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Assessing the Viability of Solar Water Pumps Economically, Socially and Environmentally in Soan Valley, Punjab

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Abstract : One of the key solutions to the climate change crisis is to develop renewable energy resources, such as solar and wind power and biogas. This paper explores the socioeconomic and environmental viability of solar energy, based on a case study of the Soan Valley Development Program. Under this project, local farmers were provided solar water pumps at subsidized rates. These have been functional for the last seven years and have gained popularity among the local communities. The study measures the economic viability of using solar energy in agriculture, based on data from 36 households, of which 12 households each use diesel, electric and solar water pumps. Our findings are based on the net present value of each technology type. We also carry out a qualitative assessment of the social impact of solar water pumps relative to diesel and electric pumps. Finally, we conduct an environmental impact assessment, using the lifecycle assessment approach. All three analyses indicate that solar energy is a viable alternative to diesel and electricity.

Keywords : alternative energy sources, pollution control adoption and costs, solar energy pumps, sustainable development
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