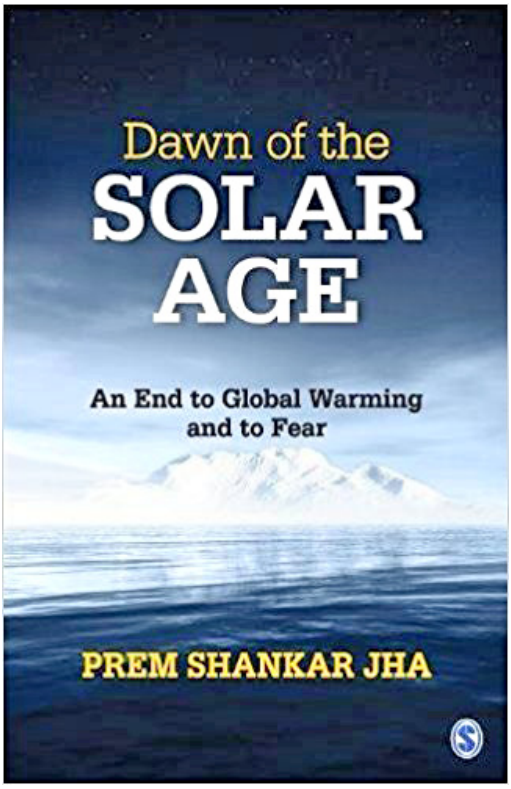
Book Review



Dawn of the Solar Age: An End to Global Warming and to Fear—Prem Shankar Jha : Published by SAGE Publication Pvt. Ltd. 2018, Paperback 495, Pages 280

Climate change and global warming is a fashionable topic of discussion, research, and analysis these days. It is striking to note that the number of papers published on this subject rose from a few hundreds in 1980 to about 30,000 in 2014; and the rate of publication per year rose steeply from 2002. An analysis of the database of books published on this subject found in WorldCat.org by Matthew Nisbet is amazing. More than 1,80,000 books have been published on energy conservation and renewable energy; more than 65,000 focused on biodiversity, species, and natural resource conservation; more than 40,000 focused on sustainable development and the environmental aspects of globalization; more than 34,000 on climate change, global warming, or global environmental change; and more than 6,000 books on over-population and population policy since 1970. But Prem Shankar Jha's book titled "Dawn of the Solar Age; An End to Global Warming and to Fear" is an exception and stands out in the stack of books due to its in-depth discussion of all aspects of global warming. All arguments are substantiated by appropriate references. All these are expected from a veteran columnist, a person who served as a member of the Energy Panel of the World Commission on Environment and Development and was an information adviser to a former Prime Minister of India.

The purpose of the book is not to discuss the threat and paint a bleak future to ring an alarm bell. Jha is not an alarmist but a solution seeker who spelt out solutions to end global warming. The two important aspects that he has emphasized on in the book are replacement of non-renewable energy resources like coal, oil and gas by solar thermal power and replacement of transport fuels by gasifying solid waste to produce methanol as a substitute to gasoline. Jha arrived at his conclusion by meticulously analysing all alternative renewable energy resources like wind, hydro, geothermal, nuclear not only from a commercial point of view but also from its long term sustainability, supported by appropriate references. The statement made by the author in the Preface "the book is not to add one more voice to the raising clamour of alarm" is very true.

The best energy solution advocated in this book is to harvest solar energy using concentrated solar power (CSP) plants to supply electricity even when the sun does not shine, which was one of the great disadvantages of using solar power. The most important advantage of CSP plant is that it can store sun's energy at a negligible cost, not as electricity but as heat. The potential of CSP plants to replace all other power generating technologies including nuclear, lies in its ability to retain more than 95% of the heat fed into them for 24 hours or longer and its capability to supply power on demand. A strong alternative candidate to solar energy is the solar photovoltaic power (SPV). The author has meticulously compared the two in terms of feasibility and economic viability and demonstrated that the CSP plants with further improvements will be better saviour of humanity. However, there is no conflict between SPV and CSP. The world needs both.

The author also discussed how the lure of 'over the horizon' technologies took up the place of well-established or proven technologies, shunting the development of older

technologies, but producing no tangible result in a reasonable time frame as envisaged. Examples are hydrogen-fuelled automobiles, carbon capture and storage (CCS) to capture carbon dioxide from the atmosphere and store it underground. The author explains why all such technologies have either been abandoned or reached a dead end. Another blatant example is ignoring the established methodology of converting biomass to methane which is simple and environment friendly, and going for production of ethanol influenced by unfounded fear, political and market economy.

Methanol, with all the flame properties of ethanol can be produced from biomass with same ease as ethanol produced from starch. Methanol was used as a transport fuel in 1943 during the Second World War and it can be produced from any kind of biomass waste like sewage sludge, municipal solid waste (MSW) including plastics, agricultural residues etc. A rough estimate done by the author for a city of one million inhabitants and 100,000 tonnes of dry refuse (sorting the inorganic matter) may produce 35,000-50,000 tonnes of transport fuels every day using appropriate technology. The non-tangible result is to get a cleaner city with improved public health with less respiratory, gastro-intestinal and other problems.

The book will be an eye-opener to the readers to who will understand how market economy and politics play a role in supporting some technologies, ignoring or discouraging old but proven technologies. Industry's fascination with unproven and untested technologies serves the interests of big business in many ways. In order to minimize the obsolescence of investments made, investors sometimes try to slow down the pace of technological change. The author remarked "the market economy endangered the future of mankind to ensure the profit for the few".

The entire book is neatly written in a simple and smooth language easily understandable by all strata of readership. I congratulate Mr. Jha for presenting such a wonderful book and recommend to all persons concerned with climate change, global warming and more importantly, who would like to leave a cleaner world for the upbringing of the next generation. ❐

S.C. Roy
e-mail: editor.scienceandculture@gmail.com