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International solar alliance for clean energy: A case study

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Abstract
Energy is the first need for run one machine and give light to live a happy life. This energy can be produced both renewable and non-renewable way. Renewable way of sources is eco-friendly and non-renewable sources is totally damaged the throat of environment. In the name of development day by non-renewable sources are consumed, therefore a question marks for future generation for preservation. The present research may explore the importance of solar energy for reducing climate change. Solar Energy has a role in delivering clean energy, thereby reducing environmental pollution and promoting the heath of the society. The paper analyses some of the aspects of environmental pollutions and the role of International Solar Alliance in it. Through different field survey, it may show the target of ISA that has been taken for achieving by 2030.

Keywords: Environment, sustainable development, climate change international solar alliance

Introduction

Man is a social animal, who lives in society. Therefore, the primary duty of human beings to preserve the environment and society for the fulfillment of the present generation needs and also future generations. It is depicted that in the environment both factors have their role and if one factors may be affected in both factors then it automatically effected to the other factors. All are connected to each other. In our environment, two types of organisms can be found such as Biotic and Non-Biotic. It is assured that Biotic means living organism and Abiotic are non-living organism. Both have their role in the environment and society, but depends upon their nature and behavior how they may make in front of environment. According to Rousseau 'Man born free but, everywhere in chains. It can be summarized that when one child takes birth at that time unknown about the environment. Gradually and intonationally, when it comes the effect of environment, starts to know about environment and it also follows the path both positive and negative things on environment that other going on the same path. As Nature is the gifted of God, so it becomes the duty of everyone for preservation and maintained for both present needs and sustained for future one needs. The most world-famous definitions, which is given by Brundtland Commission Report, 1987, that "Sustainable Development is that development, which meets the needs of present generations, without compromising for future generations needs". Therefore, it can be evaluated that we should utilize the resources in such a manner, so that it can preserver or fulfill the present generations needs and also make some utilizing things for future generations. As for the environment sustainability and environmental growth, two natural sources can be found that is Renewable and Non-renewable sources. It is embraced that Renewable sources are just as a continuous process of using sources and can be recycled again and again. On the other hand, Non-renewable is an ending process and cannot be recycled many more times. The non-renewable sources are always a source of environmental pollutions and it brings the whole environment as a process of dark. The present research may process the energy sources. Energy can be produced in both renewable and non-renewable way. It is taken that; Coal is a non-renewable source and its make pollutions to the environment during the time of producing electricity. According to *Ministry of Coal* the production of electricity from Coal is 75% of total power generation (Ministry of Coal, Retrieved :19 Feb, 2024). No doubt, it can fulfill the present generations electricity needs but it is also questioning marks for the upcoming generations, because of its pollutions and increase of over populations. Therefore, the alternative ways we can produce electricity from solar. It is an eco-friendly and sun light can be abundantly found in our earth. This paper may also explore the role of solar energy and the great initiate that is taken by India and France that is *International Solar Alliance.* As per the target of India, by 2022, it may produce 175GW electricity from Renewable energy and only 100GW may come from solar energy. Again, it has also kept a target by 2070, it may make the country as Zero Carbon emission

Review of Literature

To make the role of India in International Solar Alliance, different article has been reviewed. Ghosh and Chawla explained that till 2015, it was a decade of fossils fuels, but after 2015, the renewable resources have beaten the fossil fuels and gave importance of using clean energy sources. After the establishment of *International Solar Alliance*, it reduced the technology price and the bulk of clean energy investments have been bypassed the developing countries like India. They depicted that "for financial solutions a *Common Risk Mitigation Mechanism (CRMM)* that may incorporate three categories of risks – off taker, currency and political. Therefore, it is mentioned that a multi-risk and multi-country approach may help for reducing any single country investor pr project developer" (Gosh and Chawla, 2021). Shodore and Busby depicted in their article that "the first an International Headquarter of ISA was established in India and the aim of this organization is to promote of solar electricity for reducing the use of fossil fuels. It is a question marks that how India can achieve the geopolitical reward from ISA as because of its limited financial support. It can be examined that India has taken the leadership because of its domestic market and recent success of its scaling-up solar. There are many obstacles Infront of India to come in

the achieving its target by 2030, 1000GW electricity and therefore it should include overcoming challenges such as domestic solar program, ensuring institutional strength and finally it may take out in a crowded global renewables ecosystem of organization" (Shodore and Busby, 2019). Astarita and Hulshof, in their article make an assessment "that ISA was made for achieving three important goals as- "firstly for reducing the cost of solar energy, secondly the reducing the demands of energy needs in developing countries and finally fight against the reattribute obstacle of climate change. For achieving these goals, ISA has been taken many initiatives and making different policy, programmes and financial support progrmamme. They made a point that to achieve the ISA goals, there should be made a coordination in other areas such as Wind energy and hydro energy" (Astarita and Hulshof, 2023). From the above discussion, it can be enumerated on the background of International Solar Alliance is one of the forthcoming organizations that can be useful for mitigation of climate change. Climate change is the biggest problems that not a country can solve it. It is just like a spider net and it continuously spreads its nets. Therefore, different authors gave importance in their article about how ISA can be best alternative for mitigation of climate change and it can fulfill for the energy needs.

Research Methodology

The research has been done both normative and empirical way. Data has been collected both primary and secondary sources. Personal interview has been done with stakeholder, who installed the solar system through PM-KUSUM scheme. The secondary sources have been collected from articles, different journal, government reports etc.

Environment

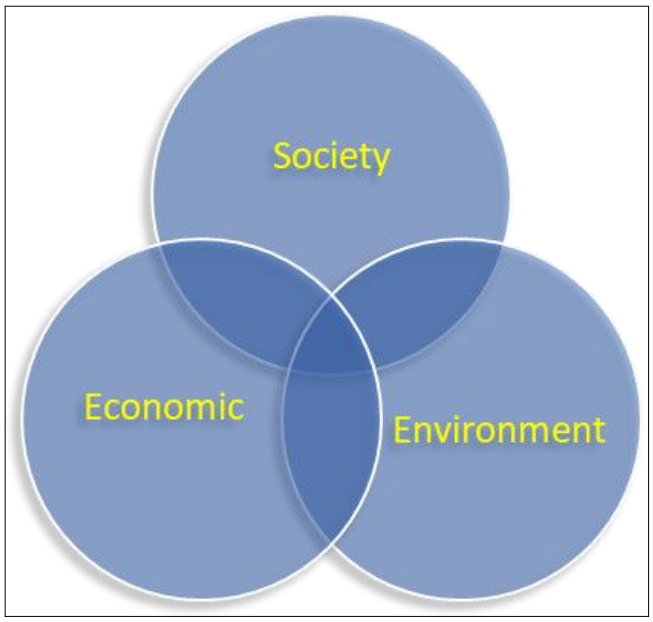
Generally, it is understood that Environment means the surrounding or covering the four side of human beings and it includes the trees, rivers, hills, Biotic and Abiotic things. It provides us food, shelter and cloth for living a healthy and prosperous life. Again, it is known that if an environment is wealthy then its growth of childhood also keeps a healthy and not chance of any disease. But now in 21st century in the science and technology age, when we are saying a wealthy environment, it becomes an imaginations thing for present and future generations. In the name of the word development, day by day natural resources are consumed that is also a question marks, because in the race of fulfill the needs of present generation's needs, it is bringing more and more pollutions. Through environment, we can find two sources such as renewable and non-renewable. Generally, it is known that renewables mean that can be renewed again and again and non-renewable means that cannot be recycled but at present scenario it is a also a threat renewable resources that a huge or overburden used of Water, the level of ground water is decreasing day by day. It can be overlooked the 100 years, then within digging of 5 foots, water sources were seen, but now in 100 foots opening, it is just like of Dust coming. On the other hand, when the over loading of using coal, as it is a non-renewable source and it cannot be recycled, still in the name of development and fulfill the present generations needs a huge amount of Coal is burned in Thermal Power station, which is biggest question of climate change.

Climate Change

Basically, when we say or understand about climate change means changing in climate, that means during rainy seasons, we can feel the summer seasons. This thing is happening because of our unnecessary harming of environment. Because of climate change, now different types of new diseases emerges that a questions marks for doctor to cure the patients. Yearly basic different types of COP (Countries for Parties) are organizing and discussing for mitigation of climate change. But it is in only theoretical form of discussion and in practically same things of pollution levels increases. It can be examined one area that "Odisha government took a decision for the establishment of Thermal Power Plant as proposed by National Thermal Power Corporation (NTPC) at Darlipali in Sundergarh district with 4800MW electricity can be produced with three phases of 1600MW. It is enumerated that 200 years of Coal is deposited in Dulanga village and estimated of 7 million tons per annum of cola will be burned" (Global Energy Monitor, Retrieved: 2024, Feb 20). Now doubt for development and fulfillment of energy need, different Thermal Power Plant can be established but it should also focus the alternative way policies, otherwise it may totally destroy the environment and natural resources will be an imagination concept for future generations. It can be said that whenever, any type of policies is made then it will be given importance for strict rule like COVID-19, because of strictly rule todays all countries could secure its people. Therefore, it can be rightly said that, resources should be utilized in that way it should not harm environment and also fulfill present generation also keeps for future generation, then only the United Nations has been given the importance and development of concept of Sustainable Development.

Sustainable Development Goals

Development and developing are connected to each other. When it is said developing, it is rectified as on the development process. But when it is said that Development, it means, already reached in the success path. This development can be achieved or reached the top level by using the environment positively and negatively. In 21st century, all countries are trying on the path to keep their position as a 'Development Country'. So, it is really looked as devastation of environment. In 1987 Brundtland Commission made a report on the definition to understand sustainable development is that "Sustainable Development is that development, which meets the needs of present generations, without compromising for future generations" (WCED). Therefore, it is included that, the path of development should be done in such a manner it may continuously fulfill the present generations needs and also should keep or think for future generation for the utilization of resources. At present time, due to growth of population it is also a question marks for fulfillment the needs of all people. It should be given importance for utilization of renewable resources and it is the eco-friendly resources. Sustainable Development gives important on the three pillar such as '*Society, Economic & Environment'*. All are concerned to each other and it is just like a body parts, because if one parts of body become unusably then other parts faced problems. Like that if three pillars of SDG will not work then whole system will be collapsed.



In this perspective, it can be evaluated that economic problems are also main obstacles for the devastation of environment. History makes that, during ancient time people used to search food for their existence and given protection to environment, but todays, this protection is made in the name of business. Now due to lack of economic factors, poor people make the forest as a source of income and continuously cutting trees and selling for fulfilment of their belly.

International Solar Alliance

Through Alliance, one country fulfils its needs against other countries. *International Solar Alliance* is a joint "collaboration of India and France for making efforts against climate change. This alliance came into effects on sidelines of 21st Conference of Parties (COP21) to the United Nations Framework Conventions on Climate Change (*UNFCCC)* which was held in Paris in 2015. It is a collaborative platform among the 120 Tropical Cancer and Tropic Capricorn countries for the deployment of solar energy for installation of solar panels. It gives important to energy security for mitigation of climate change. It has kept a target "that by 2030, to mobilise 1000 billion of investment in solar energy solution and 1000 million people using clean energy solutions. Basically, it gives important on three priority areas such as Analytics & Advocacy, Capacity Building and Programmatic support" (*ISA.org*).

India is playing a major role to achieve its goal by 2030. Now government of India has been taking many initiatives for establishment of solar installation. Again, every country of the world, now focus on clean energy, because they are aware and the more divesting problem of climate change grasp to every country of the world.it can be rightly said that climate problems is not a single problem for one country, rather its spreads all over the countries of world. At present in India, Rajasthan is the in top rank of producing of electricity from solar and Gujarat holds the top rank in producing electricity from wind turbine. As per the United Nations Sustainable Development Goals by 2030 targets, now all countries have an institution to achieve it. Like in India, there is an institution such as NITI Aayog which is worked as a guide and gives suggestions to all countries and makes policy for achieving all 17 goals.

In the first assembly of ISA in 2018, Prime Minister Narendra Modi made a green initiative as *One Sun One World One Grid (GGI-OSOWOG)*. It means that not only make a cooperation for sustainable but collaboratively works for green energy governance as the motto of G20 that is *'Vasudeva Kutumbakam- One Earth, One Family, One Future.* It shows that the whole world as a family and therefore one should think for the protection of India.

To know the effective works of installation of solar energy different survey has been considered:

Case Study 1

As per the government of India, through Ministry of New and Renewable Energy of India, different policies have been taken for installation of clean energy. One survey has been done in Ananda Vihar, Burla Odisha. It is the head quarter of MCL, where the whole office is run through solar energy. When this project was installed at that time it was very difficult for land aquation. It has been targeted to produce 20,00,000KW energy per day from solar panels. But there is no buy-back system to energy department. It shows that for installation of solar energy, it needs the more land and different departments should gave importance on buy-back system.

Case Study II

Now different educational installation also gives importance on clean energy governance. They are encouraging to the students for the utilization of clean energy like solar in their home, because it can make to the environment friendly and reduce the electricity cost. A survey has been taken in Sambalpur University, Odisha. It is a public university and run by government of Odisha. Around 245KW solar power project has been installed in the university campus. According to Register of the University, explained that with the help of REC (Rural Electrification Corporation Limited) and OREDA (Odisha Renewable Energy Development Agency), the project has been estimated cost of Rs. 3.5 crore. It has been installed in hostel and academic block. In this survey it was found that around 1800 hostels both boys and girls are getting benefits. According university report around Rs 70 lakh per annum, electricity bill is paying to the electric department per year. Students remarks that now they are not facing electricity cutting during rainy, summer and winter. Within 24X7, electricity available in the hostel, so that their study is not getting any effects. it shows that if all the university may run through clean energy governance, then it may reduce electricity cost and this money can be utilized for the development of students. It is also found that the amount of hostel admission charging fess has been reduced because of this project. Again because of solar project, now students 13 hours in the Central Library, they use computer easily. In this way, different universities of Odisha, now focus on to install solar system in their universities. Now government has also given subside for buying electricity cycle for the universities employees with 50% will be provided by them only. It is accepted by all employees and students. It is really a great initiative for government and cooperation of universities.

(**Golden Jubilee Boys Hostel, Sambalpur University (Odisha)**

Case Study III

India is a country of agriculture. Around 75% people depend upon agriculture for the survive of their life. If we may look the history, it is found that in ancient time the process of doing or producing crops are totally different as compared to in 201st century. Because it is a time of science and technology and also it makes the farmer easy for producing crops. No doubt technology is a good master for all, but it is difficult part for the maintained of it. PM-KUSUM is a scheme, that is formed by central government for running of water pump through solar panels. According to field survey it was found those who have 2 acers land in one place, they may provide one borewell and that will be run through solar energy. Framers said that because of this project their electricity cost was reduced and they can get more benefits from it. But there is a lacuna of battery system so that during bad weather, farmers face problems. Again, if battery facility may provide them then only, they cam easily make store of energy and through buy-back system they can sell it to the TATA company.

(PM-KUSUM Scheme in Jharsuguda district, Odisha)

Conclusion

Environment makes the life healthy, peace and enjoyable for existence in the earth. Therefore, it becomes our own duty for the preservation and maintained to the department. It should also give importance on using renewable resource. Because it is eco-friendly sources. We should reduce over use of coal for producing electricity and should give importance on clean energy. Then only the goal-7 of SDGs can be achieved. Now the role of India in International Solar Alliance is increasing day by day. It is providing support to other countries and giving technology for initialization of solar system.

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