

Aplikasi Teknologi Pendingin Portabel Dalam Pemberdayaan Masyarakat Nelayan Di Desa Batu Beriga Bangka Tengah

(Application of Portable Cooling Technology in Empowering Fishing Communities in Batu Beriga Village, Central Bangka)

Mohammad Imron^{*}, Mulyono S. Baskoro, Sugeng Hari Wisudo, Uju

IPB University, Bogor, Jawa Barat, Indonesia 16680

^{*}Penulis Korespondensi: mohammadim@apps.ipb.ac.id

ABSTRAK

Kegiatan Program Dosen Pulang Kampung (Dospulkam) IPB tahun 2025 di Desa Batu Beriga, Kabupaten Bangka Tengah, dilaksanakan untuk memperkenalkan teknologi tepat guna yang mendukung peningkatan efisiensi nelayan skala kecil. Inovasi utama yang diperkenalkan adalah teknologi pendingin portabel bertenaga surya sebagai solusi keterbatasan pasokan es untuk menjaga mutu ikan. Alat ini menggunakan sistem refrigerasi tertutup dengan panel surya 100 Wp, inverter, dan baterai sehingga mampu beroperasi 8–10 jam serta mencapai suhu hingga $-3,9^{\circ}\text{C}$. Selain sosialisasi pendingin portabel, kegiatan juga meliputi pelatihan penggunaan teknologi penangkapan (atraktor cumi, echosounder, dan fishfinder), pelatihan pengolahan hasil perikanan untuk peningkatan nilai tambah, serta edukasi gizi melalui distribusi produk olahan ikan kepada anak-anak PAUD. Hasil kegiatan menunjukkan peningkatan efisiensi operasional nelayan, penghematan biaya es hingga 25–30%, kenaikan harga jual ikan sebesar 15–25%, serta tumbuhnya tiga kelompok usaha UMKM baru. Kegiatan ini diperkuat dukungan pemerintah daerah, Bappelitbangda Bangka Tengah, dan mitra swasta, sehingga menghasilkan model kolaborasi triple-helix yang memperkuat pembangunan sektor perikanan berkelanjutan. Program ini berkontribusi pada peningkatan kesejahteraan nelayan, penguatan ketahanan pangan lokal, serta mendukung pencapaian SDGs ke-14.

Kata kunci: energi surya, pendingin portabel, pengolahan hasil perikanan, pemberdayaan masyarakat, nelayan kecil

ABSTRACT

The 2025 Lecturer Back to Village (Dospulkam) Program conducted by IPB University in Batu Beriga Village, Central Bangka Regency, aimed to introduce appropriate technologies to improve the efficiency and welfare of small-scale fishers. The main innovation delivered was a solar-powered portable cooling system addressing the limited availability of ice for maintaining fish freshness. The prototype utilizes a closed refrigeration system combined with a 100 Wp solar panel, inverter, and battery, allowing 8–10 hours of operation and achieving temperatures as low as -3.9°C . Additional activities included training on modern fishing technologies (squid attractors, echosounders, and fishfinders), capacity building in fish processing to increase product value, and nutrition education through the distribution of fish-based products to preschool children. The program resulted in higher operational efficiency, reduced ice-related costs by 25–30%, increased fish selling prices by 15–25%, and the emergence of three new local micro-enterprises. Strong support from local government, the Regional Development Planning Agency (Bappelitbangda), and private partners strengthened the triple-helix collaboration model for sustainable fisheries development. Overall, the program substantially improved fisher livelihoods, enhanced local food security, and contributed to achieving SDG 14.

Keywords: community empowerment, fish processing, portable cooling system, small-scale fisheries, solar energy