

SPECIAL REPORT

Solar Energy Application for Reducing Fishing Operational Cost in Bang Saphan District, Prachuap Khiri Khan Province, Thailand

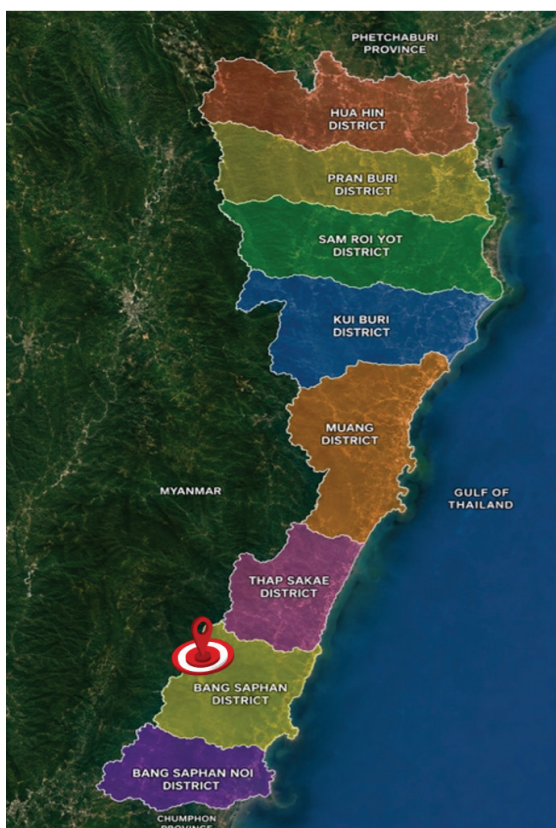
SEAFDEC Training Department



Bang Saphan District is one of eight districts in Prachuap Khiri Khan Province, Thailand, comprises seven sub-districts: Kamnoet Nopphakhun, Phong Prasat, Mae Ramphueng, Thong Chai, Ron Thong, Chai Kasem, and Thong Mongkhon. Fisheries in Bang Saphan District play a vital role in the local economy, supporting household incomes, employment, and community-based coastal resource management. According

to the Bang Saphan District Fisheries Office (as of 25 July 2025), there are 11 fisheries-related community organizations operating in the district. Of these, nine are directly engaged in small-scale coastal fisheries, representing approximately 451 registered members and around 400 fishing vessels. However, local records indicate that the total number of small-scale fishing vessels in the area is approximately 750, suggesting that a significant proportion of fishers remain outside formal organizational structures.

Fishing activities in Bang Saphan District are highly diverse, with a wide range of gears including handlines, squid gillnets, crab gillnets, traps, longlines, and other selective fishing gear targeting multi-species coastal resources. Despite their importance, small-scale fishers face increasing operational challenges, particularly rising fuel costs, fluctuating fish prices, declining fish stocks, and climate-related risks. These challenges have intensified the need for innovative, cost-effective, and environmentally sustainable technologies to support fishing operations.



Map of Prachuap Khiri Khan province



1. Rationale for Solar Energy Application

Due to rising fuel and energy costs have become a major constraint on the profitability of small-scale fisheries in Bang Saphan. Fishing operations require energy for navigation lights, communication systems, battery charging, and onboard equipment. Dependence on fossil fuels increases operational expenses and contributes to greenhouse gas emissions.

Solar energy presents a practical and sustainable alternative. As a clean and renewable energy source, solar photovoltaic (PV) systems can reduce fuel consumption, lower operating costs, and improve energy efficiency. In addition, solar energy supports environmental conservation by reducing carbon emissions and promoting climate-smart fisheries practices.



2. Collaboration and Implementation

Recognizing the importance of this potential to improve energy efficiency and reduce operational costs, the Fisheries Development and Restoration Group, Marine Fisheries Division, Department of Fisheries (DOF) Thailand, in collaboration with SEAFDEC/TD, implemented a training program on the application of solar energy in small-scale fisheries.

The DOF Thailand provided technical coordination, stakeholder engagement, and participant mobilization, while SEAFDEC/TD contributed technical expertise, training materials, and hands-on demonstrations on solar energy systems for fishing vessels. This collaboration aimed to integrate local fisheries development needs with appropriate renewable energy technologies, ensuring practical relevance and applicability.

The training program aims to:

- Enhance understanding of solar energy and renewable energy applications in fisheries
- Provide technical knowledge on solar photovoltaic (PV) system components and operation
- Develop practical skills in selecting, installing, and maintaining solar systems
- Promote cost reduction strategies for small-scale fisheries through solar energy
- Encourage environmentally sustainable and climate-smart fisheries practices

The Training combined classroom lectures, technical presentations, case studies, and hands-on practical exercises. These activities strengthened technical understanding and built confidence in applying solar systems in real fishing operations.

After completing the course, the training confirmed that:

- Solar energy is a viable solution for reducing fishing operational costs
- Fishers can significantly reduce fuel consumption and battery charging costs
- Knowledge and skills in renewable energy can be effectively transferred to local communities
- Practical training significantly improves technical competency

The program demonstrated that solar photovoltaic systems can:

- Reduce operational costs in fishing activities
- Improve energy efficiency and reliability
- Extend battery life and reduce maintenance costs
- Support climate-friendly and sustainable fisheries development

The training on solar energy application in small-scale fisheries in Bang Saphan District successfully achieved its objectives by strengthening knowledge, skills, and awareness among fisheries stakeholders. 