of 2018. Net capacity additions for renewable power were higher than for fossil fuels and nuclear combined for a fourth consecutive year, and renewables now make up more than one-third of global installed power capacity. This is due in part to stable policy initiatives and targets that send positive signals to the industry, along with decreasing costs and technological advancements.

Renewable energy has been established globally as a mainstream source of electricity generation for several years.2 The estimated share of renewables in global electricity generation was more than 26% by the end of 2018.3 Net capacity additions for renewable power were higher than for fossil fuels and nuclear combined for a fourth consecutive year, and renewables now make up more than one-third of global installed power capacity.4 This is due in part to stable policy initiatives and targets that send positive signals to the industry, along with decreasing costs and technological advancements.

Renewable power is **increasingly cost-competitive** compared to conventional fossil fuel-fired power plants. By the end of 2018, electricity generated from new wind and solar photovoltaics (PV) plants had become more economical than power from fossil fuel-fired plants in many place. In addition, in some locations it was more cost-effective to build new wind and solar PV power plants than to continue to run existing fossil fuel power plants. Record-low bids in tenders for renewable power were held in many countries around the world, especially for solar PV and wind power, although this development was not necessarily positive for the industry

As in previous years, renewables saw far less growth in the heating, cooling and transport sectors than in the power sector. The uptake of modern renewable energy for heating and cooling in buildings and industrial applications progressed at a slow pace, while the use of biofuels for transport grew moderately during the year. Progress in these sectors remains constrained by a lack of strong policy support and slow developments in new technologies (such as advanced biofuels).

Renewable energy targets are in place in nearly all countries, and several jurisdictions made their existing targets more ambitious in

FIGURE 8

2018. The number of renewable energy **support policies** increased again during the year, mostly for renewable electricity. In the power sector, a general shift to auctions from feed-in policies and other support mechanisms continued, but feed-in policies remained widely used. The number of countries with mandates for renewable heat in buildings fell by one in 2018, while policy examples for renewable energy support in industry remained scarce. No new countries added regulatory incentives or mandates for renewable transport, although some countries that already had mandates added new ones or strengthened existing ones. Only one country (Austria) had enacted a policy directly linking renewables and electric vehicles (EVs) by year's end.

In developing and emerging economies, distributed renewable energy systems continued to play an important role in connecting households in remote areas to electricity services. An estimated 5% of the population in Africa and 2% of the population in Asia has access to electricity through off-grid solar PV systems. In 2017, the global population lacking access to electricity fell below 1 billion, with around 122 million people worldwide gaining access since the previous year. During the same period, around 100 million people gained access to clean cooking facilities. However, finance for energy access decreased in 2018 for the second year running and remains far behind the estimated amounts needed to reach universal access to electricity and clean cooking.

At the sub-national level, community renewable energy projects have spread, mostly in the power sector. The 2018 European Union (EU) Renewable Energy Directive included

A definition of "renewable energy communities" and the basis for developing national rules to support community initiatives. In addition, the prevalence of prosumers is growing, while attention to their legal and regulatory options for participating in local energy markets and networks grew during the year. Sub-national governments continued to sign on to renewable energy and energy efficiency initiatives in 2018, often setting more ambitious targets than their national counterparts. Additional communities, cities and regions introduced 100% renewable energy targets in 2018, and by year's end at least 100 cities were sourcing 70% or more of their electricity from renewables

The **private sector** is playing a key role in driving renewable energy deployment through its procurement and investment decisions. By early 2019, 175 companies had joined RE100 – committing to 100% renewable electricity targets – up from 130 companies the year before. These and other private sector targets have supported the expansion of corporate power purchase agreements (PPAs), which are spreading to new countries and regions but remain concentrated in the United States and Europe

Global investment in renewable power and fuels in 2018 totalled USD 288.9 billion (USD 304.9 billion including hydropower plants larger than 50 megawatts, MW); this was an 11% decrease from the previous year (largely as a result of a significant fall in China) but the fifth year in a row that investment exceeded the USD 230 billion mark. With more or less stable growth in renewable power capacity, the decline in investment reflects to some extent the falling costs of renewables – essentially, more capacity can be installed for less money Nearly all of the invest-mentwas in solar PV and wind power. Developing and emerging economies accounted for 53% of total renewable energy investment, with China alone accounting for 32% of the total. everal developing countries are investing equivalent or higher amounts in renewable power and fuels than developed countries on a per gross domestic product (GDP) basis, particularly as energy demand continues to increase at a faster rate in developing markets, such as in Djibouti, Morocco and Palau.

Developments not directly linked to renewables are continuing to open opportunities for increased use of renewable electricity in the end-use sectors, such as heating and transport. These include a significant increase in incentives and targets for electrification of transport and bans on fossil fuel-powered vehicles in a few jurisdictions. The cost-competitiveness of renewable electricity for heating depends strongly on local fuel and electricity prices; however, the use of heat pumps continues to grow in major markets around the world, such as in Europe. In addition, digitalisation and smart metering are offering more options for supply-side and demand-side management.

The 24th Conference of the Parties to the United Nations (UN) Framework Convention on Climate Change, held in Poland, ended with an agreement on implementation of the Paris Agreement, although many details were left unresolved. Calls stressed the need for a rapid and just transition to renewable energy, and the timeline for the next Nationally Determined Contributions (NDCs) was confirmed.

Edited by

Dr. P.Saxena, CEO,SCGJ

Today the role of women in our societies is increasingly becoming critical due to their contribution in social and economic development. However, despite their role and growing economic power, women continue to face greater risks and lack access to equal opportunities. Women also remain poorer and less educated, are paid less at work, and face discrimination at home and their workplace. Women spend at least twice as much time as men on unpaid domestic work, making their average paid and unpaid work hours longer than men's in every region. Women also lack access to and control over financial resources, which reduces their autonomy and increases their vulnerability.

Economic activity of majority of women currently is beyond the formal sector as they do not own the land they work on, they sell products at market without establishing a formal business, they work domestically in their home or someone else's home. The vast majority of poor women are engaged in subsistence agriculture. In rural areas women and girls are the primary energy producers for the household. Further, they are dependent on small-scale agriculture and locally available resources to support their livelihoods and to fulfil their family commitments.

Women and girls are often responsible for collecting fuel and water for their families. As per the U.N.D.P. report (2013) in India, women gather firewood, crop waste and cattle dung to fulfill 92 percent of their energy needs. Thus, energy poverty leads to drudgery, greater health risks and a lack of time to focus on income-generating, educational or other self-nurturing (e.g. leisure) activities. Providing clean and affordable energy services will therefore directly benefit their health and well-being. This will also provide opportunities for taking up beneficial ventures like education, income generating enterprise and also plenty of time for rest and leisure.

In the renewable energy sector, the share of women in most workplaces is significantly less especially in the technical, managerial and policy making positions (IRENA Report, 2019). Moving towards greater gender equality can be viewed as a tremendous opportunity to ensure that women's needs and perspective are taken into account for energy technologies, market design and community involvement to shape the socio-economic benefits of the energy transition. In order to increase the percentage of women working in both formal and informal sector there is need to focus in four key areas which will enhance the opportunities.

Access to Employment Opportunities

Women often lack access to decent and stable jobs due to low education and greater family needs and absence of fair and transparent workplace practices. Because of its multidisciplinary nature, renewable energy offers a range of unprecedented opportunities for expanding employment in this young and dynamic sector. Supporting women to develop and manage greener technologies and renewable energy sources will provides new avenues for employment with economic empowerment.

Education and Skills development

Women may not have access to proper education which may prevent them from securing higher-skilled jobs and limit their professional advancement. Skill development for promoting women entrepreneurship can help stimulate the economy, enhance the consumer base and provide new inputs or services. Ministry of Skill Development and Entrepreneurship (MSDE), Govt. of India is committed to facilitate growth of women entrepreneurs in the country and has designed Entrepreneurship Development Programs for the rural women, with the objective to inculcate entrepreneurial values, attitude and motivation among the Rural women to take up challenges to set up an enterprise/Group Enterprises.

Gender Sensitive Policies

Women in the developing world may require additional policies for making their places of employment or communities' safe and incident free. Although women and girls are affected by inequitable energy policies across various levels, they nonetheless play a key role in energy. production, utilization and conservation. Smart energy policies should therefore be developed with due consideration to their needs, concerns and unique contributions. There is also a need to mainstream gender in formulation of energy access policy so as to ensure women are a part of the solution and their role as energy users, community members and business owners is fully recognized.

Promoting access to finance

Many women lack access to bank accounts and also often have no financial independence, as they have no say in spending decisions. Financial literacy training to women would help them manage household income and spending, as well sector as to increase understanding of and trust in formal banking systems. Improving access to finance is a big support for women engagement in the renewable energy. Linking women to dedicated financing schemes can

facilitate an active role in the renewables value chain and tap into the range of opportunities created by modern energy services.

In a recently concluded panel discussion in June 2019, organized by Centre for Energy, Environment and Water (CEEW), focusing on best practices and implementation challenges to create gender sensitive workspaces in the public policy sector. Some of the key takeaways from the panel discussions were:

Gender neutral policies are imperative to promote equality at workplaces. Regular gender audits to assess if a workplace is truly gender neutral and female friendly, including measuring gender-based key performance indicators of organisations, are required. Regular gender sensitisation seminars and workshops must be conducted. Finally, whether within an organisation or outside, women need to help each other. One way of doing this is through mentorship.

In conclusion it may be mentioned that greater employment of women especially in the renewable energy sector will draw additional talent and create workforce at all levels including senior positions. This will benefit the organization in terms of growth, culture and sustainability. A fair energy transition will bring more equity across all social and economic groups, but will also benefit women and children the most in the context of energy access. Transition to renewable energy will be faster if gender is established as a pillar of energy strategies both at the national and global levels leading to acceleration of attainment of multiple Sustainable Development Goals.

Dr. (Mrs.) Praveen Dhamija

Advisor, SCGJ (Biomass & Sustainable Livelihood)

IRENA reports renewable energy now accounts for a third of global power

A Report

In 2018, 171 GW of renewable energy capacity was added globally, according to new data released by the International Renewable Energy Agency (IRENA). Of this annual increase of 7.9%, solar and wind energy accounted for 84% of the growth. Thanks to this increase, a third of global power capacity is now based on renewable energy.

IRENA's annual indicates growth in all regions of the world, although at varying speeds. Nearly two-thirds of all new power generation capacity added in 2018 was from renewables, led by emerging and developing economies. While Asia accounted for 61% of total new renewable energy installations and grew installed renewables capacity by 11.4%, growth was fastest in Oceania, which witnessed a 17.7% rise in 2018. Africa's 8.4% growth put it in third place just behind Asia.

Through its compelling business case, renewable energy has established itself as the technology of choice for new power generation capacity," said IRENA Director-General Adnan Z Amin. "The strong growth in 2018 continues the remarkable trend of the last five years, which reflects an ongoing shift towards renewable power as the driver of global energy transformation. Renewable energy deployment needs to grow even faster, however, to ensure that we can achieve the global climate objectives and Sustainable Development Goals." Compared the growth in generation capacity of renewables versus non-renewable energy, mainly fossil fuels and nuclear. While non-renewable generation capacity has decreased in Europe,

,

North America and Oceania by about 85 GW since 2010, it has increased in Asia and the Middle East over the same period. Since 2000, non-renewable generation capacity has expanded by about 115 GW per year (on average), with no discernible trend upwards or downwards.

Unfortunately for hydropower, growth continued to slow in 2018, IRENA says, with only China adding a significant amount of new capacity, at about 8.5 GW.

Globally, total renewable energy generation capacity reached 2,351 GW at the end of last year – about a third of total installed electricity capacity. Hydropower accounts for the largest share with an installed capacity of 1,172 GW – about half of the total. Wind and solar energy account for most of the remainder, with capacities of 564 GW and 480 GW, respectively. Other renewables included 121 GW of bioenergy, 13 GW of geothermal energy and 500 MW of marine energy (tide, wave and ocean energy).

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RPL 4 – A success story in SCGJ

Recognition of Prior Learning (RPL) is a certification framework - which will assess those who have acquired skills informally and then recognize them with a formal certification.

MSDE and NSDC through RPL 4 type, is ensureing wider outreach to the large uncertified workforce across the country, primarily in organized sector, through direct partnerships with Sector Skill Councils and industry/ corporates .

Skill Council for Green Jobs was sanctioned a total target of 72,514. This target has been achieved from the sectors of Solar Energy and Waste Management.

RPL 4 "BiCE" 1st Phase Performance	
States	Employees
Andhra Pradesh	74
Assam	16180
Bihar	12356
Delhi	2677
Haryana	433
Jammu and Kashmir	14584
Jharkhand	9432
Madhya Pradesh	157
Maharashtra	517
Odisha	539
Rajasthan	4684
Tamil Nadu	833
Uttar Pradesh	9798
West Bengal	250
Total Number	72514
Total Certified	72314

1848 सफाई कर्मचारियों को बनाया हाईटैक

❖स्किल इंडिया के तहत दी गई ट्रेनिंग

अलीगढ़। स्किल्ड इंडिया के तहत प्रधानमंत्री कौशल विकास योजना के तहत गुरूवार को ट्रेनिंग पूरी हो गई। ट्रेनिंग करने वाले नगर निगम और ए-टू-जैड के 1848 सफाई कर्मचारियों को प्रमाण पत्र-स्मृति चिन्ह बांटे गए।

स्किल काउंसिल फॉर ग्रीन जॉब एजेंसी की कस्लटेंट अंजना वाधवा ने कहा कि इस योजना के तहत 2016 से 2020 तक एक करोड़ युवाओं को उद्योग प्रशिक्षण कौशल प्रशिक्षण देगा। नगर निगम सफाई कर्मचारियों को सफाई कार्य में निपुण करने व अधिक से अधिक सुरक्षा उपकरणों का प्रयोग करने के विषय पर जनवरी से अब तक सफाई कर्मचारियों को ट्रेनिंग दी गई। 1848 सफाई कर्मचारियों को ट्रेनिंग देकर उन्हें सफाई कार्य में निपुण बनाया। ट्रेनिंग करने वाले सफाई कर्मचारियों को ट्रेनिंग का पैसा व दो लाख का बीमा का लाभ देने के साथ-साथ ट्रेनिंग बाद कुशल सफाई कर्मचारियों को प्रमाण पत्र दिए गए। नगर स्वास्थ्य अधिकारी डॉ शिव कुमार ने कहा कि स्वच्छता की पहला पायदान सफाई कर्मचारी है। ट्रेनिंग का मुख्य उद्देश्य सफाई कर्मचारियों को आधुनिकता से जोड़ना है।

इस दौरान नगर आयुक्त सत्य प्रकाश पटेल, जोनल सफाई अधिकारी इंद्रजीत सिंह, स्वच्छता निरीक्षक डॉ रामजीलाल, एमपी सिंह, आरसी सैनी, अनिल आजाद, एसबीएम सहायक धर्मवीर सिंह, मीडिया सहायक अहसान रब, एटूजैड हैड समय सिंह, सफाई कर्मचारी संघ अध्यक्ष प्रदीप भंडारी, महामंत्री राधे धूरी आदि मौजूद रहे।

Sectors	Approved Targets	% Achievement on Enrollment	% Achievement on (Assessment Approved by SSC)	Enrolled to Assessed %	Registered	Enrolled	Not Appeared	Assessed	Certified
Green Jobs	**72514**	**99%**	**99%**	**100%**	**84808**	**72133**	**150**	**71711**	**71679**

Green Jobs & National Apprenticeship Promotion Scheme

Skills and knowledge are the driving forces of economic growth and social development in a country. As opposed to developed countries, where the percentage of skilled workforce is between 60% and 90% of the total workforce, India records a low 5% of workforce (20-24 years) with formal vocational skills. Realizing the importance, more than 20 Ministries/Departments run 70 plus schemes for skill development in the country. The National Skill Development Mission launched by the Ministry of Skill Development and Entrepreneurship on July 15, 2015, aims to create convergence across sectors and States in terms of skill training activities. Besides consolidating and coordinating skilling efforts, it also aims to expedite decision making across sectors to achieve skilling at scale with speed and standards. Further, to achieve the vision of 'Skilled India', National Skill Development Corporation (NSDC) created to expedite decision making across sectors to achieve skilling at scale with speed and standards.

Under operational framework of NSDC, there are 38 Sector Skill Council in India. Since its inception, one of the major pillars of NSDC's strength are Sector Skill Councils (SSCs), which play a vital role in bridging the gap between what the industry demands and what the skilling requirements ought to be.

Under MSDE, there are different schemes and initiatives to promote Skill Development in the Country as:

- **Pradhan Mantri Kaushal Vikas Yogyana (PMKVY)**
- **National Apprenticeship Promotion Scheme**
- **UDAAN**
- **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**
- **WorldSkills India Competitions**
- **IndiaSkills Competitions**
- **Technical Intern Training Program(TITP)**
- **Jan Shikshan Sansthans**

The Government of India launched the National Apprenticeship Promotion Scheme (NAPS) in August 2016, to promote the apprenticeship programme in India by introducing a package of financial incentive to establishments engaging in apprenticeship. This package specially intended to support and promote apprenticeship in the MSME segment for enhancing its productivity and competitiveness as well capacity building. Apprenticeship Training is considered to be one of the most efficient ways to develop skilled manpower for the country by using training facilities available in the establishments without putting any extra burden to set up training infrastructure. It provides for an industry led, practice oriented, effective and efficient mode of formal training. A new "Operational Framework for Apprenticeship in India (including National Apprenticeship Promotion Scheme)" was launched on 15th July 2018, with an aim to make apprenticeship engagement smoother both for the industry and the youth.

As per the scheme, Government of India will share 25% of prescribed stipend subject to a maximum of Rs. 1500 per month per apprentice with the employers. Government of India will also share maximum Rs.7500 per fresher apprentice (without any formal trade training) as a cost of basic training with Basic Training Providers.

Scheme components

Sharing of 25% of prescribed stipend subject to a maximum of Rs. 1500/- per month per apprentice with the employers. The stipend support would not be given during the basic training period for fresher apprentices.

Sharing of basic training cost in respect of apprentices who come directly to apprenticeship training without any formal trade training. Basic training cost will be limited to Rs. 7500/- for a maximum of 500 hours/3 months.

Scheme Scope

This scheme will cover all categories of apprentices except the Graduate, Technician and Technician (Vocational) apprentices which are covered by the scheme administered by Ministry of Human Resource Development.

Scheme Targets

Target under the scheme shall be 20 lakh apprentices in 2019-20. The engagement of fresher apprentices shall be 20% of total annual target.

Implementing Agencies of Scheme

CEOs of SSCs notified as Joint Apprenticeship Advisors (JAAs) for online Registration of contracts between employers and candidates (in case they opt for stipend subsidy under NAPS)

Key features of Scheme

Wider options for the apprentices - integration with other schemes Courses under PMKVY/MES will be linked with apprenticeship training. These courses will be given the status of optional trades & the relevant practical content for On-the-Job training will be added by SSC/NCVT as the case may be. The total duration of On-the-Job/Practical training

for these courses will be of one year (excluding the period of basic training)

f. Trades of Scheme

• Designated trade: Designated trade means any trade or occupation as notified by the Government. At present, there are 261 designated trades are available for apprenticeship training.

• Optional trade :

PMKVY/MES - Courses under PMKVY/MES with a duration of minimum 500 hrs. as basic training component and a one year practical content for on-the-job component designed by SSC/NCVT will be declared as optional trades.

INITIATIVES OF SKILL COUNCIL FOR GREEN JOBS UNDER NAPS

Skill Council for Green Jobs (SCGJ) is the SSC focusing development of competencies /skills in the domain of renewable energy, sustainable development and waste management. The Council is an industry led and industry driven organization set up in October 2015 and is promoted by the Ministry of New and Renewable Energy (MNRE) and Confederation of Indian Industry (CII). It is responsible for quality assurance through accreditation of the skills acquired by trainees, curriculum development for the skills training, qualification framework and setting of standards and benchmarks, recruitment and placement of trained and skilled workforce, as well as a data collection, management and provider to the industry. The SCGJ scope covers the entire gamut of "Green Businesses", viz Renewable Energy, Energy Storage, Carbon Sinks, Green Construction, Green Transport, Solid Waste Management.SCGJ has created 47 QRC approved Job roles of which 20 are approved by NSQC. At present, two job roles are aligned with NAPS as Solar PV Manufacturing Technician and Solar PV Business Development Executive.

The job role of Solar PV Manufacturing Technician is at NSQF level 4 and is responsible to clean and check the front glass cover for the PV module; monitors the process of soldering solar cells to the strings to make interconnect, lamination of modules, framing of solar PV module, module testing and packaging for transit. The course is designed for 1 month Basic training and 5 months on job training.

The second job role of Solar PV Business Development Executive is at NSQF level 6 and is responsible for highlighting the benefits of using solar power to develop and generate the business for the organization. He/she has the understanding of the rooftop market, ground mount market and decentralized solutions market to propose the right kind of solution to meet the specific needs of the respective clients. He/she keeps track of central and state solar policies/programs and has good understanding of the solar PV technology, its applications and economics. The course is designed for 1 month Basic training and 5 months on job training.

To promote and implement NAPS, SCGJ invited 12 major organizations and one to one interaction was held with M/s Kotak Solar, M/s Jakson, M/s Mahendra Susten and M/s Tata Power Limited. M/s Jakson and M/s Mahendra Susten have shown interest to go further. SCGJ also identified Third Part Aggregators registered with NSDC to associate with industries to convene trainings on Solar PV Manufacturing Technician and Solar PV Business Development Executive. Further SCGJ is aggregating demand for apprenticeship training and develop Model curriculum for Solar PV Installer (Suryamitra) and Recyclable Waste Collector & Segregator. Apprenticeship in Green jobs will facilitate creation of a significant workforce which will have an immense contribution in meeting the National goals of promoting renewable energy and creating a sustainable environment.

Sarvesh Pratap Mall
Technical Associate, SCGJ

FICCI 2nd Skill Development Committee Meeting' 2019

2nd Skill Development Committee (SDC) meeting of the year was held on Tuesday, May 21, 2019. Mr. Bijay Sahoo, Chair, SDC & President-HR, Reliance Industries is chairing the committee. The meeting was attended by eminent members representing stakeholders from Skill Development Ecosystem. Skill Council for Green Jobs represented by Dr. P.Saxena CEO is the member of the committee.

Mr. Bijay Sahoo, Chair, mentioned that key requirements to make India a 'Skill Capital' is to determine which kind of skill changes are happening in terms of new-age technologies. "skills and knowledge are the driving forces of economic growth and social development for any country. It is no surprise that governments globally are focusing on the significant role vocational education and training plays in their countries' futures. At a time when skills gap is a major concern globally, investing in skill development has never been so important." He further added that there is an urgent need to make our people future ready in order to make them job ready for both - Indian and International employability. Once the people are job ready, the second key component is to facilitate them with jobs not only in India (as they are limited) but overseas as well.

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Skill Council for Green Jobs through Numbers

Financial Year wise Training Status as on 31.052019

		2016-2017			2017-2018			2018-2019			2019-2020			Cumulative		
S.No.	Name of the Scheme	Trained	Assessed	Certified	Trained	Assessed	Certified	Trained	Assessed	Certified	Trained	Assessed	Certified	Total Trained	Total Assessed	Total Certified
1	PMKVY Short Term	0	0	0	11705	10951	10173	12434	11180	10292	2664	2376	2257	26803	24507	22722
2	PMKVY 1	383	366	161										383	366	161
3	PMKVY RPL 1,2&3	0	0	0	899	664	638	1254	840	839	2669	2665	2665	4822	4169	4142
4	PMKVY RPL 4	0	0	0	0	0	0	14222	10040	10031	37450	37417	37371	51672	47457	47402
5	PMKVY Special Project	0	0	0	0	0	0	523	371	357	18	17	17	541	388	374
6	PMKVY CSSM - Centrally Sponsored State Managed Component	0	0	0	0	0	0	792	542	489	263	261	233	1055	803	722
7	Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY)	0	0	0	0	0	0	1097	930	794	95	87	84	1192	1017	878
8	Utkarsh Bangla- PMKVY PBSD (Pashchim Banga Society for Skill Development)	0	0	0	0	0	0	0	0	0	146	125	117	146	125	117
9	AICTE- PMKVY Techical Colleges	0	0	0	0	0	0	1154	1154	1154	0	0	0	1154	1154	1154
10	Deendayal Antyodaya Yojana- National Urban Livelihoods Mission (DAY- NULM)	0	0	0	0	0	0	330	308	303	0	0	0	330	308	303
11	NSKFDC- National Safai Karamchari Finance & Development Corporation	0	0	0	1238	1204	1204	8490	7882	7882	1786	1729	1729	11514	10815	10815
12	NBCFDC- National Backward classes finance & Development Coporation	194	177	175	411	374	359	138	133	133	0	0	0	743	684	667
13	Andhra Pradesh Skill Mission	0	0	0	300	298	298	650	645	643	0	0	0	950	943	941
14	Uttrakhand Skill Mission	0	0	0	30	25	23	0	0	0	0	0	0	30	25	23
15	Gujarat Skill Development Mission	0	0	0	128	99	85	415	260	257	0	0	0	543	359	342
16	RSLDC - Rajasthan Skill & Livelihoods Development Corporation	0	0	0	0	0	0	386	349	310	185	179	173	571	528	483
17	Bihar Skill Mission	0	0	0	0	0	0	28	24	24	0	0	0	28	24	24
18	PMKVY 2.0 BSDM (Bihar Skill Development Mission)	0	0	0	0	0	0	25	25	25	0	0	0	25	25	25
19	Odhisha Skill Development Mission	0	0	0	0	0	0	493	460	419	0	0	0	493	460	419
20	Asaam Skill Development Mission- PMKVY ASDM	0	0	0	0	0	0	57	47	47	0	0	0	57	47	47
21	Market Mode Paid Programs	80	80	61	1658	1596	1560	4985	4541	4460	702	628	549	7425	6845	6630
22	MNRE Sponsored Suryamitra	2998	2789	2553	9783	9328	8908	11515	11112	10800	2741	2696	2614	27037	25925	24875
23	CB_Scheme- North-East Candidates	0	0	0	120	117	114	126	116	110	0	0	0	246	233	224
24	CSR Projects	0	0	0	0	0	0	518	473	465	0	0	0	518	473	465
	Total:	3655	3412	2950	26272	24656	23362	59632	51432	49834	48719	48180	47809	138278	127680	123955

Compiled by

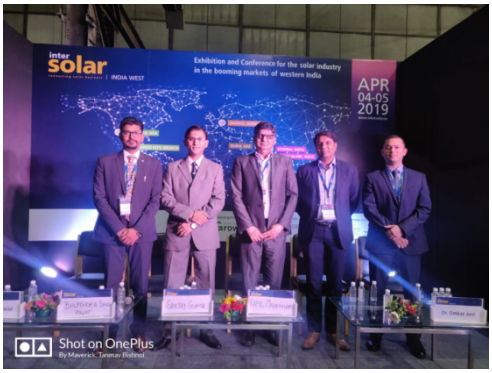
Sonia Parashar
Skill Council for Green Jobs

Session on
"Solar Applications to bridge the sustainability gap – Skills, Entrepreneurship and Technology
11:45 – 13:00 hours, 5th April 2019, Mumbai.

Despite admirable efforts on grid expansion achieved over the last decade, household-level electrification and availability of power particularly for livelihoods and productive use, continue to be a challenge.

Clean energy solutions such as Decentralized Solar Applications have so far played a vital role in meeting the power requirements of unserved and under-served communities, in the absence of the grid. The draft National Energy Policy (June 2017) too has highlighted the role of these solutions in providing reliable and affordable electricity. Growing awareness, falling prices, technology improvements, skills and entrepreneurship development are making decentralised systems a preferred choice for consumers and policy makers across the globe. , the session :

- **Deliberated on the achievement of sustainable development outcomes (like education, livelihoods, technology innovations, skills and entrepreneurship development, etc.) using Solar Energy applications as a converging point**
- **Collectively scaned business and investment opportunities, technology applications and innovations, skills & entrepreneurship development, along with suitable policy and financial environments to bridge the sustainability gap.**



The aim of the session was to deliberate and enable constructive conversations on emergent business models, Solar technology applications and innovative deployment, skills development, entrepreneurship development, financing and corporate engagement, and related factors having development impacts on education & skills, access to drinking water and irrigation, sustainable livelihood, and so on, converging towards Solar Applications to bridge the sustainability gap.

Key takeaways from the session

Blockchain technology and big data analytics will have a lot of application in smart cities requiring the next generation skills and for asset management.

Higher the penetration of DRE systems, higher will be the employment generation.

Electric mobility clubbed with solar charging systems has immense applications and scalability.

A case study on the types of jobs and employment generation potential in the solar manufacturing domain.

Complexity of process in the manufacturing of modules needs highly skilled workforce and advanced level training.

Startup perspective and drivers of change for future skills requirements.

Highly local and specialised skills will be required with cross sectoral applications.

	Speaker Name	Session Topic
	Chair: Mr. Rajesh Kulkarni, Head – Marketing, Hensel Electric India; and Chairman, Curriculum and Content Development committee, Skill Council for Green Jobs	
1	Tanmay Bishnoi, Head – Standards and Research, Skill Council for Green Jobs	Role of Skill Council for Green Jobs to accelerate the deployment of rooftop solar systems
2	Kapil Maheshwari, CEO, Hinduja Renewables	Entrepreneurship opportunities, Skills and technology required to develop 100 smart cities and role of solar energy to accelerate the growth of electric mobility sector
3	Anmol Jaggi, Managing Director, Gensol Group*	Skills and technology required for O&M of ground mount and rooftop SPV power plants to sustain the growing market
4	Bhupendra Singh Rawat, Head – Business Development, Renewsys India Pvt Ltd	Skills and technology required to manufacture solar components supporting Make in India initiative
5	Omkar Jani, Managing Director, Kanoda Systems	Entrepreneurship opportunities, Skills and technology requirements for 24/7 power for all through Renewable energy
6	Sanjay Gupta, CEO, Relipower Technology	Startup perspective on challenges and opportunities for solar entrepreneurs in India and ease of doing business

Impact of Skill Gap on Solar EPC projects

Frequent issues that lead to poor performance and failure of rooftop solar plants arise due to the lack of proper training and negligence, issues like improper crimping, grounding ,tensioning -torsioning of mounting structures due to poor workmanship often lead to hazards threatening both plant and human safety.

The EPC industry is constantly challenged by lack of skilled and effective workforce more often than not these tasks that require a relative degree of specialization are under taken by a contractual and informal labor force .

To perform quality work trained electricians ,technicians, fitters and skilled labor are required on site saving substantial time and money leading to improvement , enhancing longevity of the rooftop solar plant.

In order to fill the supply-demand gap of skilled workforce in solar industry the Skill council for Green Jobs has contributed in promoting directly or indirectly many short term and long term training program across the country for different job role like(Suryamitra in Electrical and Civil installation) Solar PV site engineers and many more .

Technical Challenges

Due to the random and intermittent nature of the renewable sources, integration of it into the grid causes technical challenges which cover the reduction in power quality, power fluctuation causing unreliability in voltage control, mismatch of phase sequence , deterioration of power quality and protection issues arise often which further destabilize the string Inverter and ultimately impact the power generation of the plant.

Another unforeseen risk regarding the performance of the plant as it is possible that despite using the most sophisticated and reliable satellite data, the actual generation at a site varies from the forecast. In case the variation is high, it can lead to lower financial returns on the project.

Repairs and replacement is another risk factor caused due to lack of skill labor available at site as repairs of the modules and inverters can adversely impact the plant generation.

In terms of distribution, there are limits on the total amount of electricity that can be injected in the grid at one point owing to the transformer capacity at that location. This is not a significant barrier currently but may emerge as number of installations go up. The area had consistent high temperatures and significant quantities of dust pollutants (fly ash, acid sludge, tar sludge, coke breeze) that would get deposited on the panels every day.

Policy Barrier

We are yet to come out with uniform policies on net metering that allow users to sell surplus power to utilities. Unfortunately, neither the Centre nor the state governments have clarity about their net metering policies, which hold the key to the widespread adoption of rooftop solar across the country.

Recently, Maharashtra State Electricity Distribution Company (MSEDCL) proposed in a petition to shift from net metering to gross metering, a move which could make rooftop solar unviable for many consumers.

Currently some states, such as Karnataka, Andhra Pradesh and Uttar Pradesh, allow consumers to choose between a net metered and a gross metered system.

The size limit sidelines a large number of commercial and industrial consumers from installing rooftop solar to meet their power needs.

The Indian rooftop solar power industry is steadily growing, but much faster growth is required to meet the government's ambitious target of 40 GW by 2022. Despite the challenges mentioned above, there are a number of steps that can be taken to align risk and opportunity across the value chain by bringing all the stake holders on single platform and address their respective concerns.

A common onlin portal need to develop for all the stake holder where all the trained manpower can register on portal and EPC company can directly recruit the trained work force, also such portal shall be used for single window clearance of Net metering application, electrical inspector clearance and for other compliance approval.

Prem Bharti
Technical Associate ,SCGJ

Solar Skill Competition at RenewX

SCGJ organized Solar Roof top skill Competition at Hyderabad on 26th and 27th April 2019

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The Future of Work: Securing India

The recently released 'State of Working India Report 2019', by the Bangalore-based Azim Premji University reports, about 50 lakh men losing jobs between 2016 and 2018. It further adds that India's overall unemployment rate, at around six per cent, is double than that of the last decade. This along with multiple other findings those including the ones from the February 2019 N.S.S.O. data draw attention to how half of India's working-age population (over 15 years) is not contributing to any economic activity. The report also highlighted the labour force participation rate (LFPR) – the proportion of a country's working-age population that engages actively in the labour market – standing at 49.8 per cent in 2017-18, falling sharply from 55.9 per cent in 2011-12.

Despite the government, civil society, industry and independent organizations in a constant tussle over numbers, it stands abundantly clear that there are ripples across our social fabric that indicate that all might not be well. The 'State of Working India Report 2019' found India's unemployed to be mostly the higher educated and the young. The age group 20-24 years being hugely over-represented among the unemployed additionally on the other end the less educated and the likely informal workers have seen losses in jobs and reduced opportunities of livelihood.

In times when India and humanity at large are beginning to debate on a 'Universal Basic Income', when the crucial problem isn't creating new jobs but new jobs that humans perform better than algorithms. Finding meaningful and fulfilling work for our people must remain our utmost priority. Renowned historian and thinker Yuval Noah Harari takes the chilling view that technology is going to make many jobs obsolete and that huge numbers of largely unemployable people will find themselves part of a "useless class" trying to find meaning in a world without work.

We are witness to a unique time in history. While on one hand while tectonic shifts in technology, innovation and automation threaten the labour market, World over we are united and driven by our fight against Climate Change and our commitments to a greener tomorrow. The change is inevitable, our opportunity as a nation lies in giving mindful and deliberate direction to the outcome of this change. These times present us the opportunity to re-think, re-structure and leapfrog our economic model. India must not only prepare itself to harness fully this opportunity it should strive to be a global leader shaping this new paradigm. Creating Green jobs backed with a robust and dynamic skilling revolution promises the way forward. The International labour organization defines green jobs as decent jobs in any economic sector (e.g. agriculture, industry, services, administration) which contribute to preserving, restoring and enhancing environmental quality. Green jobs reduce the environmental impact of enterprises and economic sectors by improving the efficiency of energy, raw materials and water; de-carbonizing the economy and bringing down emissions of greenhouse gases; minimizing or avoiding all forms of waste and pollution; protecting or restoring ecosystems and biodiversity; and supporting adaptation to the effects of climate change.

The Green New Deal (GND) is a proposed program with origins in the United States, aiming to address climate change and economic inequality. It envisages a 'detailed national, industrial, economic mobilization plan' capable of making the U.S. economy 'carbon neutral' while promoting 'economic and environmental justice and equality'. It is time when India too must seriously look into a massive restructuring of its economy aligned to the needs and demands of the future. A radical transition designed such, that the sustainable livelihood of her peoples is central to the idea.

This is India's chance to turn its crisis into its victory, the task ahead is enormous but then that is precisely why it is also worth accomplishing.

Aditya Tiwari
(Intern, Research & D[illegible]nt, Skill Council for Green Jobs)
M.Tech (Renewable Energy Engineering & Management)

Focus Group Discussion on

Skill Development and Training for Waste Water Treatment Plants

IHC, Delhi 21 May, 2019

Skill Council for Green Jobs (SCGJ) organised a Focus Group Discussion (FGD) on "Skill Development and Training for Waste Water Treatment Plants" on 21 st May, 2019 in Jacaranda Hall of the India Habitat Center to discuss various aspects and need of skill and capacity building in the industrial wastewater treatment processes. The FGD deliberated on the most critical job roles and skill set required to make the system successful. Experts from industries, institutions and Government participated in the Group discussion to deliberate for a road map for skilling and capacity building in the Industrial Wastewater treatment.

Mr. Jigmat Takpa, Joint Secretary, Ministry of Environment, Forest and Climate Change (MOEF&CC) chaired the Focused Group Discussion. While complimenting the efforts of SCGJ in sensitizing and being a catalyst for skill development and green jobs, more specifically in industrial sectors, Mr. Takpa focused on the need of the of water and necessity of waste water management. He drew attention of the Group on the discharge of untreated waste water into the water body and non -compliance of the standards by the industries and municipal bodies vis-à-vis court cases. He further stated that Skill development is the basic foundation for any industries so as to comply with the stipulated discharge standards and thereby preserving the natural water body for the future generation.

Dr. Raman Sharma, Senior Scientist, CSIR-National Environmental Engineering Research Institute from the Delhi Office gave a presentation on the "Way forward to the need based skill development in the area of waste water treatment" He apprised the Group on the capability and contribution of NEERI and offered their services for skill development in waste water treatment more specifically on sampling, samples analysis, treatment plant operation related issues, performance assessment of WTP/STP/ETP/CETP, Hands on training for sophisticated instruments etc.

After a detailed presentations, deliberations, the following issues emerged for the way forward:

i. A programme for Mayapuri CETP be started, to start with, so as to show case the skilling and waste water compliance.

ii.Curriculum and contents for job roles and training types/skilling of Operators, Technicians, etc be prepared.

iii.Other job roles in the segment be defined and curriculum developed for skilling.

iv. Skilling on monitoring and compliance to waste water discharge be stressed.

v. Specialized training for waste water treatment be started both "on the field"and "in class rooms".

vi. "On the job skilling" be encouraged and curriculum be developed and skilling be carried out.

vii. Skilling and training on Operation & Maintenance and Safety be carried out.

viii. Since each industry has different process and different treatment procedures, separate industry wise training be carried out

ix. Skilling and training for industrial clusters and CETPs be imparted.

x. State Pollution Control Boards be taken as knowledge partners and directions from them to industries will ensure for maximum and meaningful participation.

The Editor of this edition

Sarvesh Pratap Mall
Technical Associate
Email id:

Sarvesh is working as Technical Associate in SCGJ and involved in R&D in Skill Development activities for six sectors viz Water Management, Solid Waste Management, E-Waste Management, Carbon Sinks, Green Construction and Clean Cooking along with the implementation of CSR sustainability project in villages of Haryana. Sarvesh is passionate about the circular economy advocating Bio-energy and efficient waste management.

Green Jobs News

ISO 9001:2015 Certified

CBIP Building
Chanakya puri, Malcha Marg, New Delhi 110021

Ph: +91 11 41792866

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