

Supplementary Table S7. Node Attributes of the Analytical Cases Included in the Network Analysis (2013–2018). Note: This table presents the full list of nodes and their attributes for 20 studies (2013–2018). In the network generated for individual case analyses, each actor is represented as a unique node with attributes including a short, unique identifier (ID), the full institutional or actor name (Label), the helix category (Government, University, Industry, or Community), explicitly stated roles (semicolon-separated), and engagement level (Central or Supporting). Nodes are color-coded by helix for visual clarity: Government = Red, University = Green, Industry = Blue, and Community = Orange. Visualizations of these networks can be found in the corresponding figures presented for each individual case.

Case	ID	Label	Helix	Role	Engagement
1 (SID-a90)	AgriBiz	Local Agribusiness Enterprises (AFNR-related)	Industry	Practice partners; mentors; market feedback providers; enterprise incubation supporters	Supporting
	Alumni	Alumni of Participating SUCs	Community	Employment and self-employment actors; tracer study respondents; outcome feedback providers	Supporting
	BicolU	Bicol University	University	Model institution; benchmarking and exposure source	Supporting
	CLSU	Central Luzon State University	University	Model institution; benchmarking and exposure source	Supporting
	DOST-PCAARRD	Philippine Council for Agriculture, Aquatic, Forestry, and Natural Resources Research and Development	Government	Primary funder; policy enabler; strategic oversight provider; system coordinator; infrastructure and equipment financier; monitoring and accountability body	Central
	Farmers	Local Farmers	Community	Practice partners; production hosts; providers of contextual production knowledge	Supporting
	JHCSC	Josefina H. Cerilles State College – Dumingag Campus	University	Knowledge producer; curriculum implementer; enterprise-based learning facilitator	Central
	JRMSU_K	Jose Rizal Memorial State University – Katipunan Campus	University	Knowledge producer; curriculum implementer; faculty and student training provider	Central
	JRMSU_T	Jose Rizal Memorial State University – Tampilisan Campus	University	Knowledge producer; curriculum implementer; faculty and student training provider	Central
	Students	Students (AFNR Programs, 2nd–5th year)	Community	Trainees; enterprise implementers; income-generating project operators	Central
	UPLB	University of the Philippines Los Baños	University	Model institution; benchmarking and exposure source	Supporting
	WMSU	Western Mindanao State University	University	Knowledge producer; curriculum developer; technical implementer; faculty trainer; host of enterprise-based learning	Central
	ZSCMST	Zamboanga State College of Marine Sciences and Technology	University	Knowledge producer; technical and entrepreneurial training provider	Central
2 (SID-a133)	CAO	City Agriculture Offices	Government	Technical support; facilitation of protected cropping interventions; coordination of urban and peri-urban vegetable clusters	Supporting
	Leaders	Cluster leaders	Community	Local governance; coordination of production schedules; monitoring of compliance with protocols	Central

	FarmerClusters	Farmer clusters (29)	Community	Collective production units; collective marketing entities; governance and decision-making bodies	Central
	CRS	Catholic Relief Services	Community	Development partner; funding support; technical guidance; monitoring framework support	Supporting
	DAR	Department of Agrarian Reform	Government	Institutional supporter for agrarian beneficiaries; facilitator of farmer participation in clusters; support for organizational and livelihood development	Supporting
	DTI	Department of Trade and Industry	Government	Market linkage facilitator; support agency for collective marketing; institutional buyer coordination support	Supporting
	Farmers	Smallholder vegetable farmers	Community	Primary implementers; producers; cluster members; beneficiaries of training and innovation	Central
	InstBuy	Institutional buyers	Industry	Buyers of clustered vegetable produce; setters of quality, volume, and delivery specifications; market demand signal providers	Supporting
	LFPI	Landcare Foundation of the Philippines Inc.	Community	Technical assistance provider; sustainable agriculture promoter; capacity-building support	Supporting
	LocalMarket	Local markets	Industry	Sales outlets for vegetable products; absorption of clustered production output	Supporting
	MAO	Municipal Agriculture Offices	Government	Local coordination of farmer clusters; extension services; facilitation of training and cluster meetings	Supporting
	MFI	Microfinance institutions	Industry	Financial support provider; revolving fund facilitation; support for input acquisition and production continuity	Supporting
	PAO	Provincial Agriculture Offices	Government	Technical guidance; agricultural extension support; coordination with universities and development partners	Supporting
	UPMin	University of the Philippines Mindanao	University	Knowledge intermediary; technical facilitator; trainer for farmer capacity building; advisor on production planning and marketing; monitor of crop performance and quality control	Central
	UPMin-UPSTREAM	UPSTREAM (UP Mindanao research units)	University	Applied research support; technical expertise provider; monitoring and advisory support for production systems	Supporting
3 (SID-a177)	ADB	Asian Development Bank	Government	International development partner; supporter of skills training initiatives; workforce development supporter	Supporting
	CallCtr	Call centers	Industry	Alternative practicum sites; providers of customer service and communication skills training	Supporting
	CHED	Commission on Higher Education	Government	Regulator of higher education practicum programs; policy-setting authority; accreditation and compliance authority; issuer of practicum standards and requirements; oversight and monitoring of practicum hours, training areas, and MOAs; eligibility gatekeeper for Level 2 accreditation and international practicum	Central
	CIDA	Canadian International Development Authority	Government	International development partner; supporter of skills development and training initiatives; contributor to workforce mismatch reduction programs	Supporting

	ClusterCoord	Cluster coordinators	Community	Coordination of practicum placements; support for matching students with host institutions; monitoring of practicum implementation quality	Supporting
	DOT	Department of Tourism	Government	Accreditation authority for tourism and hospitality establishments; technical assistance provider; standards guidance body; quality assurance supporter for training institutions	Supporting
	EventsOrg	Events organizers	Industry	Practicum hosts; exposure providers for events management and coordination	Supporting
	ExClubs	Exclusive clubs	Industry	Practicum hosts; hospitality service training providers	Supporting
	Faculty	Faculty members (tourism, hospitality, HRM, travel management programs)	University	Practicum supervisors; placement coordinators; evaluators of student performance; conductors of onsite visits; assessors of practicum reports; feedback collectors from industry hosts	Central
	Hosp	Hospitals	Industry	Alternative practicum training sites; providers of service-oriented experiential learning	Supporting
	Hotels	Hotels	Industry	Practicum host institutions; providers of experiential learning; assigners of industry supervisors and mentors	Central
	LPU	Lyceum of the Philippines University	University	Practicum coordinator; knowledge producer and educator; technical implementer of practicum programs; student placement coordinator; monitor and evaluator of practicum performance; provider of pre-practicum orientation and training	Central
	ProfAssoc	Professional associations (tourism and hospitality-related)	Community	Support for practicum placement coordination; monitoring of practicum quality; industry-academe linkage facilitation	Supporting
	Restos	Restaurants	Industry	Practicum host institutions; training providers in food service and operations	Central
	ServEst	Service-oriented establishments (tourism and hospitality sector)	Industry	Practicum placement providers; operational training environments	Supporting
	Students	Tourism and hospitality students	Community	Practicum trainees; end-users of training systems; participants in experiential learning; beneficiaries of internship and OJT programs	Central
4 (SID-a180)	TravelAg	Travel agencies	Industry	Practicum hosts; exposure providers for travel operations and services	Supporting
	City	City Government Units	Government	End-users of city-level resource maps; planning and monitoring bodies; data application and updating partners	Central
	DA	Department of Agriculture	Government	Sectoral collaborator; data user and validator; integrator of agricultural resource maps into planning	Supporting
	DENR	Department of Environment and Natural Resources	Government	Sectoral collaborator; forest and environmental data validator; resource management planner	Supporting

	DOE	Department of Energy	Government	Sectoral collaborator; end-user of renewable energy resource maps; planning and validation partner	Supporting
	DOST	Department of Science and Technology	Government	Primary funder; program owner; strategic policy enabler; oversight and monitoring body	Central
	DOST-PCIEERD	Philippine Council for Industry, Energy, and Emerging Technology Research and Development	Government	Program administrator; budget manager; technical and administrative oversight; coordinator of participating institutions	Central
	GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	Industry	Technical support partner; capacity building support; monitoring framework contributor	Supporting
	Municipal	Municipal Government Units	Government	End-users of municipal resource maps; local planning and decision-making bodies; field validation partners	Central
	NIA	National Irrigation Administration	Government	Sectoral collaborator; hydrologic and irrigation data user; planning and validation partner	Supporting
	NWRB	National Water Resource Board	Government	Sectoral collaborator; water resource planning authority; hydrologic data validator and user	Supporting
	PEF	Philippine Eagle Foundation	Community	Biodiversity monitoring partner; environmental validation support; conservation data contributor	Supporting
	Province	Provincial Government Units	Government	End-users of provincial resource assessments; renewable energy and watershed planning bodies	Supporting
	ResearchTeam	Researchers and project staff	Community	LiDAR data processors; GIS analysts; field validators; trainers and trainees; human capital base for sustainability	Central
	SUCs_HEIs	Fifteen (15) State Universities and Colleges / HEIs	University	Technical implementers; field validation teams; data processors; preliminary map generators; regional knowledge hubs	Central
	UPD	University of the Philippines Diliman	University	Lead implementing institution; knowledge producer; system designer and workflow architect; developer of LiDAR mapping protocols; national coordinator of university clusters; trainer and capacity builder	Central
5 (SID-a12)	WWF	World Wide Fund for Nature	Community	Technical and monitoring partner; environmental data validation support; stakeholder engagement support	Supporting
	CSU	Caraga State University	University	Knowledge producer; technical implementer; system developer; data processor and analyst; capacity-building provider	Central
	CSU_PhilLiDAR	CSU Phil-LiDAR 1 Project	University	Generator of LiDAR-derived datasets; developer of hydrological and flood models; producer of flood hazard maps; developer of Flood EVIDEns application; trainer of LGU personnel for system operation	Central
	DOST-PCIEERD	Department of Science and Technology	Government	Policy enabler; facilitator of government-university collaboration; provider of access to national LiDAR datasets; oversight body for Phil-LiDAR 1 program implementation	Supporting

	DOST	DOST – Caraga Regional Office	Government	Regional implementing arm of DOST; partnership facilitator between CSU and Jabonga LGU; supporter of capacity-building activities; coordinator for access to LiDAR datasets under Phil-LiDAR 1	Supporting
	Households	Jabonga households	Community	Source of household-level socio-economic data; indirect beneficiaries of improved flood risk assessment and early warning	Peripheral
	LGUs	Municipal Government of Jabonga, Agusan del Norte	Government	End-user of flood hazard maps and decision-support tools; local implementing authority for disaster preparedness; provider of local operational context	Central
	MDRRMO	Municipal Disaster Risk Reduction and Management Office (MDRRMO), Jabonga	Government	Primary local government implementing office; data provider; operational user of Flood EVIDens; disaster planning and response coordinator; participant in capacity-building and system operation training	Central
	PhilLiDAR1	Phil-LiDAR 1 Program	Government	National LiDAR data generation initiative; provider of elevation and geospatial datasets; enabling platform for university-led disaster applications	Supporting
6 (SID-a23)	ASEAN	ASEAN Secretariat	Government	Regional coordinator; policy-level facilitator; funder for regional cooperation activities; oversight body for ASEAN-India project implementation	Supporting
	CSIR	CSIR – National Institute of Oceanography (India)	University	Knowledge producer; field immersion testing; species identification; regional ecological data contributor	Central
	NUS	National University of Singapore	University	Knowledge producer; study protocol designer; taxonomic identification of biofouling organisms; data analyst	Central
	PortAuth	Government Port Authorities (10 Major Ports)	Government	Granting access to port facilities; logistical support for PVC panel deployment; ensuring compliance with port safety and operational regulations; coordinating with research teams during field deployment	Central
	PortSafety	Port Safety and Regulatory Offices	Government	Oversight of safety compliance; authorization of immersion sites; monitoring adherence to port operational rules	Supporting
	PortStaff	Port Authority Personnel	Community	Trainees in biofouling monitoring; participants in species identification training; operational support during panel deployment; data documentation assistance	Peripheral
	SCMSAT	SCMSAT (Centre for Marine and Strategic Studies, University of Malaya)	Government	Regional coordination support; project facilitation; funding administration support	Supporting
	UP	University of the Philippines	University	Knowledge producer; field deployment and monitoring; taxonomic analysis of fouling communities	Central
	Betagi	Betagi-Pomra Community Forestry Participants	Community	Community forest management; land rehabilitation; livelihood improvement	Central

7 (SID-a24)	CADT	CADT / CALT System	Government	Legal recognition mechanism for indigenous land rights; governance framework for customary forest management	Supporting
	CBFM	Community-Based Forest Management Program	Government	Government-enabled participatory forest management mechanism; policy instrument for livelihood and conservation integration	Central
	CustInd	Customary Forest Communities (Indonesia)	Community	Local governance of forest resources; biodiversity conservation; livelihood-based forest use	Central
	Indig	Indigenous peoples under CADT / CALT	Community	Customary forest governance; livelihood generation; stewardship of ancestral forest lands	Central
	Indust	Private economic actors (Unnamed)	Industry	External pressure on forest governance systems; encroachment into customary forest areas; extractive or disruptive influence on community livelihoods	Peripheral
	LocalComm	Local forest communities	Community	Forest management; agroforestry implementation; livelihood diversification; program implementation at ground level	Central
	NatGovs_Various	National Governments (Indonesia, Thailand, Bangladesh, Sri Lanka, India)	Government	Program design; regulation; enforcement; implementation of REDD+ and forest governance programs	Central
	NIPAS	National Integrated Protected Areas System	Government	Regulatory authority for protected areas; conservation enforcement; biodiversity protection	Central
	PNRPS	Philippine National REDD+ Strategy	Government	National policy framework; program coordinator; policy enabler for REDD+ implementation	Central
	ProtForest	Protected Forest Programs (Indonesia)	Government	Conservation enforcement; biodiversity protection; emissions reduction implementation	Central
	REDD	REDD+ Framework	Government	International policy framework guiding national forest governance programs; basis for emissions reduction, biodiversity, and poverty-alleviation objectives	Supporting
	SUCs_HEIs	Universities and Academic Institutions (Unnamed)	University	Program evaluation; carbon stock measurement; biodiversity assessment; policy analysis; comparative governance analysis	Peripheral
8 (SID-a29)	BFAR	Bureau of Fisheries and Aquatic Resources	Government	Host institution for field- and laboratory-based training; provider of applied biological science exposure (fisheries, aquatic systems)	Central
	Students	BSBT Pre-Service Teachers	Community	OJT trainees; end-users of laboratory and research training; participants in practicum activities; respondents in program evaluation; future workforce beneficiaries	Central
	PhilGov	Government of the Philippines	Government	Policy enabler for teacher education quality; oversight of public higher education and research institutions; mandating authority for national teacher quality standards	Supporting

	PNM	Philippine National Museum	Government	Host institution for OJT students; provider of laboratory, research, and fieldwork environments; supervisor of student practicum activities	Central
	PNRI	Philippine Nuclear Research Institute	Government	Government research institute; host institution for laboratory-based OJT; provider of specialized scientific equipment and supervision	Central
	PNU	Philippine Normal University	University	Program designer (BSBT OJT curriculum); curriculum aligner (Outcome-Based Education); student deployer to host institutions; program evaluator (CIPP model); coordinator of government-university partnerships; trainer	Central
	Faculty	PNU Faculty Supervisors	University	Academic supervision of OJT students; program monitoring and assessment; curriculum-practice alignment	Supporting
	RTU	Rizal Technological University	University	Host institution for laboratory-based OJT; provider of facilities and technical supervision	Supporting
	UNESCO	UNESCO	Community	Norm-setting body influencing national teacher quality mandates; reference framework for quality teacher education	Peripheral
9 (SID-a33)	CHED	Commission on Higher Education	Government	Policy setter; tracer study instrument provider	Peripheral
	HealthInd	Healthcare Industry Actors	Industry	Not involved	—
	Alumni	Nursing Alumni (112 graduates)	Community	Data providers; curriculum evaluators; end-users	Central
	SUCs_HEIs	Nursing College in Manila	University	Knowledge producer; evaluator; curriculum assessor	Central
	Faculty	Nursing College Faculty / Researchers	University	Survey administration; statistical analysis; evaluation	Central
10 (SID-a34)	BFARMC	Barangay Fisheries and Aquatic Resources Management Council Members (30)	Community	Governance and stewardship of local fisheries resources; participation in planning, policy implementation, and conservation activities; end-user beneficiaries of fish pen fees and fingerlings	Central
	Barangay	Barangay Tadalac Administration	Government	Local regulatory and governance oversight of BFARMC activities; coordination with council members	Supporting
	BFAR	Bureau of Fisheries and Aquatic Resources	Government	Provider of technical and paralegal training for fish wardens; supplier of fingerlings for lake stocking; operational support for environmental clean-ups	Central
	KeyInf	Key Informants (4 individuals)	Community	Provision of qualitative insights on leadership, coordination, motivation, and council functioning; monitoring governance and operational challenges	Central
	LGUs	Los Baños Municipal Office	Government	Co-funder through allocation of fish pen fees; coordinator with BFARMC for program implementation; policy enabler through local ordinances	Central
	LLDA	Laguna Lake Development Authority	Government	Formal institutional support for BFARMC operations; oversight of lake management activities	Central

	UPLB	University of the Philippines Los Baños	University	Potential provider of environmental education and research support; potential facilitator of community awareness campaigns and expert guidance	Peripheral
11 (SID-a47)	CONS	Consumers / End-Users of Pharmaceuticals	Community	Verification of drug authenticity; reporting of anomalies to FDA	Central
	Distributors	Wholesalers / Distributors	Industry	Participation in blockchain-based verification of product movements; upload of transaction records	Central
	DrugManu	Drug Manufacturers	Industry	Upload of product information to blockchain system; compliance with smart contract rules; verification of product authenticity	Central
	FDA	Food and Drug Administration (Philippines)	Government	Supervisory authority over pharmacosurveillance blockchain system; verification of supply chain transactions; maintenance of participant, smart contract, and drug registries; issuance of user credentials and two-factor authentication; monitoring and resolution of consumer-reported anomalies	Central
	NIH	National Institutes of Health (Philippines)	University	Research expertise in pharmacological standards; knowledge co-production for blockchain system design	Supporting
	PHARM	Retail Pharmacies / Drugstores	Industry	Upload of transaction and inventory data; facilitation of consumer product verification	Central
	UP	University of the Philippines	University	Software development support for blockchain system; integration of GS1 pedigree standards and distributed ledger technology; simulated testing for anomaly detection and network performance	Supporting
12 (SID-a55)	Households	Households (Survey Participants)	Community	Data provision for APIS and FIES; participation in household and socio-economic assessments	Central
	PSA	Philippine Statistics Authority	Government	Administration of APIS and FIES surveys; data provision; statistical standard-setting	Supporting
	ResearchTeam	Research Team (Bayudan-Dacuycuy & Lim, 2014)	University	Knowledge production; descriptive and regression analysis; identification of socio-economic determinants; evaluation of shocks	Central
13 (SID-a58)	BFAR	Bureau of Fisheries and Aquatic Resources	Government	Technical assistance; legal support; monitoring for community-based coastal management initiatives	Supporting
	CBOs	Community-Based Organizations in Sarangani Bay (e.g., CAFIFAMCO, MCMFO)	Community	Marine protected area implementation; mangrove rehabilitation; Bantay-Dagat; coastal monitoring; clean-up drives; alternative livelihood projects	Central
	CENRO	Community Environment and Natural Resources Office	Government	Local technical assistance; monitoring; compliance support for coastal resource activities	Supporting
	CommVol	Community Volunteers / Members	Community	Participation in sea patrols; clean-ups; livelihood programs; support for conservation and education efforts	Central
	DENR	Department of Environment and Natural Resources	Government	Environmental guidance; legal support; mangrove rehabilitation; marine protected area support	Supporting

	DOLE	Department of Labor and Employment	Government	Support for alternative livelihood projects linked to coastal resource management	Supporting
	DolePhilUSAID	DolePhil–USAID	Industry	Financial support; technical assistance for alternative livelihood and community initiatives	Supporting
	LGUs	Municipal and Barangay Councils of Sarangani Bay	Government	Local policy endorsement; resource allocation; facilitation of marine protected areas, clean-ups, and livelihood projects	Supporting
	MSU-GenSan	Mindanao State University–General Santos City	University	Knowledge production; documentation and analysis of CBO activities; key informant interviews; archival research; identification of facilitating and hindering factors	Central
14 (SID-a59)	AcadPartners	Academic Partners and Socioeconomists	University	Technical expertise for project design; impact assessment; socioeconomic analysis	Supporting
	BFAR	Bureau of Fisheries and Aquatic Resources	Government	Regulatory oversight; issuance of legal permits; granting of access rights to mangrove areas for aquaculture operations	Supporting
	Growers	Smallholder Mudcrab Growers (60 participants)	Community	Participation in training; nursery operations; pond management; adoption of sustainable aquaculture practices	Central
	LGUs	Municipal Governments of Lavezares, Rosario, Laoang, and Pambujan	Government	Coordination with NGOs and people’s organizations; facilitation of access to culture areas; provision of local support services	Supporting
	NGOs	Non-Governmental Organizations	Community	Facilitation of training logistics; coordination and resource mediation; support for financial access of smallholders	Supporting
	POs	People’s Organizations in Lavezares, Rosario, Laoang, and Pambujan	Community	Organization of growers; facilitation of participation; coordination of pond and crablet access; mediation of loans; support for collective activities	Central
	SEAFDEC	Southeast Asian Fisheries Development Center – Aquaculture Department (SEAFDEC/AQD)	University	Knowledge production; technical implementation; design and demonstration of mudcrab nursery systems; season-long training; monitoring of survival rates, production outputs, and financial viability	Central
15 (SID-a69)	DisasterAgencies	Disaster Management Agencies (unspecified)	Government	Prospective end-use of satellite-derived data for disaster risk reduction	Supporting
	DOST	Department of Science and Technology	Government	Funding provision; strategic direction; institutional oversight; policy backing for indigenous space and Earth observation capabilities	Central
	DOST-PCIEERD	Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD)	Government	Administration of program funding; supervision of PHL-Microsat program; infrastructure and human resource capacity building	Central
	EnvGISAgencies	Environmental and GIS Agencies (unspecified)	Government	Prospective end-use of satellite data for environmental monitoring and geospatial applications	Supporting

	GenPub	General Public / Data Users (unspecified)	Community	Intended recipients and users of web-distributed DIWATA satellite products	Supporting
	GISPractitioners	GIS Practitioners (unspecified)	Community	Prospective use of processed Earth observation data for research or operational purposes	Supporting
	HokkaidoU	Hokkaido University – Space Mission Center	University	Technical collaboration; knowledge support for system design; adaptation of STORM and CATENA processing architectures	Supporting
	UPD	University of the Philippines Diliman	University	Knowledge production; system architecture; design of DPAD subsystem; free and open-source software integration; technical capacity building	Central
16 (SID-a71)	AcadPartners	Academic Partners across Coral Triangle countries (unspecified)	University	Biodiversity assessments; post-hoc validation of community-designed zoning schemes	Supporting
	Barangay	Barangay / Village-Level Councils	Government	Local enforcement of MPA regulations; community consultation; participatory zoning	Supporting
	CTICFF	Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF)	Government	Multi-country coordination; policy guidance; integration of national MPA networks into a regional strategy	Central
	DEC	Departments of Environment and Conservation (Solomon Islands, Papua New Guinea, Timor-Leste, Philippines)	Government	Approval of MPA designations; environmental regulation oversight; participation in cross-jurisdictional coordination	Central
	FisheriesOps	Fisheries Operators	Industry	Regulated use of marine protected areas; compliance with conservation rules	Supporting
	Indig	Indigenous Governance Systems / Traditional Ecological Knowledge Holders	Community	Provision of customary tenure systems; traditional ecological knowledge for conservation planning	Central
	LGUs	Provincial and Municipal Governments in MPA sites (e.g., Verde Island Passage, Nusa Penida, Tun Mustapha Park, Nino Konis Santana National Park)	Government	Cross-jurisdictional coordination; participatory governance; enforcement of zoning and conservation rules	Central
	LocalComm	Local Communities in MPA Areas	Community	Participatory mapping; consultation; zoning decisions; enforcement; monitoring	Central
	MMAF	Ministries of Marine Affairs and Fisheries (Indonesia, Malaysia, Timor-Leste, Papua New Guinea, Solomon Islands, Philippines)	Government	Declaration of marine protected areas; approval of zoning plans; regulatory legitimacy; integration of MPA networks into national fisheries and biodiversity strategies	Central
	NGOs	Non-Governmental Organizations (unspecified)	Community	Technical expertise; capacity building; facilitation of cross-jurisdictional coordination; funding support	Supporting
	TourismOps	Tourism Operators	Industry	Regulated participation in MPA zones; compliance with zoning restrictions	Supporting
	UP	University of the Philippines (Verde Island Passage modeling)	University	Ecological connectivity modeling; larval dispersal modeling	Supporting

	UQ	University of Queensland	University	Technical support for systematic conservation planning; Marxan and Marxan with Zones applications	Supporting
17 (SID-a76)	AgriBiz	Agribusiness Actors / Middlemen	Industry	Potential beneficiaries or obstacles; limited engagement as stakeholders	Supporting
	Barangay	Barangay Leadership and Local Authorities (Philippines)	Government	Gatekeeping; approval of project activities; field-level coordination	Central
	Farmers	Farmers / Farm Workers (~400 individuals)	Community	Participation in interviews, field experiments, training, and citizen science; implementation of ecological engineering practices	Central
	LEGATO	LEGATO Consortium of 21 Research Institutions	University	Project coordination; development of ecological engineering concepts; stakeholder analysis design; facilitation of knowledge co-production; adaptive research	Central
	LGUs	Extension Workers (Philippine LGUs)	Government	Support for training; farmer advisory services; monitoring of field activities	Supporting
	LocalComm	Local Authorities (Municipal / Barangay Level)	Community	Enablement of field-level implementation; coordination of community engagement	Central
	MAO	Municipal Agricultural Officers (Philippines)	Government	Facilitation of project access; field-level implementation; community engagement	Central
	NatGov_VN	National Government Actors (Vietnam)	Government	Minimal involvement; limited engagement in project design or implementation	Supporting
	NatPol_PH	National Politicians (Philippines)	Government	Formal authority; limited engagement primarily for visibility	Supporting
	OtherStake	Other Local Stakeholders (NGOs, civil society representatives, local facilitators)	Community	Participation in consultations; provision of feedback; mediation between research teams and communities	Supporting
	PartyLead_VN	Provincial Party Leadership (Vietnam)	Government	Approval of project activities; alignment with provincial development priorities; facilitation of scaling	Central
	PrivateStake	Private-sector Stakeholders (High Influence / Low Interest)	Industry	Observation of project activities; minimal interaction	Supporting
	ProvAgri_VN	Provincial Agricultural Administrations (Vietnam)	Government	Implementation of ecological engineering practices; liaison with farmers; monitoring of outcomes	Central
	ProvAuth_PH	Provincial Politicians / Provincial Authorities (Philippines)	Government	Provision of formal legitimacy; occasional project engagement for visibility or funding	Supporting
	ResearchTeam	Scientists / Researchers (~80)	University	Conduct of interviews; field studies; participatory experiments; integration of local knowledge	Central
18 (SID-a93)	CarUsers	Private Car Users / Commuters in Metro Manila	Community	Provision of stated preference survey data; passive end-users of model insights	Supporting
	DLSU	De La Salle University (Philippines)	University	Project execution; methodological design; data collection; statistical modeling; transport network simulation; impact quantification	Central
	DOST-PCIEERD	Department of Science and Technology – Philippine Council for	Government	Project funding; strategic alignment with national priorities; oversight of research outputs	Central

		Industry, Energy, and Emerging Technology Research and Development			
	DOTr	Department of Transportation (Philippines)	Government	Policy enabler; recipient of analytical outputs; alignment with transport reform programs	Supporting
	JICA-MUCEP	Japan International Cooperation Agency – Metro Manila Urban Transport Integration Project	Government	Contextual partnership; integration of findings into technical cooperation frameworks	Supporting
	MMDA	Metro Manila Development Authority	Government	Provision of policy context; baseline urban mobility framework; intended audience for outputs	Supporting
	ResearchTeam	PUBFix Research Team (Academics)	University	SP survey design; logit choice modeling; integration into EMME4 network model; scenario analysis	Central
19 (SID-a99)	CHED	Commission on Higher Education (Philippines)	Government	Mandate internship/OJT requirements; set national higher education standards; regulatory oversight; policy enabling for university–industry internships	Supporting
	Faculty	Research Team / Faculty Researchers	University	Survey administration; statistical analysis; skills gap computation; methodological oversight; report generation	Central
	ITHosts	IT Internship Supervisors / Host Industry Partners	Industry	Provide perceptions of skill importance; workplace evaluation of interns; survey respondents	Supporting
	Students	Fourth-year IT Students (Interns)	Community	Survey respondents; subjects of skills assessment; indirect end-users of curriculum recommendations	Supporting
	PSU	Pangasinan State University (Philippines)	University	Study design; survey implementation; data analysis; instrument development and validation; interpretation of results; curriculum recommendations	Central
20 (SID-a276)	DA	Department of Agriculture	Government	Provides secondary datasets; ensures complementarity with agricultural programs; participates in training and workflow adoption	Supporting
	DENR	Department of Environment and Natural Resources	Government	Provides secondary data; ensures complementarity with forest and environmental programs; participates in workflow adoption	Supporting
	DOE	Department of Energy	Government	Provides data for renewable energy mapping; contributes to workflow adoption and validation	Supporting
	DOST-PCIEERD	Department of Science and Technology – Philippine Council for Industry, Energy, and Emerging Technology Research and Development	Government	Program funder; strategic guidance; policy mandate; oversight of workflow adoption	Central
	LGUs	Local Government Units	Government	Facilitate field data collection; assist in site-level validation; coordinate with research teams and regional offices	Supporting
	LocalComm	Local communities (indirect)	Community	Indirect beneficiaries via LGU and DOST facilitation; improved planning and risk reduction	Peripheral

	NWRC	National Water Resources Center	Government	Provides hydrological datasets; contributes to workflow adoption and validation	Supporting
	ResearchTeam	Research Assistants (200+)	University	Workflow implementation; data collection; accuracy assessment; knowledge multiplication	Supporting
	SUCs_HEIs	14 Other State Universities and Colleges / Higher Educational Institutes	University	Workflow implementation; training participation; field data collection; methodological alignment	Supporting
	UPD	University of the Philippines Diliman	University	Lead workflow developer; methodology standardization; training and mentoring; monitoring; national dataset production	Central