

Solar powered cool boxes to improve shelf life and hygiene of fish sold in retail markets

Globally about 10 million tons of fish constituting 10% of the fish catch is lost due to post harvest spoilage and is not available for consumption. This loss can be reduced substantially by making cold-chain facilities available to the retail vendors. Grid electricity is expensive and not available throughout the year in rural areas. Icing of fish is preferred, but ice is either not always available or is expensive. Abundantly available green energy in the form of solar power offers vast potential to develop cold chain systems for preservation of fish. The goal of this project was to develop a storage cabinet for fresh fish using solar cooling technology. Solar coolers can help store fish longer and in a hygienic way and can reduce economic losses due to quick spoilage of fish. Solar energy is captured by photovoltaic cells in a solar panel and transmitted to a battery for storage. Solar panels generate 12V direct current which can be stored in a battery for use during non-light hours. The battery supplies required power to the compressor of the cooler which in turn cools the storage cabinet.

Salient features of the technology:

- The solar fish cooler developed under this project can hold 50 kg of fish.
- The cooler can achieve a temperature of -20°C. However, fish intended to be sold in retail market can be stored at 0 to 5°C, which will lower the consumption of power and prolong the storage period.
- The cooler is mounted on a specially designed mobile unit made of stainless steel.
- The panels can be rotated in the direction of sunlight.
- The unit has been demonstrated to fisherwomen of Versova, Mumbai and is also being installed in the fishing boat of ICAR-CIFE, Mumbai.

Technology Developed:



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