

**NEW  
ENERGY  
NEXUS**  
Indonesia

# RENEWABLE ENERGY CENTER OF EXCELLENCE PLAYBOOK

New Energy Nexus Indonesia



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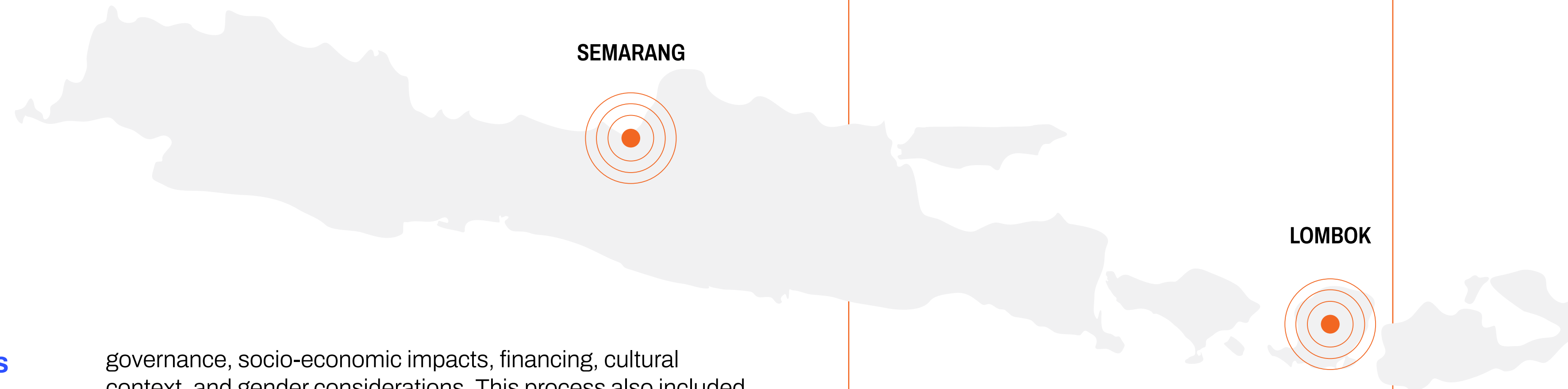
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# EXECUTIVE SUMMARY

**Indonesia’s clean energy transition requires a significant boost. Despite targeting 23% renewables in the energy mix by 2025, the country reached only about 13% in 2023. To address the challenges and opportunities of accelerating this transition, New Energy Nexus Indonesia (NEX Indonesia) is spearheading the establishment of Renewable Energy Center of Excellence (CoE) pilot projects in two areas in Indonesia, namely Semarang and Lombok. The first two stages of CoE pilot project implementation have already been completed.**

The first stage involved pre-assessment through secondary research, collecting information on best practices, renewable energy (RE) trends and current usage (local and global), technologies, and challenges. Data collection covered location-specific policy environments, technologies, ownership and



governance, socio-economic impacts, financing, cultural context, and gender considerations. This process also included detailed stakeholder mapping.

Following the desk research, inspections of potential sites were conducted to assess the infrastructure, accessibility, safety, and potential environmental impacts, and engage with local communities. Visits were conducted using a qualitative approach that included focus group discussions (FGD) to refine objectives, and identify potential challenges and opportunities.

The second stage supported the development of pilot projects according to RE CoE vision, mission, objectives, action plans, budget, human resources, technology, and implementation. This included quantitative monitoring and evaluation to measure knowledge transfer, skill development, attitudinal shifts, and behavioral change; and a qualitative approach to evaluate participants’ knowledge, satisfaction, and willingness to follow the agenda.

“**Indonesia’s clean energy transition requires a significant boost.**”

» Legend

 Renewable Energy Center of Excellence Pilot projects Nex Indonesia

**STAGE 1**

- Preliminary analysis

**STAGE 2**

- Pilot implementation and evaluation

**STAGE 3**

- Operational and service system design

**STAGE 4**

- Performance monitoring

## Recommendation

The first two stages have been successfully completed in pilot projects in Lombok and Semarang. Moving forward, NEX Indonesia proposes the establishment of CoE with an emphasis on sectors relevant to local communities, such as agriculture or renewable energy, which will provide training and resources for local businesses and entrepreneurs. This support will include training in new technologies, financial literacy, and vocational courses.

To deliver these aims, the third stage will involve designing systems and processes for efficient service delivery, including management of human resources, marketing, and customer relationships. Next, the fourth and final stage of implementation will establish an Impact Monitoring and Evaluation Framework to continuously assess and optimize CoE performance, ensuring the needs of beneficiaries are met, through implementation that remains financially viable. Based on this recommendation, and with the appropriate support, we are confident our stated objectives can be achieved. Scaling this up to the national level will require additional time and resources, but will ultimately help to expedite the country's RE transition process.

# INTRODUCTION

**New Energy Nexus is the world’s leading ecosystem of funds, innovators, and accelerators, supporting a diverse range of clean energy entrepreneurs. In Indonesia, we strive to advance development that supports the needs of innovators, startups, entrepreneurs, and various stakeholders in the clean energy and climate solutions sectors. To achieve this, NEX Indonesia focuses on four main impact areas »**

NEX Indonesia provides innovative, early-stage funding for promising startups through commercial and non-commercial investment. This funding enables us to support the development of women, youth groups, and underrepresented communities working in the clean energy and climate sectors, empowering climate tech innovators, startups, and entrepreneurs to devise and implement scalable solutions that can increase the productive use of renewable energy as well as climate innovative solutions in developing areas.

## FOUR MAIN IMPACT AREAS OF NEX INDONESIA



CLIMATE LEADERSHIP AND CAPACITY BUILDING



FUNDING



KNOWLEDGE AND POLICY



ENERGY EQUITY

“**NEX Indonesia provides innovative, early-stage funding for promising startups through commercial and non-commercial investment.**”

## The Need for Renewable Energy CoE in Indonesia

In advancing the energy transition and meeting targets outlined in the Paris Agreement, Indonesia's renewable energy sector is presented with a number of challenges and opportunities. Establishing Renewable Energy (RE) CoE can accelerate this transition by promoting knowledge exchange, innovation, and community-based entrepreneurship. To support this process, NEX Indonesia will serve as a knowledge hub, working in collaboration with the Indonesia Technology Innovation Foundation (INOTEK) and driving advancements for CoE through stages 1–2 of piloting and implementation.



# New Energy Nexus Indonesia Theory of Change

## » Vision

An abundant world with 100% clean energy for 100% of the population in the shortest time possible.

## » Mission

- To support a diverse range of entrepreneurs, drive innovation and build equity into the global clean energy economy
- To support startups by testing, piloting, and scaling their innovations
- To strengthen clean energy entrepreneurs

## » Intended Outcomes

- TO STRENGTHEN CLEAN ENERGY ENTREPRENEURS
- THE CLEAN ENERGY ECOSYSTEM
  - is more diverse, equitably and globally distributed
  - is more interconnected and provides abundant resources for entrepreneurs
- CLEAN ENERGY ENTREPRENEURS
  - Develop their business acumen, skills, and collaborative mindsets
  - Gain access to capital resources throughout the development process
  - Connect to people and institutions with relevant knowledge and resources

## » Approach

### LAUNCH

Inspire clean energy solutions and form new startup teams

- Bootcamp and hackathons
- University programs

### FUND

Connect innovative startups with funding opportunities

- Clean tech venture capital (VC) and Impact Funds
- Grants, equity, debt

### COLLABORATE

Our global platforms support startups and ecosystem players to collaborate and scale internationally

### ACCELERATE

Train startup teams and connect them to the right partners

- Incubation and acceleration programs
- Investor intros and networking
- Network access

### SCALE UP

Support startups to pilot and scale their tech and products

- Corporate matching programs
- Innovation challenge programs

### ENGAGE

Connect ecosystem players and remove barriers for entrepreneurs

# OBJECTIVES



## Laying the foundation

Following successful completion of stages 1 & 2, the mid-term goal of NEX Indonesia is to lay the groundwork for CoE through pilot projects, developing best practices and lessons learned from this process that can form guidelines for subsequent expansion.



## Aligning with JEDI principles

NEX Indonesia's RE CoE will be designed, implemented, and operated according to guiding principles on **Justice, Equity, Diversity, and Inclusion (JEDI)**.



## Promoting knowledge exchange

CoE is expected to facilitate the distribution of knowledge and methodologies among researchers, policymakers, regulators, and industry stakeholders, including fisherfolk and farmers, and the general public.



## Leading institutions

The long-term goal of CoE implementation is to provide Indonesia with thought leadership and practical guidance that can expedite the energy transition. Through holistic and community-based approaches, CoE will become a catalyst for advancements in the renewable energy sector.



# PROJECT DEVELOPMENT

**NEX Indonesia's pilot CoE for renewable energy has already launched a series of core programs and activities with the potential to further the country's clean energy goals, by addressing various renewable energy challenges and opportunities.**

Collectively, the core programs offered at NEX Indonesia's RE CoE provide education, training, research, and development services related to several facets of RE. This includes solar, wind, biomass, geothermal, hydro, and ocean energy.

Within this playbook, we will focus primarily on the first core program (Education and Training), which prioritizes educational programs designed to build knowledge and skills related to RE. This playbook provides best practices for capacity-building workshops for stakeholders, keeping them updated on emerging renewable technology and best practices; and technical training programs to ensure a steady stream of skilled experts, technicians, and engineers.

## Core programs and activities

### 1 EDUCATION AND TRAINING

- Capacity-building workshops
- Technical training programs
- Certification courses

### 2 RESEARCH AND DEVELOPMENT

- Pilot programs
- Regional/provincial collaborations
- Innovation hubs

### 3 POLICY ADVICE AND IMPLEMENTATION

- Policy research
- Stakeholder consultations
- Policy advocacy

### 4 FINANCE AND BUSINESS GROWTH

- Funding initiatives
- Mentorship programs
- Business incubators/accelerators

### 5 GREEN JOB CREATION

- Skills assessments
- Job fairs and placements
- Entrepreneurial support

### 6 COMMUNITY PARTICIPATION AND OUTREACH

- Awareness campaigns
- School programs
- Community-based initiatives
- Network facilitation

### 7 INFRASTRUCTURE AND TECHNICAL ASSISTANCE

- Testing and calibration laboratories
- Technical support hubs



# STAGES OF DEVELOPMENT

## STAGE 1

### Identification & research

» Aim

Identify the needs of potential beneficiaries and stakeholders to ensure community buy-in, identify effective leadership, and ensure program sustainability in the long term.

» Outputs

**1 ORGANIZATIONAL STRUCTURE**

Identify required roles and persons in charge (PIC), such as directors, advisory board members, office managers, project coordinators, project research personnel, and knowledge and learning managers.

**2 LIST OF POTENTIAL PARTNERS**

Identify key collaborative partners, representing academia, government, industry, incubators, community organizations, and students.

**3 COMMUNICATIONS STRATEGY**

Develop a communications strategy aimed at raising awareness and fostering collaboration, tailored to target groups and communication objectives, in order to create and prioritize communication products.

**4 LIST OF FUNDING SOURCES**

Identify potential sources of core funding, such as government funds and international grants; and project funding, such as Corporate Social Responsibility (CSR) and community empowerment programs from private companies.



**OUTPUT 4 - LIST OF FUNDING SOURCES**  
**SUMMARY OF POTENTIAL FUNDING SOURCES**

FUNDING SOURCE	DESCRIPTION	TARGET (GROUP)
<b>CORE FUNDING</b>		
ASPIRATION FUNDS (DANA ASPIRASI)	These funds are allocated according to community needs and aspirations, although their availability may be limited.	COMMUNITY- BASED PROJECTS
CONSUMER COOPERATIVE MODELS	There are various cooperative models in Indonesia, though few are consumer-focused. There is potential for developing models that directly engage with consumers.	BENEFICIARIES' MAIN ACTIVITIES
NATIONAL AND REGIONAL SUBSIDIES	By reallocating resources, options such as community business credit (KUR) and Liquefied Petroleum Gas (LPG) subsidies, could fund CoE, thereby ensuring that investments are aligned with the needs of the community.	SPECIFIC
GOVERNMENT BACKING	Exploring mechanisms such as the Work Order Letter (SPK) could be beneficial. This would involve the CoE taking on specific tasks, with the SPK serving as collateral.	MULTI-YEAR, COMMUNITY- BASED INITIATIVES
INTERNATIONAL GRANTS	Funding from international organizations such as the UN, World Bank, European Union, etc., has the potential to fund multi-year projects involving consortia and large-scale collaborations.	MULTI-YEAR PROJECTS
<b>PROJECT FUNDING</b>		
CORPORATE SOCIAL RESPONSIBILITY PROGRAMS	CSR initiatives that align with renewable energy and community empowerment objectives can be directed to fund specific projects, such as integrating renewable energy into capacity-building programs.	COMMUNITY- BASED PROJECTS (E.G., RENEWABLE ENERGY TECHNOLOGIES)
COMMUNITY EMPOWERMENT PROGRAMS (PPM)	Similar to CSR programs, PPM can be allocated to customized capacity-building programs that align with the company's goals.	COMMUNITY- BASED PROJECTS (E.G., RENEWABLE ENERGY TECHNOLOGIES)
VILLAGE FUNDS AND REGIONAL FUNDS (DANA DESA)	Funds from channels such as Dana Desa and Dana Daerah can be redirected to village-owned enterprises (BUMDes). These funds come from the national budget (APBN) managed by the Ministry of Villages and the regional budget (APBD) through special allocation funds (DAK). They offer opportunities for community-specific investments, although establishing proper mechanisms is essential to ensure full utilization of the funds.	COMMUNITY- BASED PROJECTS (E.G., RENEWABLE ENERGY TECHNOLOGIES)
INCUBATION PROGRAMS	These programs aim to support early-stage renewable energy start-ups and initiatives by offering essential resources, mentorship, and guidance. In exchange, a share of the proceeds or equity from these start-ups can be reinvested into the CoE	MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) ON RENEWABLES
EDUTOURISM	Facilities such as the micro-hydro setup in Batang and the biogas facility in Samirono could serve as educational tourism destinations. They offer opportunities to educate visitors while generating revenue through entry fees, workshops, training sessions, and merchandise.	COMMUNAL RENEWABLE ENERGY SYSTEMS

» Implementation guidelines

1 PRE-ASSESSMENT THROUGH SECONDARY RESEARCH

**A** Collect information

- Conduct literature reviews on best practices in existing CoEs and renewable energy trends
- Understand the local and global renewable energy landscape
- Gather secondary data on local renewable energy potential, usage, technologies, and challenges

**B** Data collection

- Establish metrics of interest, such as energy output, sustainability measures, community engagement, etc.
- Identify data sources, collection methods, and frequency

Points of analysis in assessing community readiness, based on the IRENA Coalition Energy Toolkit <sup>1</sup>

**1 LOCATION AND POLICY ENVIRONMENT**

- Regulatory Requirements:** What regulations must we comply with for the project?
- Government support:** Are there policies and programs that support community energy?
- Community receptiveness:** Are local communities open to renewable energy projects?
- Connection preferences:** Would the community prefer to be connected to the grid or to operate independently?

**2 TECHNOLOGY**

- Initiative purposes and scale:** What are the goals and scale of the projects?
- Resource potential:** What renewable resources are available, and where will the project be established?
- Local accessibility:** Are local parts and labor readily available?
- Encouraging participation:** Which renewable resources will engage the most community members?
- Skills and maintenance:** Does the community have the skills to build, operate, and maintain the technology?

**3 OWNERSHIP AND GOVERNANCE**

- Project initiator:** Who is spearheading the project?
- Ownership level:** What ownership model and level of agency is preferred by the community?
- Legal structures:** What legal frameworks are available for establishing the initiative?
- Community responsibilities and governance:** What roles will the community have, and how will the initiative be governed?
- Community engagement:** Are there processes in place to involve community members?

**4 SOCIO-ECONOMIC IMPACT**

- Community benefits:** How will the community benefit from the project?
- Benefit distribution:** How will benefits be shared among community members? Are costs and benefits distributed equitably?
- Productive uses and sustainability projects:** Are there opportunities to use renewable energy productively or start other sustainability projects?

**5 FINANCING**

- Financial contribution:** What is the community's capacity to financially support the initiative?
- External financing:** What external funding sources are available?

**6 CULTURAL CONSIDERATIONS**

- Core values and practices:** What are the community's core values and cultural practices?
- Partner selection:** What should the community consider when choosing potential partners?

**7 GENDER CONSIDERATIONS**

- Women's participation:** How will women's involvement be encouraged and supported?
- Awareness of gender imbalances:** Is there currently an awareness of gender imbalances in the community and/or the project, and what solutions have been proposed?
- Women's roles:** Are women's roles adequately considered in the project?

<sup>1</sup> IRENA Coalition for Action (2021), *Community Energy Toolkit: Best practices for broadening the ownership of renewables*, International Renewable Energy Agency, Abu Dhabi.

1 PRE-ASSESSMENT THROUGH SECONDARY RESEARCH (CONTINUATION)

2 FIELD ASSESSMENT USING QUALITATIVE APPROACH

**C Stakeholder mapping**

- Identify and list all potential stakeholders
- Determine the role and influence of each stakeholder in the project
- Initiate outreach to gauge interest and gather preliminary feedback

**A Focus group discussions (FGD)**

- Organize sessions with stakeholders to understand their perspectives, needs, and reservations
- Refine RE CoE objectives and plans in response to inputs from FGD participants
- Identify potential challenges and opportunities

**B Site visits**

- Visit potential RE CoE sites to develop a clearer understanding of logistical considerations
- Assess infrastructure, accessibility, safety, and potential environmental impacts
- Engage with local communities to understand their perspectives and concerns





## STAGE 2

# Business development & pilot project development

### » Aim

Test and improve capacity building and technical readiness.

### » Impact

#### SHORT-TERM

Immediate changes in knowledge and satisfaction levels.

#### LONG-TERM

Continued application of skills and concepts to sustain community development and empowerment.

### » Outputs

#### 1 Effectiveness assessment

Evaluate the results of capacity-building workshops and technical training programs based on knowledge transfer, participant satisfaction, and willingness to engage in follow-up activities.

#### 2 Stakeholder engagement

Establish collaborative networks through pilot projects for future development.



» Implementation guidelines

1 PILOT PROJECT DEVELOPMENT »»

- 1. Draft a blueprint detailing the RE CoE vision, mission, objectives, and action plans based on the pre-assessment and field assessment, focusing on capacity-building workshops and technical training programs
- 2. Allocate resources necessary for the pilot phase of the RE CoE, including budget, human resources, technology, etc
- 3. Execute the pilot project by setting up the RE CoE infrastructure and systems
- 4. Initiate the smaller-scale proposed renewable energy projects
- 5. Engage with stakeholders to elicit feedback and initiate further collaboration

**ACTIONABLE MANUAL FOR TRAINING PROJECTS**

PREPARATION

TASK	MEET COMMUNITIES TO DISCUSS DATES AND CURRICULA	MEET EXPERTS/ SPEAKERS TO DISCUSS LEARNING MATERIALS WITH COMMUNITY NEEDS	PLAN RUNDOWN / CURRICULUM	INVITATION LETTERS FOR TRAINERS / PARTNERS / STAKEHOLDERS	ARRANGE VENUE	DESIGN BANNERS, CERTIFICATES	ARRANGE ACCOMMODATION AND LOGISTICS	ARRANGE CATERING FOR PARTICIPANTS	GATHER SPEAKER SLIDES	PREPARE AND PRINT ATTENDANCE FORMS, CONSENT FORMS, PRE-TESTS AND POST-TESTS	COMPENSATE TRANSPORTATION COSTS FOR PARTICIPANTS (IF ANY)	PREPARE STATIONARY (NOTEBOOKS, PENS)	FINAL REHEARSAL/ MEETING WITH SPEAKERS AND FACILITATORS
TIMELINE	1 month before	1 month before				3 weeks before	3 weeks before	2 weeks before	2 weeks before	1 week before	1 week before	1 week before	1-2 days before
NOTES	<ul style="list-style-type: none"> <li>• Contact multiple community members</li> <li>• Create a WhatsApp group for communication</li> </ul>				<ul style="list-style-type: none"> <li>• Ensure proximity to communities</li> <li>• Ensure conducive environment for training program (e.g., availability of electricity for projector and AV system)</li> </ul>			<ul style="list-style-type: none"> <li>• Consider community assistance</li> <li>• Ensure dietary requirements of all participants are met</li> </ul>			<ul style="list-style-type: none"> <li>• Consider alternatives to transportation allowance, such as seedlings and other non-financial incentives</li> </ul>		

1 PILOT PROJECT DEVELOPMENT (CONTINUATION)

2 MONITORING AND EVALUATION

**ACTIONABLE MANUAL FOR TRAINING PROJECTS (CONTINUATION)**

	DURING					POST			
TASK	SOUNDCHECK	PROJECTOR AND CONNECTION CHECK	ATTENDANCE FORM CHECK	DOCUMENTATION	CONTACT CHAMPION PARTICIPANTS	EVALUATION AND FEEDBACK	CREATE A WHATSAPP GROUP FOR THE PARTICIPANTS	SHARE SLIDES AND TRAINING MATERIALS	UPLOAD AND SAVE ALL DOCUMENTATION AND EVALUATION FORMS
TIMELINE	1 hour before	1 hour before	1 hour before	During	After	1 day after	1 week after (latest)	1 week after (latest)	1 week after (latest)
NOTES									

## A Quantitative approach

- Measure knowledge transfer through pre- and post-testing, attendance records, and feedback forms.

The pre- and post-tests each feature the same five questions, in a different sequence. In addition to assessing participants' knowledge and understanding, the testing can also be used to evaluate the effectiveness of speakers' presentations. In subsequent analyses of results, data should be represented using boxplots (non-parametric ANOVA). In comparing and interpreting the boxplots, the width of the box represents the sample size (number of participants) and the notches indicate median variability. Non-overlapping notches between boxes indicate a statistically significant disparity between the group medians.

- Assess the program's impact on skills development (implementation or practicality of learned concepts), shifts in attitudes (level of enthusiasm), and behavioral change (improvements in confidence or intention to adapt).

## B Qualitative approach

- Evaluate feedback forms and conduct interviews with participants to gather detailed insights from their experiences and the practical applications of knowledge gained during the project.
- Using the Likert Scale, measure the level of satisfaction based on participant engagement, relevance of topics, quality of training, suggestions for improvements, and overall satisfaction.
- Conduct post-activity interviews to gauge participants' capacity and willingness to apply the skills they have learned in subsequent activities.



CASE STUDIES

# SEMARANG

**Project development -  
education and training**

- Capacity building workshops
- Technical training programmes

# STAGE 1

## Identification & research

Field assessment using a qualitative approach: Focus Group Discussions (FGD) with the Indonesia Traditional Fisher Community (KNTI) and site visits in Semarang.



» Findings on needs assessment through FGDs and site visits:



### 1 POTENTIAL PROGRAM - EDUCATION AND TRAINING

Underutilization of RE in economic activities. Therefore, there is a need for capacity-building programs to impart practical skills and knowledge in renewable energy technologies.



### 2 POTENTIAL PROGRAM - POLICY ADVISORY

Fisherfolk have experienced complicated and intersecting rules regarding boat permits and coastal management. Government support is considered insufficient.



### 3 POTENTIAL PROGRAM - FINANCING AND BUSINESS GROWTH

Potential sustainable circular economy initiative identified, in the form of a local 'bank sampah' enabling fishers to monetize waste caught in their nets.

## STAGE 2

### Business development & pilot project development

» Workshops



#### 1 USAHA MIKRO KECIL MENENGAH (UMKM)/ MSME FINANCE AND MARKETING 101 IN SEMARANG

**TOPICS:**

- Marketing tactics, legal considerations, and improvements to product packaging; and
- Managing basic finances sustainably and exploring secure capital options

**PARTICIPANTS:**

**65** women entrepreneurs from Kesatuan Perempuan Pesisir Indonesia (KPPI) & KNTI Kendal, Semarang, and Gresik.

#### 2 BASIC AWARENESS OF ENERGY EFFICIENCY & CLEAN ENERGY TRAINING FOR FISHERFOLK IN TAMBAKLOROK, SEMARANG

**TOPICS:**

- Theory of energy efficiency, preventive maintenance, and basic awareness; and
- Demonstration of energy efficiency practices and preventive maintenance using equipment with fisherfolk

**PARTICIPANTS:**

**65** fishers from KPPI & KNTI Semarang, and Gresik

#### 3 BASIC AWARENESS OF ENERGY EFFICIENCY & CLEAN ENERGY FOR PETAMBAK IN TAWANG, KENDAL

**TOPICS:**

- Energy efficiency theory, preventive maintenance, and basic awareness; and
- Demonstration of energy efficiency practices and preventive maintenance using equipment with aquaculture farmers (petambak)

**PARTICIPANTS:**

**65** aquaculture farmers from KPPI & KNTI Kendal & Gresik

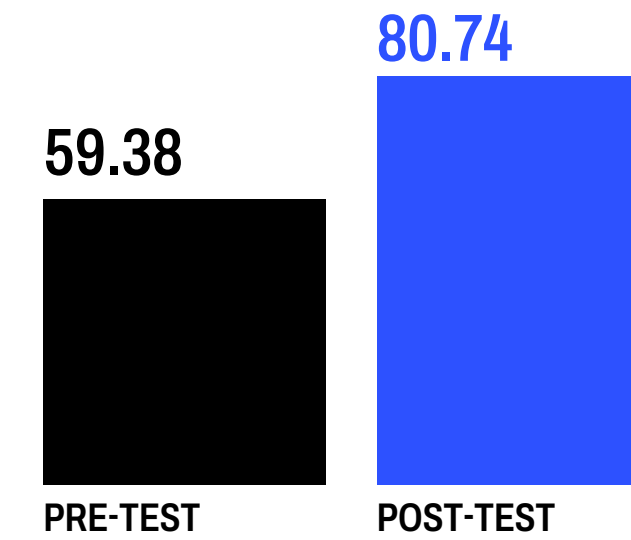
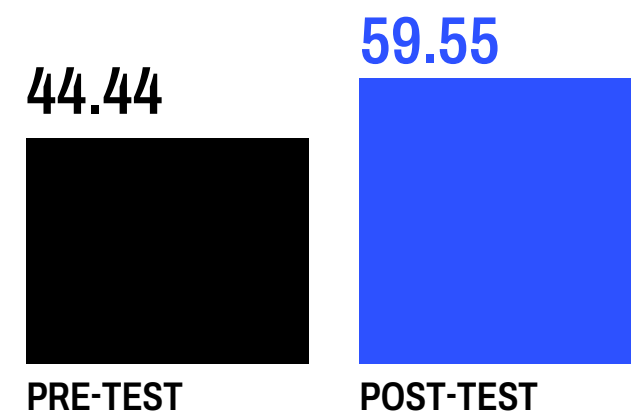
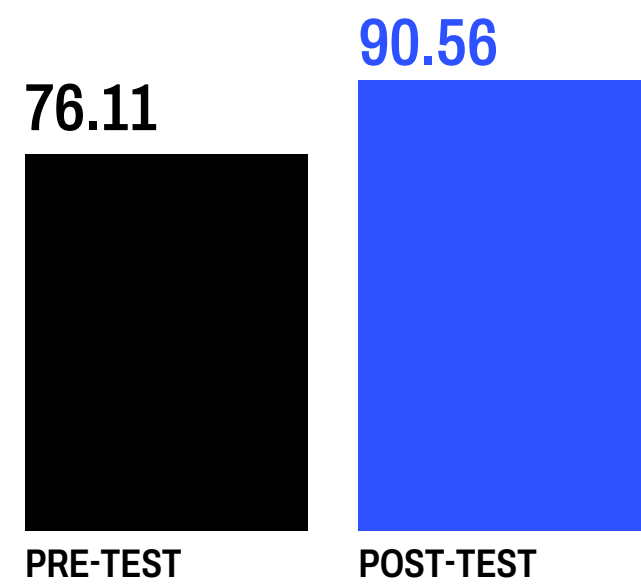
» Outputs: Workshop effectiveness assessment

**1** USAHA MIKRO KECIL MENENGAH (UMKM)/ MSME FINANCE AND MARKETING 101 IN SEMARANG

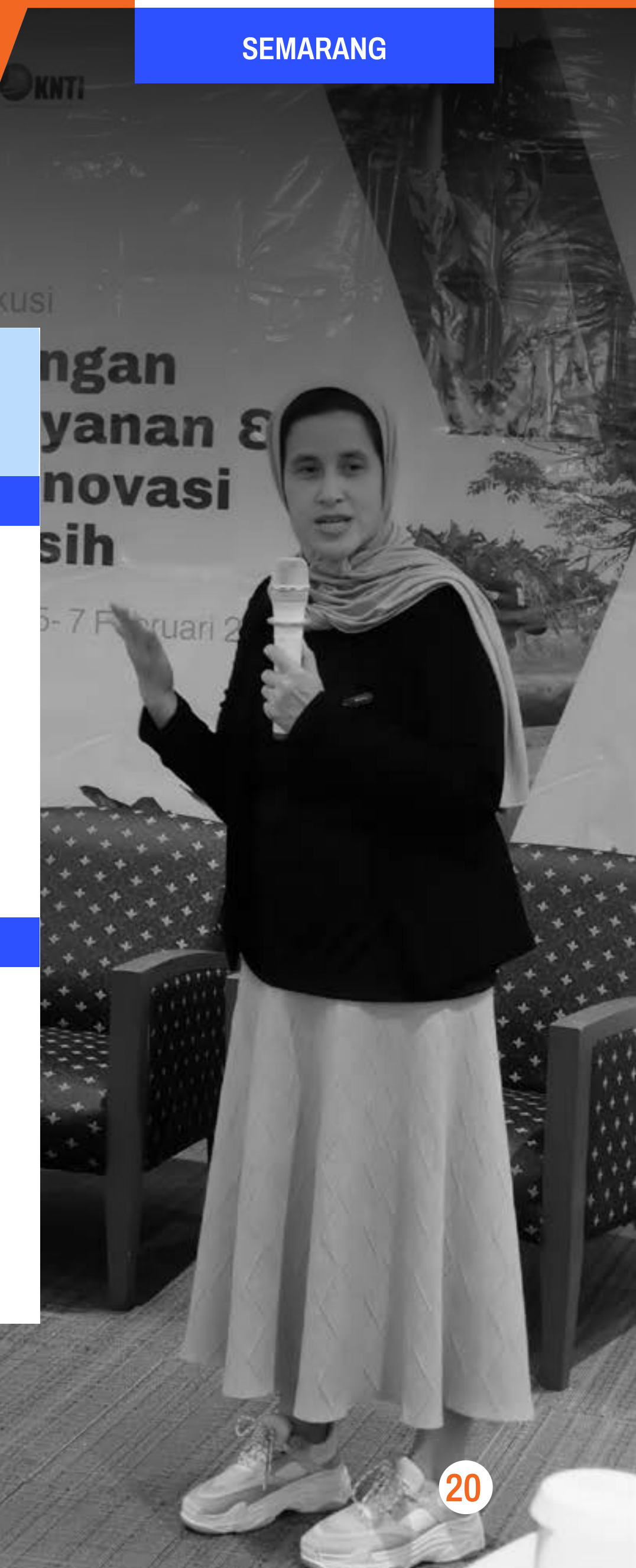
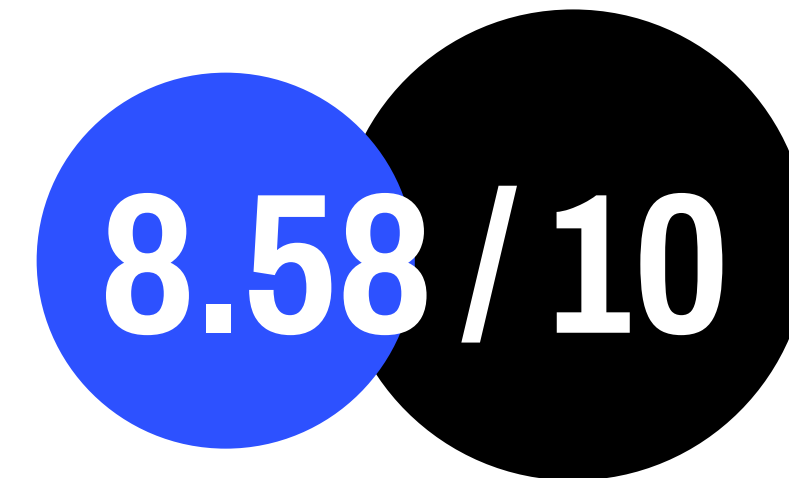
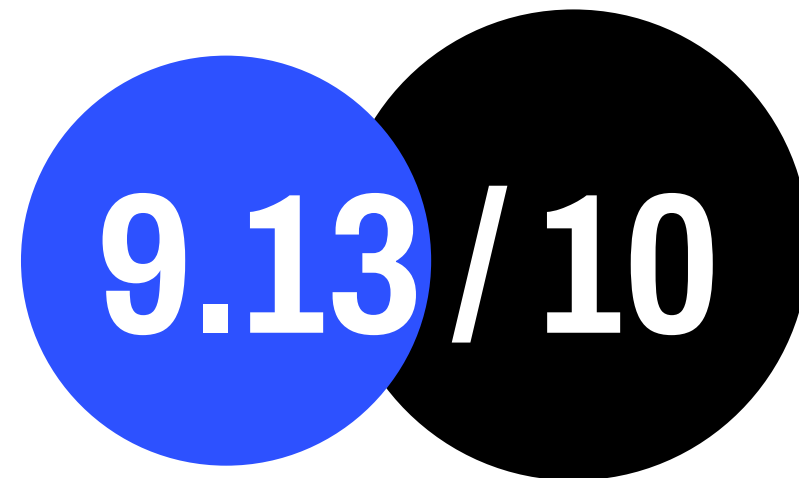
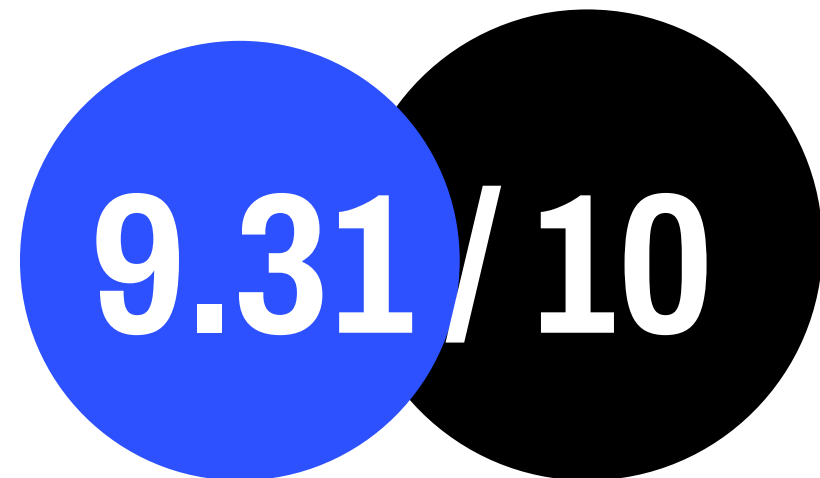
**2** BASIC AWARENESS OF ENERGY EFFICIENCY & CLEAN ENERGY TRAINING FOR FISHERFOLK IN TAMBAKLOROK, SEMARANG

**3** BASIC AWARENESS OF ENERGY EFFICIENCY & CLEAN ENERGY FOR PETAMBAK IN TAWANG, KENDAL

KNOWLEDGE TRANSFER



PARTICIPANT SATISFACTION





CASE STUDIES

# ▶ LOMBOK

**Project development -  
education and training**

- Capacity building workshops
- Technical training programmes

# STAGE 1

## Identification & research

» Field assessment using a qualitative approach

### 1 FOCUS GROUP DISCUSSIONS (FGD)

- With Yayasan Rumah Energi (YRE) and Kesatuan Nelayan Tradisional Indonesia (KNTI) Lombok

### 2 SITE VISITS

- Kayangan - North Lombok, in collaboration with KNTI
- Karang Sidemen - Central Lombok, collaboration with YRE
- Jerowaru - East Lombok, collaboration with KNTI

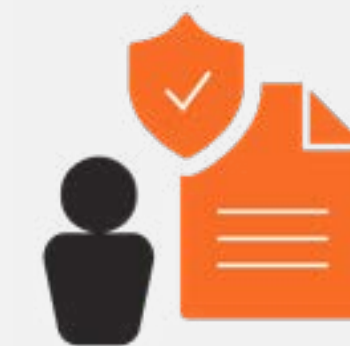


» Findings on needs assessment through FGDs and site visits:



### 1 POTENTIAL PROGRAM - EDUCATION AND TRAINING

Introduction to renewable technologies and their practical applications, such as integrated solar photovoltaic (PV) energy for boats and fish farms. All technical training should focus on demonstrating the benefits of these technologies, specifically related to fishing boats powered by electricity from solar PV, solar PV aerators, solar PV cold storage, solar PV for lighting, and solar PV for drying.



### 2 POTENTIAL PROGRAM - POLICY ADVISORY

Training sessions for small business (UMKM) should cover production skills, financial management, market assessments, digital marketing, sustainable packaging, and branding.

During this process, JEDI perspectives were carefully considered when evaluating potential partners and organizations. The resulting communications plan was designed to empower marginalized communities, engage more voices in the conversation, and benefit a broad spectrum of stakeholder groups.

» Outputs

1

**Organizational structure**

While no specific roles have been assigned, findings indicate that the Field Coordinator, Outreach Coordinator, and Facilitator will play key roles in engaging with communities. Meanwhile, the Project Research team will concentrate on developing the community-based strategy.

2

**List of potential partners**

Showed by table below.

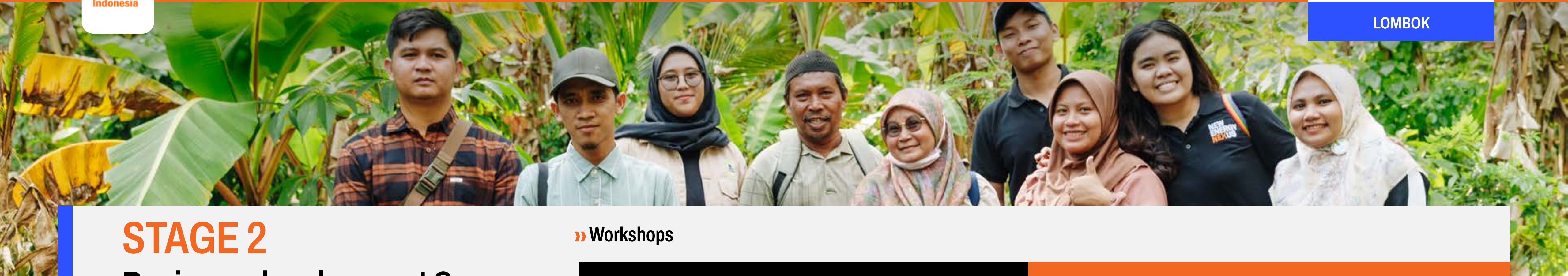
STAKEHOLDER GROUP	ORGANIZATIONS	ROLE	BACKGROUND
ACADEMIA	Universities and research centers in the region	Board members, speakers for training, and facilitators	The academic sector will help to facilitate training and provide resources for community engagement, for example, through student services (KKN) every year.
GOVERNMENT	The Development Agency	Board members and speakers for training and policy dialogue	This organization will support the program by disseminating and synchronizing the regional plan with existing government plans.
	The Energy Agency	Board members, speakers for training and policy dialogue, and collaboration for renewable energy implementation	This organization will help establish best practices for the implementation of renewable energies and synchronize programs with existing government efforts.
	Department of Marine and Fisheries	Board members and speakers for training and policy dialogue	This organization will help address fisheries' needs and challenges.
	The Cooperative Agency	Board members, speakers for training, and facilitators	This organization will support and mentor the community cooperative.
	The Industry Agency	Board members, speakers for training, and facilitators	This organization will provide support by facilitating opportunities for certification, market access, and product showcases.
INDUSTRY	Energy and renewable energy companies/ providers	Speakers for training and policy dialogue, and potential collaborations for renewable energy implementation	This organization will help in providing technology and support for technical training.
INCUBATOR	Incubator organizations in the region	Speakers for training and potential funders	This organization will support CoE funding options to execute programs and plans.
STUDENTS	Student boards / organizations	Collaboration for renewable energy implementation	Together with the academic sector / universities, students will play a role in supporting community engagement and product campaigns through their activities.

**C**

**Communications strategy**



TARGET GROUP	COMMUNICATION OBJECTIVES	PRODUCTS/ ISSUES FOR COMMUNICATION	MEANS OF COMMUNICATION	PRIORITY
(1) KNTI (MAIN BENEFICIARIES)	Provide accessible reference materials for training curricula and technology guidelines	Manuals, how-to guides, and toolkits in local languages	Visually illustrated communication materials, training	Immediate
(2) YRE (MAIN BENEFICIARIES)	Provide accessible reference materials on training curricula and technology guidelines	Manuals, how-to guides, and toolkits in local languages	Visually illustrated communication materials, training	Immediate
(3) GOVERNMENT OFFICERS / POLICYMAKERS	Policy on RE application in multiple sectors Highlight the outcomes and impacts of capacity-building activities	Policy brief	Printed or digital materials, meetings	Immediate
(4) ENERGY INDUSTRY STAKEHOLDERS	Review of standards, application of RE, certification schemes	Blogs, policy briefs and video clips	Printed or digital materials	Immediate
(5) PUBLIC	Raise awareness of renewables and CoE activities	Printed and digital brochures, video clips	Social media channels such as Facebook, Twitter, Instagram, LinkedIn, and Tiktok	Long-term
(6) POTENTIAL INVESTORS OR DONORS	Generate support for follow-up activities and expansion of CoE programs.	Policy brief and video clips	Printed or digital materials	Long-term
(7) UNIVERSITIES / ACADEMIA	Provide accessible training curriculum and technology guidelines that can be integrated into the university syllabus.	Curriculum	Printed or digital materials	Long-term



## STAGE 2

### Business development & pilot project development

#### » Workshops



#### 1 WORKSHOP: BASIC MARKETING & FINANCE

IMPLEMENTING PARTNER:

- Asosiasi Pendamping Perempuan Usaha Kecil (ASPPUK)

PARTICIPANTS:

**90** female participants from KPPI, KNTI, KWT, and YRE members from North, Central, and East Lombok

#### 2 WORKSHOP & DEMONSTRATION: CLIMATE SMART AGRICULTURE

IMPLEMENTING PARTNER:

- Arconesia

PARTICIPANTS:

**42** female participants from YRE members from Central Lombok

#### 3 WORKSHOP & DEMONSTRATION: SOLAR PV-POWERED COLD STORAGE

IMPLEMENTING PARTNER:

- Olat Maras Power

PARTICIPANTS:

**31** female participants from KNTI members from East Lombok

#### 4 WORKSHOP & DEMONSTRATION: ELECTRIC OUTBOARD MOTORS

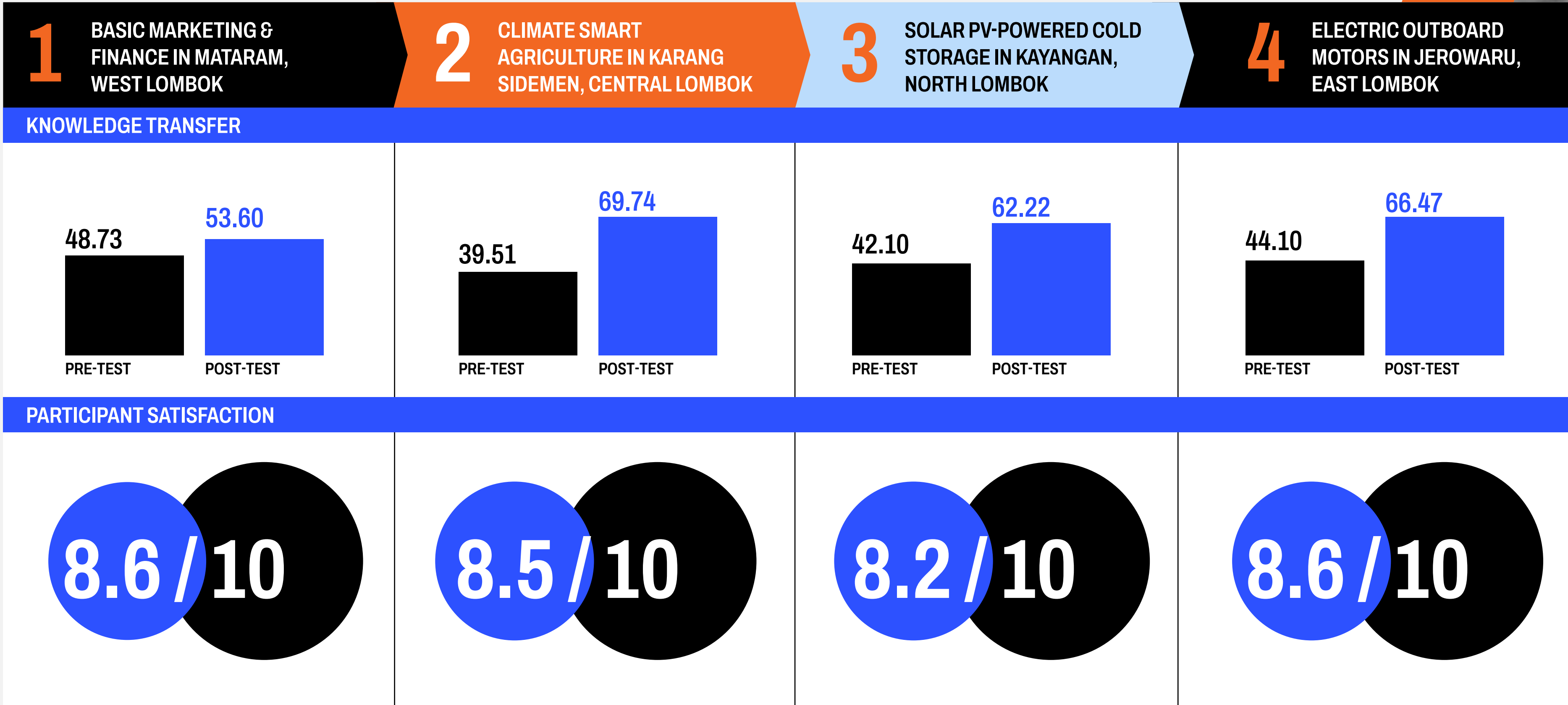
IMPLEMENTING PARTNER:

- Maritek

PARTICIPANTS:

**16** female participants from KNTI members from North Lombok

» Outputs: Workshop effectiveness assessment

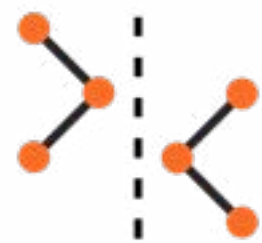


# CASE STUDIES INSIGHTS



## TAILORED TRAINING IS FUNDAMENTAL

Success requires the adaptation of training materials to suit the specific needs of beneficiaries. For instance, participants with a solid foundation in finance and marketing sought advanced topics like digital marketing and export strategies, highlighting the need for nuanced training approaches. The pilot project illustrated the importance of long-term training over short-term alternatives.



## KNOWLEDGE-ACTION GAP

There is a knowledge-action gap and disparity in technological adaptation and development between regions (e.g., between Java and eastern areas).



## FINANCIAL BARRIERS

There is a knowledge-action gap and disparity in technological adaptation and development between regions (e.g., between Java and other islands in the east of Indonesia).



## TECHNOLOGY CUSTOMIZATION

Continuous innovation is vital. Feedback from the pilot project revealed the need for customization, such as improving technical aspects.

Lokakarya & Diskusi  
**Pengembangan Pusat Pelayanan & Pelatihan Inovasi Energi Bersih**

Lombok, 17-20 Oktober 2023



# Glossary

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**Analysis of Variance (Anova):** statistical method used to compare the means of three or more groups to determine if there are any statistically significant differences

**Aquaculture Farmers (Petambak):** individuals or groups involved in the cultivation of aquatic organisms, such as fish, crustaceans, mollusks, and plants, in controlled water environments for commercial, subsistence, or conservation purposes.

**Arconesia:** a startup with a business focus on agricultural management platforms that help small-scale farmers in Indonesia implement Climate Smart Agriculture practices.

**Aspiration Funds (Dana Aspirasi):** a budget allocated within government or organizational funding, often designated for projects or initiatives proposed by specific members of a legislative body or community representatives.

**Bank Sampah (Trash Bank):** a community-based waste management system where residents can deposit their recyclable waste in exchange for money, goods, or services.

**Bootcamp:** an intensive, short-term training program designed to teach participants specific skills or knowledge, often in a hands-on, practical format.

**Center of Excellence (CoE):** a financially-sustainable platform community learning center, that offers variety of educational and training program that focusing in specific sector or issue that is relevant with local stakeholder or communities.

**Circular Economy:** the circular economy is an economic model that emphasizes the reuse, recycling, and regeneration

of materials and products to minimize waste and resource consumption. In the context of clean energy, it involves designing products for longer life cycles, repurposing waste materials, and creating systems that use resources efficiently, contributing to sustainable energy practices and reducing environmental impact.

**Clean Energy Entrepreneurship:** involves creating and scaling businesses that develop innovative, sustainable energy solutions, such as solar, wind, and other renewable technologies. These entrepreneurs drive the transition to a low-carbon economy by promoting environmentally friendly practices, reducing reliance on fossil fuels, and often addressing energy access issues in underserved communities. Through innovation and collaboration, they play a crucial role in building a more sustainable and equitable energy future.

**Clean Energy Ecosystem:** this refers to the interconnected network of stakeholders, resources, policies, and infrastructures that collectively foster the development, commercialization, and adoption of innovative energy technologies and solutions. This ecosystem includes research institutions, startups, established companies, government agencies, investors, and support organizations, all working together to drive advancements in energy efficiency, renewable energy, energy storage, and other sustainable practices. The goal of the Clean Energy ecosystem is to accelerate the transition to a sustainable, low-carbon energy future by encouraging collaboration, knowledge sharing, and the creation of new business opportunities.

**Community Empowerment Programs (PPM):** initiatives designed to enhance the skills, resources, and capabilities of community members, enabling them to actively participate in and influence their own development and decision-making processes.

**Community-Based Strategy:** an approach developed and implemented with active involvement from local community members that focuses on leveraging local knowledge, resources, and participation to address specific needs or achieve shared goals.

**Consumer Cooperative Model:** a business structure where a cooperative is owned and operated by its consumers, who share in the profits and decision-making.

**Curricular:** set of courses, content, and learning experiences provided by an educational institution or program

**Energy Efficiency:** energy efficiency involves using technology and practices that require less energy to perform the same function, thereby reducing overall energy consumption. This includes optimizing buildings, industrial processes, and appliances to use less energy for heating, cooling, lighting, and manufacturing, ultimately leading to lower energy costs and reduced carbon emissions.

**Focus Group Discussion (FGD):** a qualitative research method where a small group (6-12) of participants discuss a specific topic under the guidance of a moderator to gain insights and gather opinions on the subject.

# Glossary

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**Hackathons:** a creative problem solving platform that brings together innovators, researchers, marketers, and business minds to solve specific problems in the industry and allows participants to have a deep understanding of the challenges and appreciate the technologies and resources to address them.

**Incubation Programs:** structured initiatives designed to support the early-stage development of startups or innovative projects by providing resources such as mentorship, funding, and workspace

**Incubators:** organizations or programs designed to support the development of new businesses or projects by providing resources like mentorship, funding, office space, and networking opportunities.

**Indonesia Technology Innovation Foundation (INOTEK):** a non-profit business incubator in Indonesia founded in January 2008 to support the development of technologically-innovative startups and small and growing businesses (SGBs) that serve the Bottom-of-Pyramid (BOP) markets

**Indonesia Traditional Fisher Community (KNTI):** a collective effort to support traditional fishermen's needs, protect their rights from industrial threats, boost their economy, enhance their coastal knowledge, ensure education, and improve welfare, with a focus on empowering female fisherfolks.

**Justice, Equity, Diversity, and Inclusion (JEDI):** a framework focusing on fair treatment, access, opportunity, and advancement for all individuals.

**Kesatuan Perempuan Pesisir Indonesia (KPPI):** an autonomous national organization focused on advocating for the rights, justice, and welfare of female fisherfolks and the sustainability of their living environments.

**Likert Scale:** a type of rating scale used to measure attitudes or opinions by asking respondents to indicate their level of agreement or disagreement with a statement.

**Olat Maras Power (PT OMP):** a business subsidiary of the Sumbawa University of Technology. PT. OMP uses renewable energy and appropriate technology for its product development, including electric bicycles, solar-powered cold storage, and solar-powered submersible pumps.

**Paris Agreement:** an international treaty adopted in 2015 aimed at limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C.

**Photovoltaic (PV):** a technology that converts sunlight directly into electricity using semiconductor materials.

**Post-Activity Interview:** a review conducted after the completion of an activity or project to assess performance, gather feedback, and identify lessons learned for future improvement.

**Renewable Energy (RE):** energy derived from natural sources that are continuously replenished, such as sunlight, wind, rain, tides, waves, and geothermal heat.

**Renewable Technology:** technologies designed to generate energy from renewable resources, such as solar, wind, hydro,

and geothermal, which naturally replenish and have a lower environmental impact compared to fossil fuels.

**Secondary Research:** the process of gathering and analyzing existing data and information by reviewing literature, reports, and other documents.

**Special Allocation Funds (DAK):** a financial resource designated for specific purposes, typically within government or organizational budgets, to provide targeted funding outside of regular budget allocations.

**Sustainability Measures:** actions or strategies implemented to enhance environmental protection, resource efficiency, and long-term ecological balance, often aiming to reduce negative impacts on the environment and promote sustainable development.

**Venture Capital:** investment provided to early-stage, high-potential startups or businesses in exchange for equity or ownership stake, with the aim of supporting growth and innovation.

**Work Order Letter (SPK):** a formal document issued to authorize and detail the scope of work, terms, and conditions for a specific project or task.

**Yayasan Rumah Energi (YRE):** an organization focuses on poverty alleviation, improving the people's economy, climate change adaptation and mitigation, and disaster risk reduction.

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