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Green Entrepreneurship - Products And Availability of Market : A Descriptive and Exploratory Research in Solar Energy with Special Reference to Jharkhand

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Abstract: Ever expanding needs of energy have alarmed the scientists and environmentalists who explored renewal energy as responsible energy. Solar energy is one of the most profound resources available and much is to be done to optimize it as an alternative source of energy by the entrepreneurs. Jharkhand, being at the Tropic of Cancer, is blessed with ample solarization, and striving to harness it through entrepreneurship. The literature of today speaks extensively on solar energy and its efficient products. But in Jharkhand, entrepreneurial activities for the solar market have not yet been examined. The researcher reviewed secondary data and literature on solar energy and solar products in the State. The observations after interaction and interview with the local business dealers & sellers revealed that there is a lack of enthusiasm, awareness, and a fear of failure. The findings have positive signS for the entrepreneurship in the Solar Energy sector. The suggestions would certainly contribute to the policy and practice to generate employment and help Jharkhand villages shine.

Key Words: Business, Entrepreneurial Activity, Entrepreneur, Green Entrepreneurship, Green Products, Green Market, Jharkhand, Renewable energy, Solar Energy, Solar Products, Solar Efficiency/Efficacy, Startups, Sustainable Energy.

1.0 Introduction:

Renewable energy is now viewed as a responsible energy to address the concern against the crisis of conventional energy and the cries due to environmental hazards. The **entrepreneurs** got attracted towards the natural resources to harness it into sustainable and environment friendly products through their innovative skills and entrepreneurship.

[1]Role of **entrepreneurship,** as a vehicle of economic & social transformation, is not new in the economic literature. In this context, entrepreneurship towards sustainable products and services has led to explore the optimum use of natural resources and energy. Berle, Gustav who had not only coined the term "**Green Entrepreneur**" (1991) but also has secured to be pioneer who had paved path for the budding entrepreneurs in the field of environment friendly products: all constitute what collectively may be termed as green entrepreneurship. [2]**Green Entrepreneurship** refers to entrepreneurship for environment conservation, environment protection and environment sustainability. [3]We can notice that very often the terms green entrepreneurship or eco-entrepreneurship (ecopreneurship) has almost similar meaning and can be used interchangeably, because green business cannot be imagined without being environmentally sustainable, and both must be centric with the social and economic transformation to recover the costs & survival of any entity.

[4]A strong global demand for **greener products** was indicated by over 60 percent in all countries surveyed, indicating that they want to purchase products from environmentally responsible companies. The products & services which pass through the following **testing criteria for being or classified as Green Products and Services.**

1.- Use of raw material from Natural resources in manufacturing or production of the product
2.- It should have the characteristics of **8-Rs** viz reusability, repairing, rebuilding, refurbishment, recyclable, re-sellable, re-mouldable, re-composable.
3.- Producing minimum wastage with lowest carbon footprint
4.- Social Useful Product
5.- Cost effective and commercially viable

Sustainable products and services got further impact and increased focus due to very climatic uncertainty and increasing environmental changes. This has further led changes in the style and scope of the products and services in new market what vividly may be called as **Green Market**. This is also as a conventional market creating opportunities with a range of (green) products that are developed from the eco-friendly materials and, after consumption, are environmentally safe by leaving no hazardous wastage.

Solar Energy: Status in India

[5]India ranks 3rd in renewable energy country attractive index in 2021 and 3rd largest energy consuming country in the world, and, in terms of Solar Energy, India is the 3rd largest market in the world for new solar photovoltaics (PV) capacity. As an example, to boast of Indian presence in Solar sector is [6]the *Bhadla* Solar Park, the largest solar energy plant in the entire world, is located in Rajasthan, India, and that has an installed capacity of 2,245 megawatts.

Solar, being the only hope of future energy reservoir, is clean (pollution free), silent, limitless, and free. It will play a great role in the times to come in the present energy driven civilization in the form of electricity, various products, and services.

[7] India is endowed with vast solar energy potential. About 5000 trillion kWh per year energy is incident over India's land area with most part receiving 4-7 kWh per square meter per day. India, in 2023, has eyes on **shining India** through Solar energy as [8] 59 solar parks of aggregate capacity 40 GW have been approved in India. The world's largest renewable energy park of 30 GW capacity solar-wind hybrid project is under installation in Gujarat.

Opportunities in Jharkhand :

[9] Tropic of Cancer passes though Ranchi, and being is located in the torrid zone of solar illumination the State has vast potential of Solar rooftop power plants for utilizing solar energy with the potential use of 18.18GW. [10] The state witnesses more than 300 clear sky days with solar radiation between 4.5 and 5.5 kWh/sqm per day, offering opportunities for the deployment of suitable solar energy facilities. Accordingly, [11] Jharkhand aims to achieve a capacity of 4000 MW of solar power in the next five years as scheduled from 2022-2023 to 2026-27 and is open to attract investors in this field with support and lucrative offers. The Solar Energy Policy 2022 was launched on 05th July 2022 by the State Govt. and also envisions to create jobs, growth opportunities and sustainability in Jharkhand, which currently generates less than 45 MW of solar energy.

[9] The Situational Analysis Report conducted in a survey in Jharkhand areas by LEADS during revealed the grim picture as 90% of the area surveyed, received 12 hours of electricity, and more than 60% of population use wood as energy for cooking, and use traditional lamp for lighting nights.

This all gives a wide scope to explore further the possibilities and methods, to understand the opportunities for the entrepreneurs to harness the Solar energy, what the challenges as an entrepreneur they may face and what would impact them if guidance, other facilities and subsidies are provided by the Govt.

2.0 Literature Review / Research Gap / Problem

Any business or enterprise takes its origin through the concept and characteristics of start-up or entrepreneurship. It may or may not be incubated in a customized environment for the analysis of its commercial success or failure. But in most cases, the entrepreneur, through his entrepreneurial spirit, leads the business shine and success.

Entrepreneur and Entrepreneurship:

[12] The term "entrepreneurs" appears for the first time in the text written by Cantillon (1755) entitled "Essai sur la Nature du Comerce en General". The word refers to a person who purchases products at known prices and later

resells them at the market at price not known. [13] To the entrepreneur, problems are not something to be avoided or proof of failure, but rather an opportunity—maybe disguised, yes, but an opportunity, nonetheless.

[14] Entrepreneurship is a kind of perspective which is about challenging the status quo and finding new, effective and/or efficient ways of doing things, which [15] suggests the possibility that firms embracing technological risks, particularly in the context of environmental uncertainties, may benefit by gaining first mover advantages or market leadership**.** [16]The entrepreneurs have a role to play in improving knowledge regarding the viability of new innovations as well as assisting in identifying consumer preferences by bring new varieties of existing products and services to the market. Also, [17] Entrepreneurship consists in doing things that are not generally done in the ordinary course of business routine; it is essentially a phenomenon that comes under the wider aspect of leadership.

From the various definitions, characteristics, and functions of the entrepreneur, we can sum up that [18]an entrepreneur is an opportunity seeker who sails his Capital '**ship**' through the oars of his innovative and business skills in the ocean of uncertainty involving perceived risk there in to, and if mapped all, later he enjoys the fruits of success and recognition.

$$\textbf{Entrepreneur(ship)} = \iiint_{i}^{f} f\,[\,\textbf{Capital x Innovation x Business Skills}\,]\; d_C, d_I, d_B$$

Where '**i**' is the ***initial*** **value** of input (generally in terms of opportunity & investment) and, 'f' is the ***final*** **outcome** (in terms of success and recognition).

Continuous extraction of consumption of biofuel and natural resources by human beings has resulted in the depletion of these resources. The rate of such depletion has alarmed not only business models but also the survival of human beings.

Green Entrepreneurs and Green Entrepreneurship

The new and consciousness-based consumers started demanding more eco-friendly products and services. The person endevouring to such enterprise or business that focused on ecological balance and sustainability, are termed as green entrepreneurs.

Some literature gives credit to Gustav Berle (1991) who is regarded to have given the "Green Entrepreneur" in his book, [19] "The Green Entrepreneur: Business Opportunities That Can Save the Earth and Make You Money". The author defined green entrepreneurship as the ability and willingness at the business opportunities towards reducing waste, saving materials end congelation of energy for being a green entrepreneur.

Through the entrepreneurial spirit, [20]Green entrepreneurship is not only important because it provides new opportunities to young entrepreneurs, but also because it may become a powerful force to mainstream a new paradigm of responsible business. by adopting environment friendly products as business component and practices in letter and spirit. [21]Green entrepreneurship refers to a special subset of entrepreneurship that aims at creating and implementing solutions to environmental problems and to promote social change so that the environment is not harmed.

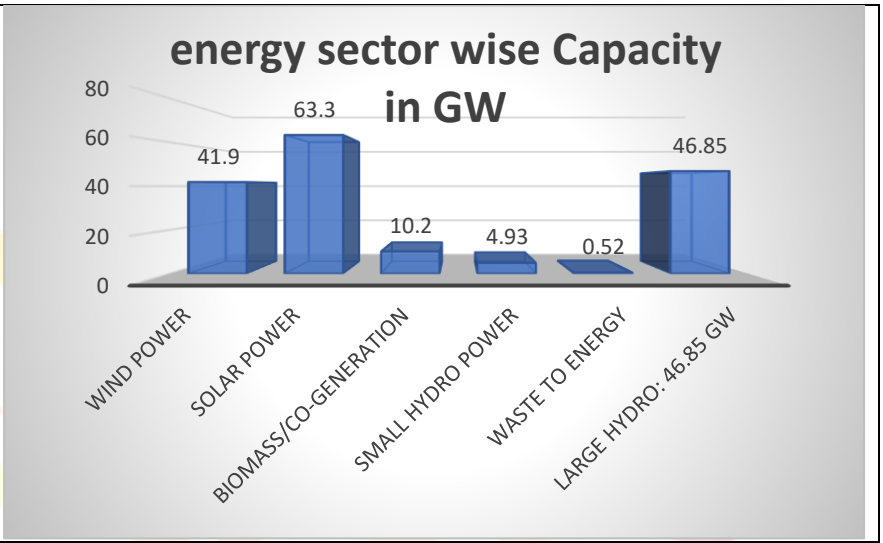
Green Marketing,

[22] The concept of green marketing came into existence way back in 1980's in United States and European country and the development goes on**.** [23]The emerging green market is a market that brings many opportunities in a variety of fields, including green supply chain, green production, green design, and many more. [24]The term ecological marketing/green marketing got attention and importance in the late 1980s and early 1990s. The proceedings of first ever workshop on ecological marketing in 1975 by the American Marketing Association (AMA) resulted in one of the first books on green marketing titled Ecological Marketing. After that, various definitions of green marketing have been propounded by many researchers. According to [25] Polonsky, green or environment marketing consists of all activities, designed to generate, and facilitate any exchange intended to satisfy human needs and wants, such that the satisfaction of the needs and wants to occur with minimum detrimental impact on the natural environment.

[26] It is also one of the facts that changing consumer's perception towards green products not only fulfills the needs of the consumer, but it also participates in sustainable development in long run.

Solar Energy & and Scope of Solar Products and Services

Solar Energy is one of the best alternatives to fossil fuels and large source of renewal & clear energy: a real treasure for the world and India. [27] **India is the world's third largest producer of renewable energy**, with 40% of its installed electricity capacity coming from non-fossil fuel sources. [28]Renewable energy sources have a combined installed capacity of 160 GW. As of Feb 2023, Renewable energy sources, including large hydropower, have a combined installed capacity of 174.53 GW.

The following is the installed capacity for Renewables: 1.Wind power: 41.9 GW 2.Solar Power: 63.3 GW 3.Biomass/Co-generation: 10.2 GW 4.Small Hydro Power: 4.93 GW 5.Waste To Energy: 0.52 GW 6.Large Hydro: 46.85 GW	

[7]India's plan to install 500 GW (gigawatt) of renewable energy capacity by 2030 will involve an investment of at least ₹2.44 lakh crore or ₹2.44 trillion, according to a committee constituted by the Central Electricity Authority (CEA). Thus, a quickly growing solar sector in India is promising a quick revival, after the Covid-19 pandemic. [29]The use of solar energy having tremendous amount of energy will reduces the consumption of conventional sources of energy. [30]According to International Energy Agency, renewal energy capacity is expected to expand by 50% over 5 years between 2019 and 2024, and solar PV alone accounts for 60% of the projected growth.

[31] **Powering India's Energy Vision 2030** is a latest report by Arthur D. Little (ADL) study. It says India needs strategic investments of over $300 billion to achieve its clean energy capacity target of 500GW by 2030. With 165GW generation capacity already in place, India is on the right trajectory to meet its goal of having 50% of energy needs through the renewable portfolio.

Due to growing consumption of per capital electricity, the whole world has now embraced Solar products as their indispensable part of household appliances which given rise to wide range of solar products ranging from the solar cooker to solar thermal rocket.

However, many of them may also overlap in terms of usage like individual, commercial, industrial and infrastructural usage. They can be categorized into 6 levels based on general scope of utilities, distribution, manufacturer and off grid level as following:

Level -1: Saving with domestic level (solar) appliances: that saves money by the user/consumer in comparison to conventional fossil use with the cleaner & bright energy and safe utilities.

Level-2: Saving and Earning with sharing – that the user not only consumes for self, but also earns through sharing of its part to other.

Level-3: Small Level Entrepreneurship as business for solar products/services

Level-4: Medium Level Entrepreneurship as solar (domestic appliances) products and services

Level-5: Industrial Manufacturing for Individual and Non-Commercial usage.

Level-6: Industrial/Infrastructural level Manufacturing for Commercial usage.

So it can be appreciated that depending on the level of venturing, the emerging entrepreneur can adopt the business plan with the help of other support and subsidy from the Govt.

The above can be grouped into further categories:

A. Personal utilities and commodities: (Level-1 & Level-2)
B. Commercial Usage: (Level-3 & Level-4)
C. Industrial and Infrastructural Usage: (Level-5 & Level-6)

Level -1: Saving with domestic level (solar) appliances: that saves money by the user/consumer in comparison to conventional fossil use with the cleaner & bright energy and safe utilities.

1.Solar Chargers,
2.Solar Cooker,
3.Solar Dryer,
4.Solar Fan,
5.Solar Inverter,
6.Solar (PV) Keyboard
7.Solar Lamp,
8.Solar Tuki
9.Solar Flashlights,
10. Solar (Powered) Calculator
11. Solar (Powered) Radio
12. Solar (Powered) Watch
13. Solar (Powered) Laser
14. Solar Spark Lighter
15. Solar Cell Phone
16. Solar Lantern,
17. Solar Notebook

Level-2: Saving and Earning with sharing – that the user not only consumes for self, but also earns through sharing of its part to other.
1.Solar Powered Refrigerator
2.Solar Water Heater
3.Solar Water RO
4.Solar Inverter

Level-3: Small Level Entrepreneurship as business for solar products/services
1.Strawberry Tree
2.Solar Tree
3.Solar (Powered) Rikshaw

Level-4: Medium Level Entrepreneurship as solar (domestic appliances) products and services

1.Solar Chimney
2.Solar (Powered) Pumps
3.Solar Still (Distiller)
4.Solar (Powered) Fountain

Level-5: Industrial Manufacturing for Individual and Non-Commercial usage.
1.Solar Road/Street Light
2.Solar Traffic Light
3.Solar Road Panels
4.Solar Car
5.Golf Cart
6.Solar Waste Compacting Bin
7.Solar Thermal Rocket
8.Solar Buildings,
9.Solar Pond
10. Solar Cold Storage

Level-6: Industrial/Infrastructural Manufacturing and Off-Grid level for Commercial usage.
1.Solar Boat
2.Solar Balloons
3.Solar Bus
4.Solar Sail
5.Solar Planet
6.Solar Powered Stirling Engine,
7.Solar Furnace
8.Solar Desalination Unit
9.Solar Thermal Power Stations
10. Solar EPC
11. Solar Windmill
12. Off-Grid

3.0 Opportunities for Green Entrepreneurship in Solar Energy with Special Reference to Jharkhand

Jharkhand is one of the youngest state of the country, carved out of Southern Bihar in 2000. With a geographical area of 79,714 km². As per records related with Census 2011, Jharkhand has population of 3.3 Crores, with Rural Population: 75.95 %, Urban Population : 24.05% and Literacy : 66.41%, Unemployment in the age group of 20-59 years, in Jharkhand, combined for urban and rural is 10.7 which indicates scope of opportunities for employment through generating the opportunities of entrepreneurship. Jharkhand faces acute poverty in its rural areas. Around 22% Indians live below **poverty** line; Chhattisgarh, Jharkhand fare worst. Jharkhand is home to 32 different **tribes** comprising 26% of the State's population, more than 50% of the tribal population is below the poverty line and dependent on subsistence farming with no secondary source of income, resulting high distress migration.

Entrepreneurial Opportunities in Solar Energy Sector in Jharkhand:

[9] Tropic of Cancer passes though Ranchi, and hence Jharkhand is in the torrid zone of solar illumination and thus the State has vast potential of Solar rooftop power plants for utilizing solar energy with the potential use of 18.18GW. [15] The State receives daily average solar radiation in the range of 4.5 kWh – 5.5 kWh per sq.mtrs per day in most of its part offering opportunity for deployment of suitable solar energy facilities.

[32] Jharkhand aims to achieve a capacity of 4000 MW of solar power in the next five years as scheduled from 2022-2023 to 2026-27 and is open to attracting investors in shining solar sector with lucrative offers. The Solar Energy Policy 2022, as launched on 05th July 2022 by the State Govt. seeks to create jobs, growth opportunities and sustainability in Jharkhand, which currently generates less than 45 MW of solar energy.

Jharkhand, with its vision to adopt Solar Energy as its hope, has taken all initiatives to promote Solar Energy at all corners. Even where roads are yet to reach, there reached solar powered enterprises. In view of ranking in terms of installation of Solar Pumps Sets, the State Govt of Jharkhand strove enough to get 5th rank and has set the target in second phase for installation of 10,000 solar pumps.

This all gives a wide scope to explore further possibilities, methods to understand the opportunities for the entrepreneurs to harness Solar energy, the challenges as an entrepreneur they may face and what would impact them if guidance, other facilities and subsidies are provided by the Govt.

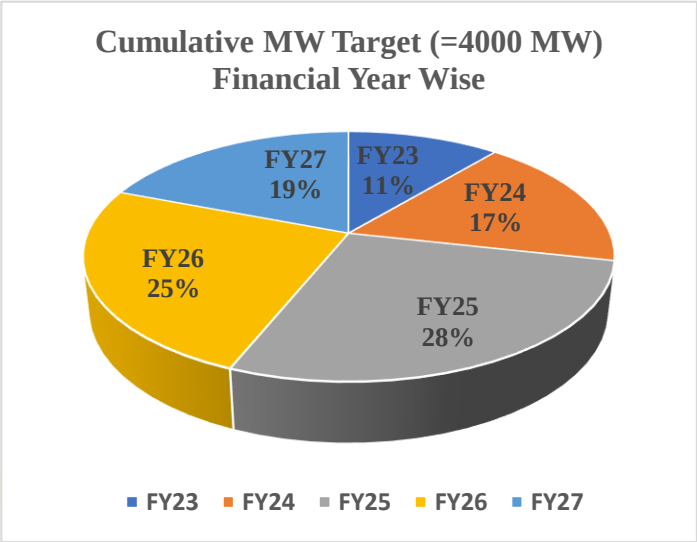
[33]The following are the Business Ideas in the field of Solar Energy Sector: To purchase and selling aftermarket Solar Products

1. Solar Products Distribution
2. Repairing & Maintenance of Solar System/equipment
3. Auditing / Auditor of Solar Energy
4. Starting or developing own Solar Farm Business
5. Independent Solar Consultancy to budding entrepreneurs.
6. Solar Product Marketing and branding channels.
7. Solar Panel Cleaning services with/without AI Based Equipment
8. Solar Energy Training Institute
9. Solar Blogging
10. Ideation for Solar Products and R&D
11. Financing Consultant

[34]The New Solar policy entails a detailed utilization and consumption as projected from FY 2023 to FY 2027

The State Govt. has a plan to deploy a cumulative capacity of 4000 MW in the state by 2027.

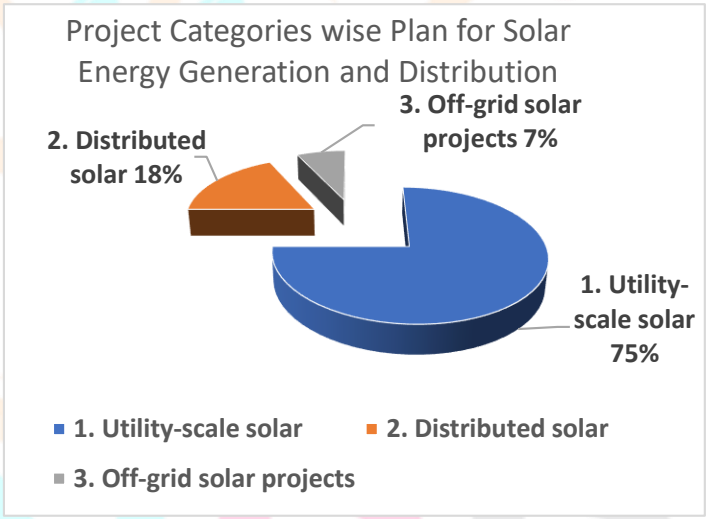
Project categories	Cumulative Target
Cumulative target	4000 MW
FY23	443
FY24	697
FY25	1105
FY26	990
FY27	765



The Project Categories has been compiled and chosen to be only 3 : namely Utility Sector, Distributive Solar and Off -Grid Solar:

Cumulative target = 4000 MW

1. **Utility-scale solar**	**3000**	**75**
2. **Distributed solar**	**720**	**18**
3. **Off-grid solar projects**	**280**	**7**



Other salient and promising features of the State Solar Policy are:

i. To increase the DISCOM's energy purchase by 12.5% by 2023-24,
ii. dedicated solar power cell,
iii. statutory approval within a maximum of 60 days,
iv. setting up of 1000 solar villages,
v. schemes to encourage economically backward villagers to adopt solar energy and cross subsidy for it.
vi. web portal for Kisan Solar Water Pump Set scheme has also been launched which will simplify the process of distribution and installation of solar pumps for farmers.
vii. The portal will also provide aid in the pump scheme for the next fve years.
viii. will give subsidy of up to 80 per cent of the total installation cost will be given to people living in cities having an annual income of less than Rs 3 lakh for rooftop solar panels.

Opportunities in Employment Generation

The Report of World Energy Outlook 2022 is very encouraging to note that the [35]clean energy supply chains are a huge source of employment growth, with clean energy jobs already exceeding those in fossil fuels worldwide and projected to grow from around 33 million today to almost 55 million in 2030 in the APS.

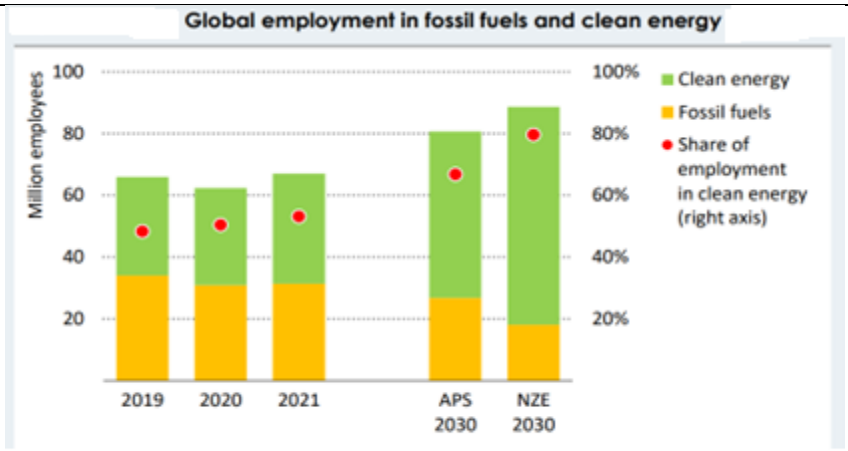


Figure-1 Courtesy @ World Energy Outlook 2022 (Figure 1.26)

The State **Govt. has more than 10 funding and other schemes for entrepreneurs and start-ups.** They are : The Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE), Pradhan Mantri Mudra Yojana (PMMY), SIP-EIT, Multiplier Grant Scheme, Credit Guarantee Fund Trust for Micro and Small Enterprises, Core Research Grants, High Risk High Research and High Reward Research, Design Clinic Scheme, Zero Defect Scheme, Startup India Initiative, Startup India Seed Fund Scheme, Atal Innovation Mission, Credit Guarantee Trust Fund, Venture Capital Assistance Scheme, The Standup India Scheme, Raw Material Assistance Scheme, Single Point Registration Scheme.

4.0 Challenges before the new entrepreneurs in Solar Energy Sector with special reference to Jharkhand :

Solar Energy is certainly a lucrative window for endevouring as entrepreneur. Where the main source of energy is free and unlimited, and the govt is attracting new entrepreneurs through various support system, facilities, and subsidies. However, it still could not attract noticeable growth. After exploring and observing the various reasons and factors, it may be classified into following categories:

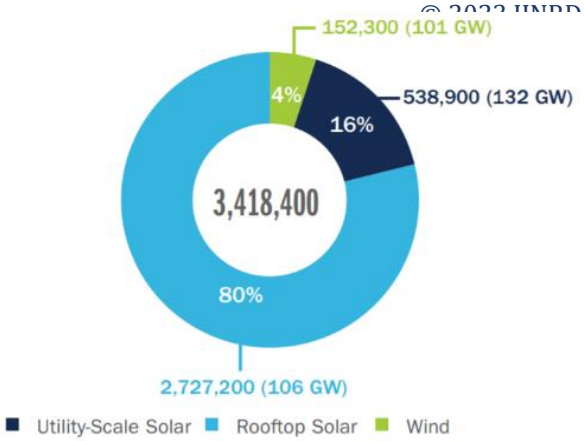


Figure-2 : Sector wise job creation potential

Further, the ***Sector-wise jobs creation potential by achieving 101 GW wind and 238 GW solar targets of non-fossil fuel capacity by 2030.***

[36]**India can potentially create about 3.4 million jobs (short and long term) by installing 238 GW solar and 101 GW new wind capacity to achieve the 500 GW non-fossil electricity generation capacity by 2030 goal.** These jobs represent those created in the wind and on-grid solar energy sectors. **A workforce of about one million can be employed to take up these green jobs.** Jobs created are different from the workforce needed, as one worker can perform more than one job.

A. Induced Factors which initially induce but affect in later phases**:**

1.Costly business affairs: The most important and certainly the primary factor and reason for its slow growth is its **high cost in manufacturing** the products. At initial state, it demands huge pumping of finance/fund, which normally limited number of entrepreneurs endevour.
2.Space/land requirement: Solar panels are fixed generally in continuous set up which require a long stretch of space in one go. This becomes difficult for solar power generation.
3.Waste issues: These solar equipment/panels have a life of approximately 25 years, and after it, become scrap as e-wastage. If not recycled or re-used, hazardous disposal impact as a boomerang affect to the environment.

B. Reduced Factors which inhibit the initial phase
4.Lack of promotional activities: The Govt. or concerned departments lag behind to sustain its promotional activities among the prospective entrepreneurs. When the policy or any scheme is announced, it remains in the air for a few days, but very few turns into reality.
5.Lack of interest level of new ventures: The new entrepreneurs are more apprehensive in venturing in Solar energy sector. Due to this, initially there is less interest to venture in its prospective and commercial benefits.
6.Lack of Continuous financing mechanism: As the business in Solar energy sector demands huge financial investment, after a certain period, it requires more funds, for which the subsidies do not meet its self-sustenance.

5.0 Entrepreneurial Start-ups in Solar Energy Sector

It is evident that entrepreneurship is an integrated function of 4 dimensions : mental, physical, social and financial. Entrepreneurial activities can also be integrated in an expression of repertoires of Head, Heart, Hands and financial Health.

Entrepreneurial activities = f (Head+ Hands+Heart+financial **Health)**

Therefore, to be a successful Entrepreneur, one must have:
a.Head: with business mindset and acumen
b.Heart: to be social for better networking
c.Hands: to be well Skilled / conversant about the product / services, and
d.Health: to be sound financially too,

All above constitute the **4-H Integrated Set of repertoires** for a successful entrepreneur. The primary phase that is Conceptual and Preparation Phase for becoming an entrepreneur, is very important and crucial phase before thinking of any business/entrepreneurial activity.

The entrepreneurial process involves various micro level steps as enumerated below, though, according to the capabilities and resources of the budding entrepreneur, a few steps may vary or ignored.

[18]There are many steps to delve into entrepreneurship. Briefly to sketch the entrepreneurial activites, it is the **'P-R-R-A-N'** that includes the Planning – Resources – Review the Risk – Action with Aptitude & Networking. These

all elements constitute the **'*pran*' (life)** of entrepreneurship without which, the survival of the business would be on stake.

a.PLANNING: There is famous saying that "***if you fail to plan, you plan to fail***". Therefore, planning is the foremost step, and the success majorly depends upon the planning. It includes from the micro level as to make up mind by mapping with the background experience in family or colleagues; to map one's basic strength, skills, fund and risk required for business; to select the business domain and types of business; to observe the functioning of existing businesses of your level of choice(s) – with creativity, insight, and innovation; to explore the gap or new opportunity you can conceptualize as what new/addition can be done for businesses / Services or new B2B can be outlined; after prioritizing, to finalize the prospective business in order as per mapping with strength and acquired experience/inputs; to prepare a primary business concept/plan; to speculate the number of partner(s) as may be required or involvement of experts/consultant required for; to undertake market research at further level from the point of view of customers preference and consumers' questions as why your business/product/service would be beneficials to them; to remap by doing SWOT analysis to review the feasibility and prepare operational methodology at micro level as per questions from the consumers' point of view; to identify and finalize the prospective partners and/or office bearers of the company and discuss/debate and finalize after expert consultation.

b. RESOURCES : It includes the resources related with human, raw material, machinery, mobility and above all is the financial resource. The budding entrepreneurs should identify the potential sources of funds, equity, assets, and allocation as per availability of fund, funding schemes/subsidy by the Govt. / NGO. He should identify the sources of raw materials, or B2B networking, and arrangement of machines required on credit up to a certain limit period. Also, important thing is to identify the location of business unit with location advantages for its operation and minimum logistic wastage/costing; to recruit the manpower, train them as the future of the company depends on the quality and commitment of the employees (human resources) deployed, trained, and oriented as per consumer's expectations. Recycle of the fund is equally an important point of thrust during the business and therefore should be regularly maintained.

c.REVIEW: at a regular interval of time, there should be review the progress and the risk that may occur. The budding entrepreneur should review from beginning at a holistic point of view with primary Strategic Plan and with CBA (Cost & Benefit Analysis). Also, there should be alternative courses and ways out to '***beat- the- threat***' against each of possible risks.

d. ACTION: Now is the time for execution of Strategy Plan with Business Aptitude. The budding entrepreneur should have the business acumen and positive attitude which are the wheels to move on in any business set up. He should initiate to mobilize the fund/resource and allocate as per major operational heads; to finalize the name of the Company and office bearers with job roles/responsibilities with the partners, office bearers and consultant; to prepare the Bye Laws of the Company, Board Members, and process to register the Company/Business unit with operational limits at National and International level; to open the bank account with feasible overdraft facilities, and loan arrangement if any; to obtain relevant statutory/regulatory license, permission, trade license, and documentary compliances, as may be required by concerned departments.

e.NETWORKING : It is not only important to have networking with the B2B organization, or the networking of supply chains or efficient logistics; networking is more important to have the target market in close knit. As communication is the heart of management, **networking is more like the lungs for any business set up**. Business also involves both ways of inhale and exhale process. ***The business inhales the expectations of the customers, and after suitable improvements in its products or services, it exhales with perfection up to their expected level of satisfaction.*** When this exchange of expectation (inhale) and satisfaction (exhale) gets interrupted or feeble, the business gradually becomes a sick unit.

Even many large organizations doomed to death because of failure of "P-R-R-A-N" which collectively constitute the "*pran*" (life) of the entrepreneurial activity, indeed.

6.0 Suggestions/Solutions/Way Out.

Jharkhand, being in the torrid zone of solar illumination, has the gift of nature, and therefore, the State must optimize this gifted opportunity to harness the solar energy not only to make the State as Energy Reliant State, but also should ensure to remove poverty by facilitating to budding entrepreneurs.

a.**To include entrepreneurship as a course programme at Graduate Level as an optional/elective course with credits:** [37] In a survey report, approx. 33 percent youth are doing nothing – nor in higher education, nor in the job or training. These youth are potential entrepreneurs. They only need to train them and fund to be attracted in groups. Further, as the UGC has introduced the NCC as a compulsory elective course in all higher educational institutions, in the same way "Entrepreneurship" should be a mandatory credit course in every programme at graduate level.

b.**More and frequent Awareness programmes to promote the Solar products and business opportunities-** In order to promote Solar Energy (products and services), the Govt. should make sincere efforts to promote it through mass awareness programmes and by exhibition of the Solar products/business services that can be undertaken. The State Govt may conduct such exhibitions either on Sunday of ***Aghan Mas*** as celebration of ***Surjahi Pragati Pooja*** or can also be done on the ***Makar Sankranti*** **Day** on 15th January of each year.

c.**To facilitate govt. subsidy and encourage the investors:** The efforts and subsidies are available, but there is need to increase in the quantum and need in awareness programme to the youth at the very college level. The investors meet may also be organized to invest in the shining sector in Jharkhand, that will generate employment in Jharkhand.

7.0 Discussion and Results

Jharkhand is blessed with the celestial arrangement as the Tropic of Cancer passes though Ranchi, and hence Jharkhand, being located in the torrid zone of solar illumination, receives daily average solar radiation in the range of 4.5 kWh – 5.5 kWh per sq.mtrs per day in most of its part. This offers shining opportunity and potential for utilizing solar energy at the most possible capacities. Apart from the visionary State Solar Policy-2022, and various funding facilities and subsidies by the State Govt. there is need of awareness and opportunities to attract the new entrepreneurs or to motivate to budding entrepreneurs to delve into shining solar sector. Suggestions like introducing a mandatory **credit course of "Entrepreneurship**" in NEP-2020 would be commendable if implemented at degree college/universities programmes. Also the research findings are encouraging in terms of employment generation. Also to attract the interest of the youth in solar business, more and more **exhibitions on solar business opportunities** by the State Govt. can be organized either on ***Sunday of Aghan Mas*** as celebration of ***Surjahi Pragati Pooja*** or can also be done on the ***Makar Sankranti Day*** on each of 15th January of each year . In order to curb the growing unemployment and eradicate poverty in the State, it is now high time to attract the youth through the awareness programmes, training, subsidies, more lucrative schemes and ease of doing to the budding entrepreneurs.

8.0 Conclusion :

Jharkhand, being in the torrid zone of solar illumination, has the gift of nature, and therefore, the State must optimize this gifted opportunity to harness the solar energy not only to make the State as Energy Reliant State, but also should ensure to remove poverty by facilitating to budding entrepreneurs. There are ample evidence facilities by the State Govt. and by the State Govt. under ***Atma-nirbhar*** Bharat and also opportunities for employment in shining sector of solar energy. The Govt. also has simplified the process of licensing and loans, however, there seems to be more efforts to make it aware to the graduating students though campaigns and seminars at college and University level. The Heads of the Placement Department of each HEIs may play significant role in disseminating the information about schemes and opportunities in Solar Energy Sector to their graduating students. The research paper would contribute to be a referal guide or torch bearing in formation of blueprint for new startups, entrepreneurs, and employment generation in shining solar sector in Jharkhand State.

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