

## Science communication as co-creation: insights from stakeholder engagement in the Philippine public sector

### SUPPLEMENTARY MATERIAL

**Table 1. List of the Focus Group Discussion Conducted with Participant Profiles**

DOST Agency	R&D Pillar	Project Exemplar	Venue	Participant Background
Advanced Science and Technology Institute	Wealth Protection	Remote Sensing and Data Science (DATOS)	Online	Senior Science Research Specialist, Corporate Communication Specialist, Remote Sensing Specialist at the Philippine Statistics Authority, Project Staff at SARWAIS, Laguna Lake Development, Project Staff at SARWAIS, Laguna Lake Development, Web Analytic Project Staff, Sugar Regulatory Administration
Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development	Human Well-being, Wealth creation	Coconut R&D Program	DOST Bicol Regional Office	DTI Focal Person for Coconut Farmers and Industry Development Plan, Bicol Socioeconomic Development Program – Multipurpose Cooperative, BCAARRD Science Communication Cluster Coordinator, Applied Comm Officer at PCAARRD, Representative of the HML Food Corporation, Regional Director, Philippine Information Agency, Assistant Regional Director at DOST V, Program Coordinator at DOST V, Broadcaster, writer, and researcher from Radyo Agila Net 25, Leader, Southeastern Fiber Products
Philippine Council for Health Research and Development	Human well-being	Kadios R&D	Online	Science Journalist, Business Mirror, Director of Center for Chemical Biology and Biotechnology, Iloilo City, Tech Adopter, Maridan Industries, Tech Adopter, Maridan Industries, Information Officers at PCHRD

National Research Council of the Philippines	Sustainability	Siargao Biodiversity Research	Surigao del Norte State <i>University, Del Carmen Campus</i>	Science Research Assistants, Assistant Researcher, Siargao Biodiversity Research, Executive Director, Siargao Islands Wildlife Conservation Foundation, Incorporated (SIWCFI), Staff/Volunteer, SIWCFI, Officer, Municipal Environment and Natural Resources Office (MENRO), Project Leader, NRCP Division V
Food and Nutrition Research Institute	Human well-being, Wealth creation	Malnutrition Reduction Program	Online	Project Leaders of Malnutrition Reduction Program, Information Officer at FNRI  Media Practitioners (Net25 and Radio Aguila), Regional Officer In-charge of MRP
Forest Products Research and Development Institute	Wealth Creation	Bamboo Musical Instruments	Online	Instrument maker from PUP Banda from Laguna, Instrumentation Assistant from UP Center for Ethnomusicology, Teacher 1, Sta Elena High School, Project Leader of BMI, FRPDI Information Officer
Industrial Technology Development Institute	Wealth Creation, Human well-being	Halal Cosmetics and Toiletries	Online	MSME owner, beauty market, Program Management Officer, Halal and DOST Halal S&T Program, DOST REDI Tourism Program, Media Officer, Project Leader, Halal Cosmetics and Personal Care, Information Officer at ITDI
Metals Industry Research Development Center	Wealth protection	Hybrid Electric Road Train	Online	Fabricator of Metal Units  Provincial Director, DOST XII, Kidapawan City IT Officer, technology adopters
Philippine Nuclear Research Institute	Human well-being, Wealth Creation	Plant Growth Promoter	DOST Davao Regional Office	Journalist, Business Mirror, Daily Tribune, Representative from AVES Farm, Representative from BBZ Corporation, PNRI Business Development Representative, PNRI Information Head, Broadcaster-Writer, Radyo Pilipinas Davao, Davao SUC Representative, Davao Del Sur State College Representative, PNRI Information Staff, Davao Regional Office Staff

Philippine Textile Research Institute	Sustainability	Regional Yarn production and Innovation Center	DOST Iloilo Regional Office	DOST VI Science Research Specialist, Iloilo Media Representative, Textile Project Staff, Weaver, Head, Farmers Association, Barangay Captain, Adviser of Farmers, Iloilo Region Head, PCAARRD, Farmer
Philippine Council for Industry, Energy, and Emerging Technology Research and Development	Wealth creation	E-Mobility Research and Development	Online	Project staff at Electro-Mobility R&D Center, Officer City Planning and Development of Tuguegarao City, Officer Quezon City Green Transport Division, Project staff of E-Mobility Cagayan State University, Quezon City Local Economic and Investment Promotions Officer, Quezon City Local Economic and Investment Promotions Officer, Leader of Electric Van Project of La Salle, Leader of E-Jeepney Project of EVAP, Electric Van Project, Policy Research for EVs. Special Projects, City Planning and Development Coordinating Office, Project Development Officer, DOST IX, Head, Quezon Local Economic and Investment Promotions Office, Officer, Climate Change and Environmental Sustainability Department

## **Supplementary File: Focus group discussion guide questions**

### **A. R&D Communication Process**

1. How do you go to sources of DOST information to learn about certain R&D content?
2. What particular topics of information do you recall you have read from DOST?
3. For what purpose/s do you look for and read about research and development from DOST?
4. Whenever you read or hear about DOST R&D information, what can you say about the research information?
5. How useful for you the research information you often hear or read about DOST?

### **B. R&D Communication Issues**

1. What are common issues you encounter when reading or understanding a research information coming from DOST?
2. How do you assess the accessibility of information about DOST research and development?
3. What aspects of communication flow you think can be improved in delivering information about any research information from DOST?

### **C. R&D Value Delivery and Communication**

1. How do you find DOST's research information addressing your own professional needs?
2. How do you find DOST's information addressing your personal needs?
3. If you were to invest to further develop and market any project done by DOST, how willing are you to do so? Why or why not?
4. What are the things you look for when reading a research information?
5. How do you think DOST R&D can deliver useful science and technology research to address your needs?

**Table 2: Thematic Analysis: Major themes, definitions, and representative quotes**

<b>Theoretical Construct</b>	<b>Operational Indicator (in data)</b>	<b>Data Source(s)</b>	<b>Primary Codes/Theme</b>	<b>How Evidence Is Shown</b>
Audience motivations	Participants link #OneDOST4U or STI info to role-based goals (teaching, policy, funding, livelihood, research)	FGDs across 11 exemplars	Motivation codes → Theme 1	Quotes showing role-specific reasons for following/using content; cross-group recurrence
Value-in-use	Concrete application/adaptation of STI outputs; requests for localization; feedback loops	FGDs; beneficiary/partner segments	Utility/adaptation codes → Theme 2	Quotes on testing tools locally, iterating with DOST, suggested improvements
Synergy	Multi-sector coordination, early collaboration, knowledge exchange	FGDs; implementers/media/LGUs	Partnership/network codes → Theme 3	Quotes on “projects work best when all sides talk early”; examples of joint capacity building
Communal values	Message resonance when aligned with shared priorities (e.g., agriculture, disaster resilience, education)	FGDs; cross-stakeholder segments	Value alignment/identity codes → Theme 4	Quotes on pride/ownership, sharing behaviour, “for you/for us” meanings

**Table 3: SAMPLE CODING PROTOCOL****Step 1. Open Coding Table (Descriptive, line-by-line codes)**

<b>Open Code (Descriptive)</b>	<b>Example Evidence (FGD Quotes/Notes)</b>
Teachers use DOST outputs for classroom demos	"I follow #OneDOST4U to get lab demo ideas for my Grade 10 class."
LGU planners use DOST maps for policy justification	"The flood map tools help us justify our DRRM investment plan."
MSMEs adopt roasting parameters to improve livelihood	"We copied the roasting parameters and sales improved."
Requests for localization of tools	"Can we have Bisaya instructions for farmers?"
Testing of applications in local barangays	"We tested the app in Barangay X; connectivity limited, but alerts worked."
Early collaboration with LGUs speeds up projects	"When we involved the LGU at scoping, procurement moved faster."
Pride in Filipino-made tools	"Proud this tool is made by Filipinos."
Sharing behaviour within cooperatives	"I tagged our coop so they can try it."

**Step 2. Axial Coding Table (Grouped categories, mid-level)**

<b>Axial Category</b>	<b>Related Open Codes</b>	<b>Defining Rule</b>
Role-based motivations	Teachers using for lessons; LGUs for DRRM policy; MSMEs for livelihood; researchers for collaboration	Keep if explicitly tied to a stakeholder's professional/role-based goal
Concrete application & adaptation	Local testing; localization requests; iteration/feedback loops	Keep if evidence of applying/adapting DOST outputs in context
Multi-sector collaboration	Early coordination; joint knowledge exchange; media/bridge roles	Keep if multiple actors co-create value or solve friction
Value alignment & identity	Pride/ownership; resonance with agriculture/education/DRRM; sharing behaviour	Keep if quotes tie communication to shared priorities or collective identity

**Step 3. Selective Themes Table (Final constructs)**

<b>Selective Theme (Final)</b>	<b>Operational Indicator (in Data)</b>	<b>Data Source(s)</b>	<b>Primary Codes</b>	<b>How Evidence is Shown</b>
Audience motivations	Stakeholders link #OneDOST4U/STI info to role-based goals (teaching, policy, funding, livelihood, research)	FGDs across 11 exemplars	Motivation codes → Theme 1	Quotes show role-specific reasons; recurrence across groups
Value-in-use	Application/adaptation of STI outputs; requests for localization; feedback loops	FGDs with beneficiary/partner segments	Utility/adaptation codes → Theme 2	Quotes on local testing, feedback to DOST, improvement suggestions
Synergy	Multi-sector coordination, early collaboration, knowledge exchange	FGDs with implementers, media, LGUs	Partnership/network codes → Theme 3	Quotes on early collaboration, joint capacity building
Communal values	Message resonance with shared priorities (agriculture, DRRM, education); identity/pride	FGDs, cross-stakeholder segments	Value alignment/identity codes → Theme 4	Quotes on pride/ownership, sharing behaviour, "for you/for us" meanings