



*“Gheorghe Asachi” Technical University of Iasi, Romania*



---

## **ROLE OF CLEAN ENERGY FOR THE ATTAINMENT OF SUSTAINABLE LIVELIHOOD: A CASE STUDY**

**Shiv Sankar Das<sup>1</sup>, Debashree Debadatta Behera<sup>2</sup>, Ramesh Chandra Mohanty<sup>2\*</sup>,  
Bijaya Bijeta Nayak<sup>3</sup>, Akankshya Patnaik<sup>4</sup>, Chinmaya Kumar Dash<sup>1</sup>**

<sup>1</sup>*School of Management, Centurion University of Technology and Management, Bhubaneswar, Odisha, India*

<sup>2</sup>*Department of Mechanical Engineering, Centurion University of Technology and Management, Bhubaneswar, Odisha, India*

<sup>3</sup>*School of Mechanical Engineering, KIIT University, Bhubaneswar, Odisha, India*

<sup>4</sup>*Department of Management Studies, National Institute of Science and Technology (Autonomous), Berhampur, Odisha, India*

---

### **Abstract**

Poverty eradication and environmental sustainability are the two most serious concerns in the present day. Electricity has now become an important component of the country's economic success. Consumption has altered dramatically with the rising demand for power and its generation from coal, and electricity. The use of unclean energy from coal, petroleum, and other unclean sources will run out in due course of time and must be replaced by clean energy sources. Rural people face many energy-related issues such as availability, dependability, affordability, cost, drudgery, pollution, safety, and health-related issues. The objective of this paper is to develop a conceptual framework for diffusion of clean energy products in rural areas of the South Odisha. Methodology consists of a descriptive case study for application of the framework, and various actors, factors have been found out for each case. The first section focuses on the background of the study comprising of clean energy, quality of life, sustainable livelihood security, the classification of clean energy products. The second section proposes a conceptual framework for diffusion of clean energy products in rural areas followed by two case study. The first case study emphasises on sustainable energy service paradigm in which solar energy operated 'Jana Sewa Kendra' (Public service center) has been established in Nabarangpur District of South Odisha, India and the last case study focuses on the role of using a clean energy product called Solar Energy Operated Cold Storage System (SEOCSD) which is utilized by rural farmers of the Ganjam District in South Odisha to enhance their quality of life. An action research method of partial intervention in the ecosystem for the applicability of the framework has been undertaken. This study helped to create an enabling ecosystem for the diffusion of clean energy products and services in the rural region of South Odisha in specific.

*Key words:* clean energy, ecosystem, solar home lighting systems, sustainable livelihood

*Received: December, 2022; Revised final: December, 2023; Accepted: February, 2024; Published in final edited form: April, 2024*

---

\* Author to whom all correspondence should be addressed: e-mail: [rcmohanty@cutm.ac.in](mailto:rcmohanty@cutm.ac.in); Phone: +91-7978941474