2nd Global Conference on Agriculture

Berlin, Germany 09-11 Dec 2022

Analyzing Ecosystem for Development of Agrivoltaics in India

Jeevan Kumar Jethani[1*], Shobhit Srivastava[2], Rahul Kumar[3]

[1]Scientist-F, Ministry of New and Renewable Energy, New Delhi, India
[2]Scientist-D, Ministry of New and Renewable Energy, New Delhi, India
[3]Young Professional, Ministry of New and Renewable Energy, New Delhi, India

Abstract

India and a large number of other countries have made commitments to achieve net-zero carbon emissions in short to medium term based on the existing state of emissions and the resources likely to be available in future in those countries. Large solar power plants have been extensively used as one of the tools to reduce carbon intensity of an economy. However, requirement of large tracts of lands solely for setting up such plants becomes a hindrance in progress after a certain point. Increasing population and corresponding increase in the food and energy demands further aggravate the problem. Agrivoltaics, the use of land for solar photovoltaics without disrupting agriculture, as a concept tends to address the vulnerabilities of single land use based solar PV such as land availability and landscape transformation. Further, due to predominant decentralized nature of such projects, transmission losses are also reduced as compared to centralised electrical power generation. This makes agrivoltaics a potential contributor to achieve commitment of 50 % of India's electricity requirement from the renewable energy by 2030. This study analyses the approach towards development of agrivoltaics in India in view of varying agroclimatic zones, technical paraments and policy environment in the country. It delves deep into the factors favoring and those likely to be constraining such development and measures needed to amplify the positive side and attenuate the negative side. With the growing interest in agrivoltaics in India, this study would help in identifying the crucial elements and approaches for promoting agrivoltaics in India.

Keywords: Agriculture, Agrivoltaics, Climate Change, Land use, Solar PV