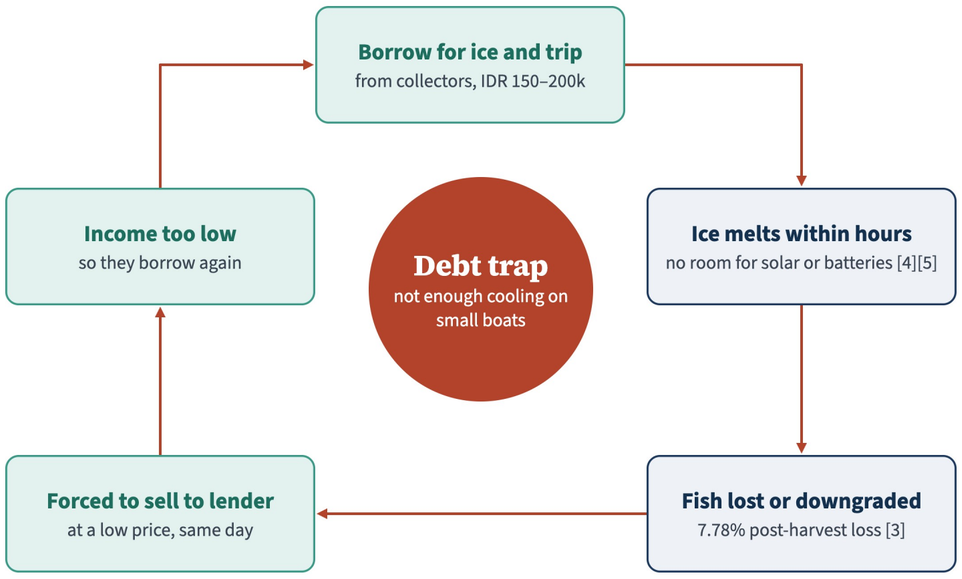
Fishers are trapped in a cold-chain debt cycle

Today every trip ends in loss, low prices and new debt. Closing the gap needs cooling that fits small boats, lasts for days and pays for itself.

1 · Current state: the debt cycle



2 · The gap

Not enough cooling on board
Ice runs out, and small boats have no room for solar panels or batteries.

Cold lasts hours, not days
Block ice melts within hours at sea; longer trips and inland routes need far more.

Equipment, no business model
Without operators and buyers, facilities often stop working.

Nothing is measured
No temperature records or emissions data, so no proof of freshness and no carbon finance.

3 · Desired state

Cooling that fits on board
Reusable cold packs need no panels or batteries on the boat.

Fish kept cold for days
PCM cold packs held a cooler box below 0 °C for four days in partner tests [P].

Operators and buyers in place
Cooling earns fishers more; low-value catch becomes income for women's groups.

Cold chain on record
Temperature logs prove freshness; measured cuts open IDXCarbon and JCM [9].

if nothing changes

4 · Consequence: it spills over into

Boys leave school
to work as crew instead of finishing school

Low-value fish wasted
sold cheaply or thrown away; women miss a processing income [7]

Diesel ice and trucks
shipping, incl. traditional boats, ≈19% of Indonesia's CO_2 [6]

No proof of freshness
meltwater can contaminate fish; no temperature record [4][5]

Our field studies 2026 · Published sources

Nelavo: PT Inovasi Tangguh Bencana · SAKIGAKE JAPAN

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