

Supplementary

**Table S1. Indicators used in the Aquatic Food Security Index (AFSI) framework**

Dimension	Indicator	Description	Unit	Data Source	Year
<b>Ecological Integrity (EI)</b>	Shannon Diversity Index	Composite measure of fish species diversity	unitless	Field survey, Maejo University (2023)	2023
	Simpson Dominance Index	Relative dominance of abundant species	unitless	Field survey, Maejo University (2023)	2023
	Species Richness	Total number of native freshwater species	species count	MJU Aquatic Resources Database	2023
	Habitat Quality Score	Derived from land use and riparian vegetation	0–1	GISTDA, LDD (Land Development Dept.)	2022
<b>Food Access (FA)</b>	Market Accessibility	Average travel time from community to nearest fish market	minutes	Google Earth Engine (Travel Time Raster)	2023
	Cold-chain Coverage	Presence of cold storage and refrigerated transport	0–1	DOF, Private logistics survey	2023
	Household Fish Consumption	Average monthly per capita fish intake	kg/capita/month	NSO Household Consumption Survey	2021
<b>Value Chain Resilience (VCR)</b>	Seasonal Volatility Index	Coefficient of variation of fish price over 12 months	unitless	DOF Price Monitoring	2022–2023
	Informal Trade Intensity	Estimated daily transaction of unregistered trade	THB/day	Provincial Market Office, DOF	2023
	Local Enterprise Share	Proportion of local fish enterprises to total	%	Provincial Commerce Office	2023
<b>Governance Leverage (GL)</b>	Local Co-management Presence	Existence of fisheries co-management groups	binary (0–1)	DOF–Community Fisheries Register	2023

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<b>Spatial Vulnerability (SV)</b>	Budget Allocation to Aquatic Resources	% of provincial environment budget	%	Provincial Administrative Organization	2023
	Policy Participation Index	% of community groups engaged in decision-making	%	Field survey (stakeholder interviews)	2023
	Flood Exposure Index	Weighted flood frequency (2010–2023)	0–1	GISTDA, RID Flood Risk Map	2023
	Drought Frequency	Number of drought events per decade	events/10 yr	RID, DWR	2010–2023
	Ecosystem Service Overlap	Spatial Jaccard index between ecosystem and protection zones	0–1	GISTDA, ONEP	2023