



Just Energy Transition Partnership Indonesia

# Ensuring Just Transition

Deep dive into Just Transition Framework Operationalization

Thematic Report

December 2025



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## Foreword

Indonesia continues to strengthen the governance of its climate and energy policies as it accelerates the transition from fossil fuels to clean and renewable energy. Within this evolving policy landscape, the JETP Secretariat recognizes a shared understanding among stakeholders that the energy transition must be pursued in a just, inclusive, and sustainable manner, while safeguarding energy security and affordability.

Since the launch of the Comprehensive Investment and Policy Plan (CIPP) under the Just Energy Transition Partnership (JETP) in 2023, Indonesia's Just Transition is understood not only as a decarbonization agenda, but also as an effort to unlock new economic opportunities and to ensure the participation of vulnerable groups, including women, youth, informal sector workers, and communities in project areas. It must also foster new economic opportunities, ensure equitable access to support, and enable meaningful participation for vulnerable and affected groups, including women, youth, informal sector workers, and communities in transition regions.

This thematic study contributes to strengthening the understanding and operationalization of Indonesia's Just Transition framework, with a particular focus on Standard 9, which addresses economic diversification and transformation in regions undergoing energy transition. Through two case studies, the report examines how Just Transition principles can be applied at the project level, highlighting both opportunities and implementation challenges. The findings offer practical insights for translating national-level commitments into concrete actions on the ground.

The study forms part of the broader JETP analytical framework and complements key documents, including the CIPP 2023, the JETP Progress Report 2025, and other thematic studies on captive power, energy efficiency and electrification, and carbon pricing. Together, these analyses provide a coherent and evidence-based foundation to inform policy dialogue, investment planning, and implementation across Indonesia's energy transition agenda.

As Indonesia moves forward in accelerating its energy transition, the JETP Secretariat expresses its appreciation to all the Government of Indonesia and to all partners, experts, and stakeholders whose contributions have strengthened this study.

The Secretariat looks forward to continued collaboration to support effective implementation, sustained progress, and a just energy transition that delivers shared prosperity for present and future generations.

**Paul Butarbutar**  
Head of JETP Secretariat

## Acknowledgement and Authorship

This Thematic Report was prepared by the JETP Indonesia Secretariat, mainly by the Just Transition Working Group (JTWG). The JETP Indonesia JTWG consists of the United Nations Development Programme (UNDP), Asian Development Bank (ADB), World Bank (WB), The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, International Labour Organization (ILO), and Indonesian Centre for Environmental Law (ICEL). The ADB also provided institutional support to the JETP Secretariat.

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## Abbreviations and Acronyms

<b>ADB</b>	Asian Development Bank
<b>AFD</b>	<i>Agence Française de Développement</i> (French Development Agency)
<b>AMDAL</b>	<i>Analisis Dampak Lingkungan</i> (Environmental Impact Assessment)
<b>Bappenas</b>	<i>Badan Perencanaan Pembangunan Nasional</i> (National Development Planning Agency)
<b>BaU</b>	Business-as-Usual
<b>BPS</b>	<i>Badan Pusat Statistik</i> (Statistics Indonesia)
<b>BUMD</b>	<i>Badan Usaha Milik Daerah</i> (Regional-Owned Enterprise)
<b>BUMN</b>	<i>Badan Usaha Milik Negara</i> (State-Owned Enterprise)
<b>CCS</b>	Carbon Capture and Storage
<b>CGE</b>	Computable General Equilibrium
<b>CIPP</b>	Comprehensive Investment and Policy Plan
<b>CJA</b>	Climate Justice Alliance
<b>CMEA</b>	Coordinating Ministry of Economic Affairs
<b>CMMAI</b>	Coordinating Ministry for Maritime Affairs and Investment
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>COD</b>	Commercial Operation Date
<b>CSO</b>	Civil Society Organizations
<b>CSR</b>	Corporate Social Responsibility
<b>CSV</b>	Creating Shared Value
<b>DEN</b>	<i>Dewan Energi Nasional</i> (National Energy Council)
<b>DFI</b>	Development Finance Institution
<b>DUDIKA</b>	<i>Dunia Usaha, Dunia Industri, dan Dunia Kerja</i>
<b>E&amp;S</b>	Environment and Social
<b>EDT</b>	Economic Diversification and Transformation
<b>ESIA</b>	Environmental and Social Impact Assessments
<b>ESMP</b>	Environmental and Social Management Plan
<b>ESMS</b>	Environmental and Social Management System
<b>ET</b>	<i>Energi Terbarukan</i> (Renewable Energy)
<b>EU</b>	European Union
<b>EV</b>	Electric Vehicle
<b>FED</b>	<i>Forum Energi Daerah</i> (Regional Energy Forum)
<b>FGD</b>	Forum Group Discussion
<b>FI</b>	Financial Institution
<b>FPIC</b>	Free Prior Informed Consent
<b>FS</b>	Feasibility Study
<b>G20</b>	Group of Twenty
<b>GBV</b>	Gender Based Violence
<b>GDP</b>	Gross Domestic Product
<b>GEDSI</b>	Gender Equality, Disability, and Social Inclusion
<b>GESI</b>	Gender Equality and Social Inclusion
<b>GFANZ</b>	Glasgow Financial Alliance for Net Zero
<b>GHG</b>	Greenhouse Gas

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<b>GIIP</b>	Good International Industry Practice
<b>GIZ</b>	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> (German Agency for International Cooperation)
<b>GoI</b>	Government of Indonesia
<b>GWH</b>	Gigawatt Hour
<b>HSBC</b>	Hongkong and Shanghai Banking Corporation
<b>IFA</b>	Investment Focus Areas
<b>IFC</b>	International Finance Corporation
<b>IGO</b>	Intergovernmental Organization
<b>IIGCE</b>	Indonesia International Geothermal Convention & Exhibition
<b>IIF</b>	Indonesia Infrastructure Finance
<b>ILO</b>	International Labour Organization
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPG</b>	International Partners Group
<b>IPP</b>	Independent Power Producer
<b>IRENA</b>	International Renewable Energy Agency
<b>ITUC</b>	The International Trade Union Confederation
<b>JETP</b>	Just Energy Transition Partnership
<b>JICA</b>	Japan International Cooperation Agency
<b>JT</b>	Just Transition
<b>JTF</b>	Just Transition Framework
<b>Kemenco Ekon</b>	<i>Kementerian Koordinator Bidang Perekonomian</i> (Coordinating Ministry for Economic Affairs)
<b>KOPETINDO</b>	<i>Koperasi Energi Terbarukan Indonesia</i> (Indonesian Renewable Energy Cooperative)
<b>LARP</b>	Land Acquisition and Resettlement Plan
<b>LARAP</b>	Land Acquisition and Resettlement Action Plan
<b>LMDH</b>	<i>Lembaga Masyarakat Desa Hutan</i> (Forest Village Community Institution)
<b>LNOB</b>	Leave No One Behind
<b>LRP</b>	Livelihood Restoration Program
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MCA</b>	Multi-Criteria Analysis
<b>MCC</b>	Millenium Challenge Corporation
<b>MDB</b>	Multilateral Development Bank
<b>MEMR</b>	Ministry of Energy and Mineral Resources
<b>MoEF</b>	Ministry of Environment and Forestry
<b>MoHA</b>	Ministry of Home Affairs
<b>MSME</b>	Micro, Small, and Medium Enterprises
<b>Mt</b>	Million Tons
<b>Musrenbang</b>	<i>Musyawah Perencanaan Pembangunan</i> (Development Planning Forum)
<b>MUFG</b>	Mitsubishi UFJ Financial Group
<b>NGO</b>	Non-Governmental Organization
<b>NOISE</b>	Needs, Opportunities, Improvements, Strengths, and Exceptions

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<b>NRM</b>	Natural Resource Management
<b>NZE</b>	Net Zero Emission
<b>OHS</b>	Occupational Health & Safety
<b>OJK</b>	<i>Otoritas Jasa Keuangan</i> (Financial Services Authority)
<b>OPD</b>	<i>Organisasi Perangkat Daerah</i> (Regional Government Organizations)
<b>PESTLE</b>	Political, Economic, Social, Technological, Legal, and Environmental
<b>PGE</b>	Pertamina Geothermal Energy
<b>PLN</b>	PT Perusahaan Listrik Negara (Persero)
<b>PLTP</b>	<i>Pembangkit Listrik Tenaga Panas Bumi</i> (Geothermal Power Plant)
<b>PLTU</b>	<i>Pembangkit Listrik Tenaga Uap</i> (Steam Power Plant)
<b>PMA</b>	<i>Penanaman Modal Asing</i> (Foreign Direct Investment)
<b>PMDN</b>	<i>Penanaman Modal Dalam Negeri</i> (Domestic Investment)
<b>PP</b>	<i>Peraturan Pemerintah</i> (Governmental Regulation)
<b>PROPER</b>	<i>Program Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan Hidup</i> (Corporate Performance Rating Program in Environmental Management)
<b>PUE</b>	Productive Use of Energy
<b>R&amp;D</b>	Research & Development
<b>RE</b>	Renewable Energy
<b>REC</b>	Renewable Energy Certificates
<b>RP</b>	<i>Rencana Pemukiman Kembali</i> (Resettlement Action Plan)
<b>RPJMN</b>	<i>Rencana Pembangunan Jangka Menengah Nasional</i> (National Medium-Term Development Plan)
<b>RPJPN</b>	<i>Rencana Pembangunan Jangka Panjang Nasional</i> (National Long-Term Development Plan)
<b>RUED</b>	<i>Rencana Umum Energi Daerah</i> (Regional General Energy Plan)
<b>SDG</b>	Sustainable Development Goals
<b>SEP</b>	Stakeholder Engagement Plan
<b>SKKNI</b>	<i>Standar Kompetensi Kerja Nasional Indonesia</i> (Indonesian National Work Competency Standards)
<b>SME</b>	Small and Medium Enterprises
<b>SMI</b>	PT. Sarana Multi Infrastruktur (Persero)
<b>SOAR</b>	Strengths, Opportunities, Aspirations, and Results
<b>SOP</b>	Standard Operating Procedure
<b>Stranas</b>	<i>Strategi Nasional</i> (National Strategy)
<b>SWOT</b>	Strength, Weakness, Opportunity, and Threat
<b>TA</b>	Technical Assistance
<b>SATGAS TEH</b>	Indonesian Energy Transition and Green Economy Task Force
<b>UK</b>	United Kingdom
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UPI</b>	<i>Unit Pengelolaan Ikan</i> (Fish Processing Unit)
<b>WB</b>	World Bank

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# 1. Introduction

## 1.1 Background

Indonesia is accelerating its energy transition, supported by a range of international initiatives. The Government of Indonesia (GoI), ten International Partners Group (IPG) countries, and the Glasgow Financial Alliance for Net Zero (GFANZ) working group launched the Just Energy Transition Partnership (JETP) Indonesia on the sidelines of the G20 Summit Bali in November 2022. JETP Indonesia aims to cap power sector emissions at 290 MtCO<sub>2</sub> by 2030, increase the share of renewable energy (RE) to at least 34 percent of total power generation, and achieve net-zero emissions in the power sector by 2050. These goals are supported by a financing commitment of up to USD 20 billion from public and private sources.

A just transition (JT) should be considered throughout the process of achieving these targets to ensure that Indonesia's energy transition is fair, inclusive, and sustainable for all, encompassing elements of distributive, procedural, and restorative justice. JT must function not merely as an outcome but as a precondition, embedded in every stage, from planning to implementation.

JETP Indonesia published the Comprehensive Investment and Policy Plan (CIPP) in 2023, which includes a JT Framework designed to ensure that the energy transition benefits all Indonesians while protecting vulnerable populations and communities affected by the shift away from coal-based energy. Building upon and expanding Chapter 6 of the CIPP 2023 on Just Transition, this report focuses on operationalizing the JT Framework across every stage of a project, from reviews and approvals to action planning, implementation, and monitoring and evaluation. This report aims to provide practical guidance to ensure that Indonesia's energy transition remains inclusive, equitable, and beneficial for all.

Achieving the JETP targets outlined in CIPP 2023 will result in socioeconomic impacts, which also reflects a just transition. A study by WRI Indonesia<sup>1</sup> shows that by 2030, expanding RE capacity is expected to create approximately 0.5 million construction workers for RE technology deployment and 0.2 million power generation workers. This reflects the labor-intensive nature of renewable energy development, especially during civil works, system installation, and commissioning.

Beyond job creation, strategic investments in energy transition can help achieve the government's 8% economic growth target while reducing poverty, generating a multiplier effect: every USD 1 billion invested is projected to produce USD 1.41 billion in economic impact, driven by construction and equipment spending, expanded supply-chain activity, and increased household consumption. These investments are expected to contribute between 3.41 and 8.03 percent to annual Gross Domestic Product (GDP).

A cleaner energy system also stimulates Indonesia's economic growth by attracting public and private funding. By reducing reliance on imported oil, Indonesia can retain more financial resources within the national economy, improve its trade balance, and enhance energy security. Lower reliance on volatile global energy prices will provide businesses and

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1 Harsono, A., Suarga, E., Santosa, F., Ramdani, D., Risfenti, H., & Payosova, I. (2025). Understanding the Socioeconomic Implications of Indonesia's Net Zero Energy Transition. World Resources Institute (WRI) Indonesia. <https://www.wri.org/research/understanding-socioeconomic-implications-indonesias-net-zero-energy-transition>

households with more predictable energy costs, fostering a more stable investment environment and supporting long-term growth.

Energy transition delivers health benefits by reducing air pollutant emissions from fossil fuel combustion. By promoting RE and electric vehicles (EV), Indonesia can lower air pollution levels that cause major health issues. Better air quality increases life expectancy, reduces healthcare costs from pollution-related illness, and improves workforce productivity. A healthier, more productive population contributes more to innovation and economic growth.

## 1.2 Redefining Just Transition for Indonesia's Context

### 1.2.1 Definition of Just Transition by Other Institutions

The JT concept has been defined by various international institutions and organizations with various perspectives. A clear understanding of JT definition is important for establishing common ground and identifying shared principles across sectors and regions.

The International Trade Union Confederation (ITUC) and the International Labour Organization (ILO) provided JT definitions from a civil society and labor rights perspective. ITUC (2015) describes JT as the transition towards a low-carbon and climate-resilient economy that maximises the benefits of climate action while minimising hardships for workers and their communities. Similarly, ILO (2023) defines JT as promoting environmentally sustainable economies in a way that is fair and inclusive to everyone concerned – workers, enterprises and communities – by creating decent work opportunities and leaving no one behind. They also emphasize that JT should maximize the social and economic opportunities of climate and environmental action, while minimizing and carefully managing any challenges, including through effective social dialogue and stakeholder engagement and respect for the fundamental principles and rights at work.

The Intergovernmental Panel on Climate Change (IPCC), Climate Justice Alliance (CJA), and the United Nations (UN) address JT from the perspective of an intergovernmental organization and CSO. IPCC (2022) defines JT as a concept that integrates key principles, such as respect and dignity for vulnerable groups, the creation of decent jobs, social protection, employment rights, fairness in energy access and use, and social dialogue and democratic consultation with the relevant stakeholders, while coping with the effects of asset-stranding and the transition to green and clean economies (medium evidence, medium agreement). The CJA defines JT as principles, processes, and practices that build economic and political power to shift from an extractive to a regenerative economy. The UN defines it as ensuring no one is left behind in the transition to low-carbon economies and societies (Simanjuntak, 2024).

The Coordinating Ministry for Maritime Affairs and Investment (CMMAI), provided a JT definition from a national government perspective in the Indonesian Just Transition White Paper (2024). The Indonesian JT envisions to achieve an inclusive transition to low carbon and climate resilient economic growth and reach net zero with an economic and social transformation that can accelerate poverty alleviation, enhance human resource development, and empower women and other historically disadvantaged groups through multisectoral and multi-stakeholder approaches that create decent work opportunities.

These definitions share common elements including environmental sustainability, worker and community protection, inclusive processes, decent employment creation, and stakeholder

engagement. Understanding these varied perspectives contributes in developing a more comprehensive framework for the implementation of just transition principles across different contexts and sectors.

### 1.2.2 Definition of Just Transition by JETP

A clear, operational definition of Just Transition is essential to support effective implementation across Indonesia's energy sector and broader economy. As Indonesia advances its decarbonization goals under JETP, a shared understanding of what constitutes a just transition ensures that all stakeholders such as government, developers, financial institutions (FI), communities, and civil society, are aligned toward common objectives with clearly defined expectations and responsibilities.

The CIPP 2023 provides the foundation for Indonesia's JT definition, which has been refined through stakeholder consultations, practical implementation experience and several studies. This definition serves as the guiding framework for JETP's approach to ensuring equitable, inclusive, and sustainable transformation.

#### Box 1.2-1: Just Transition Definition in CIPP 2023

“An energy transition in which the resulting social, economic and environmental risks and opportunities are equitably distributed among stakeholders according to their capacity and conditions affirmatively enable vulnerable underserved stakeholders to participate in decision-making that mitigates the risks and captures benefits from opportunities.”

This definition focuses mainly on the energy sector rather than economy-wide transformation. It does not explicitly identify vulnerable groups or outline specific strategies to address their challenges. The definition also lacks emphasis on social justice as well as addressing opportunities, such as economic diversification, social protection, and reskilling. Based on stakeholder feedback and implementation experience, an expanded definition is needed to better reflect Indonesia's existing conditions.

#### Box 1.2-1: A More Comprehensive Just Transition Definition

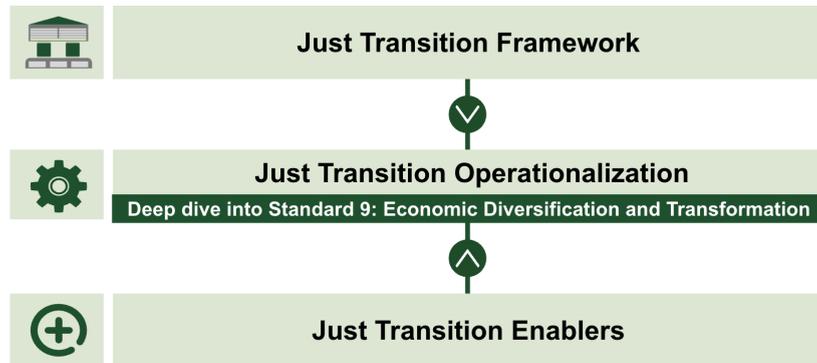
“The Indonesian JT envisions a sustainable, inclusive, and equitable transformation across all economic sectors, ensuring that the shift to a low-carbon, climate-resilient future is people-centered and benefits everyone—leaving no one behind (LNOB). This approach emphasizes opportunity creation, equitable support, social justice, and meaningful participation, particularly for vulnerable populations including workers in carbon-intensive industries, informal sector workers, women, youth, and historically disadvantaged groups. By minimizing socio-economic disruptions through reskilling, social protection, economic diversification, and creating decent work opportunities, just transition becomes a catalyst for sustainable economic growth, social equity, and environmental sustainability in Indonesia.”

The JT definition in this report offers a more comprehensive view of JT in Indonesia beyond the energy sector, ensuring that no one is left behind. The expanded definition supports Indonesia's sustainable development goals through three key ways: mitigating risks from the energy transition, enhancing opportunities for economic growth and job creation, and phasing out fossil-based power systems towards renewables. Moreover, this definition

reflects the social economy and environment unique to Indonesia through emphasis on a holistic, people-centered approach, to ensure the realization of a low-carbon and climate-resilient future that gives benefits to all, especially vulnerable stakeholders. This definition aligns with the International Labour Organization's Just Transition Guidelines (ILO, 2015) and Indonesia's sustainable development goals.

## 2. The Importance of Just Transition Mechanism

Despite the national recognition and implementation of various initiatives related to JT, the systematic application of JT remains challenging due to a lack of standardized approach. A more comprehensive and feasible approach to implement JT is required. As a result, the Just Transition Mechanism was developed, which consists of the JT Framework, JT Operationalization, and JT Enablers (See Figure 2.1-1).



Source: (JETP Secretariat and Working Group, 2025)

**Figure 2.1-1. The Just Transition Mechanism**

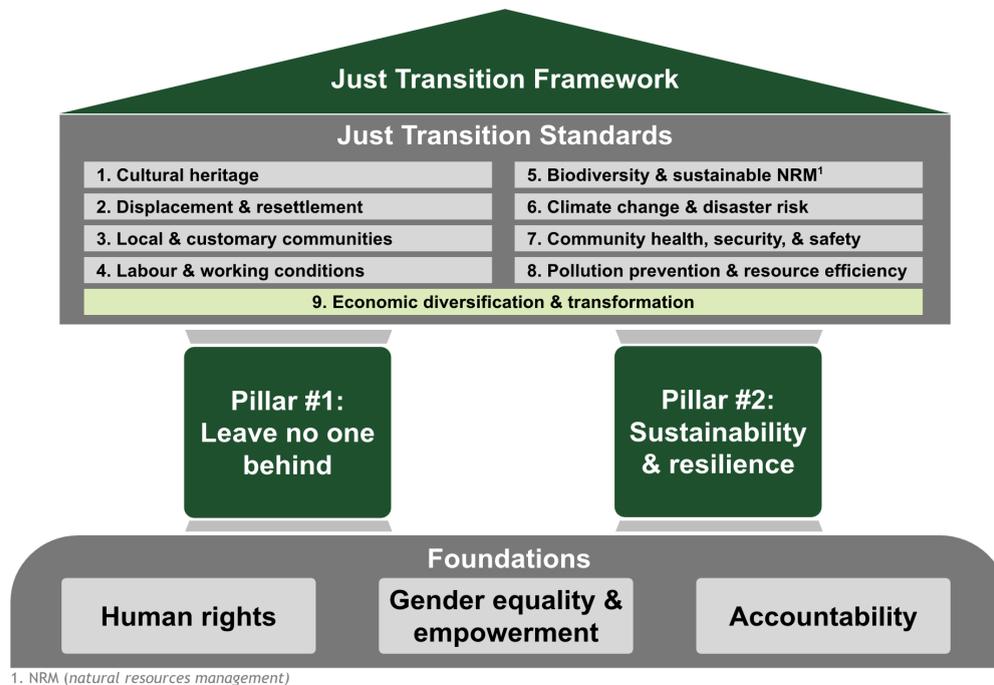
The JT Framework is complementary to the existing legally mandated environmental and socioeconomic requirements by the Gol and the voluntary lender safeguards. Lender safeguards refer to safeguard policy applied by financial institutions or lenders, including multilateral development banks (MDBs), development finance institutions (DFI), and the private financing institutions. Funds provided by these lenders require adherence to standards such as the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability or the Asian Development Bank (ADB) Environmental and Social Framework, as applicable.

The methodology for Standards in the JT Framework is similar to existing methodologies often found in lenders' safeguards. However, the framework expands the requirements from existing regulations (i.e. *Analisa Dampak Lingkungan* (AMDAL), Land Acquisition and Resettlement Action Plan (LARAP)) and lenders' safeguards to better capture the nuances and specificities of a JT in Indonesia while maintaining consistency with the existing safeguards. The JT Framework also aims to highlight the opportunities associated with implementing a just transition, particularly through its Standard 9 on Economic Diversification and Transformation (EDT), rather than focusing solely on mitigating energy transition risks.

The JT operationalization provides guidelines for implementing the JT Framework, designed to strengthen and align with existing Gol regulations, particularly for project developers and financial institutions that may not yet have JT safeguards and indicators in place. Enablers were also identified to support and scale up JT operationalization.

### 3. Developing a Just Transition Framework

The CIPP 2023 outlines the definition and foundations of a JT for Indonesia, as well as introducing a JT Framework. This framework guides stakeholders in identifying areas where JETP investments may have positive or negative impacts, aiming to balance social, economic, and environmental factors, as well as creating an energy system that benefits everyone.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 3-1 Just Transition Framework**

The JT Framework is structured into three distinct levels with the first level consisting of three foundations that underpin the definition of JT for Indonesia (Figure 3-1). These foundations form the basis for two pillars that constitute the second level. The two pillars support a set of JT Standards that form the third and final level which comprise nine standards. These standards not only provide comprehensive coverage of areas relevant for the JT, but they also align closely with Good International Industry Practice (GIIP) as reflected in various internationally recognized sources, including ADB, IFC, World Bank (WB), PT Sarana Multi Infrastruktur (PT SMI), United Nations Development Programme (UNDP), and other organizations.

The JT Framework is multidimensional, interconnected, and cross-cutting, influencing processes at various scales. The framework expands the scope to include fostering greater equity and societal justice for all, emphasizing inclusivity and fairness across communities. This framework integrates gender equality and empowerment into energy policies and initiatives, ensuring that marginalized groups are actively involved in the transition. Additionally, it prioritizes sustainability and resilience, addressing both the immediate and long-term impacts of the transition. By doing so, it ensures a comprehensive approach that not only mitigates negative effects but also actively promotes social, economic, and environmental well-being for future generations.

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### 3.1 Foundations

#### Human Rights

The human rights foundation within a just energy transition emphasizes the fundamental right of every individual to have access to sustainable, reliable, and affordable energy. Access to energy is essential for ensuring an adequate standard of living, as it is linked to critical needs such as health, education, employment, and overall well-being. In this context, energy becomes not just a commodity but a key enabler for fulfilling human rights, from the right to life and health to the right to participate in decision-making that affects one's future. A human rights-based approach to energy transition seeks to ensure that all people, regardless of their socio-economic status, gender, ethnicity, or geographic location, benefit equally from the shift to sustainable energy systems. It aims to ensure non-discrimination, universality, and inclusion in the energy transition process, with special attention to stakeholders in vulnerable situations such as women, persons with disabilities, low-income communities, and those most affected by energy poverty while ensuring participation, empowerment, transparency, and accountability (Bouzarovski & Petrova, 2015; UNDP, 2022). This principle ensures that human rights are respected across all stages of energy production and consumption, guided by frameworks such as Indonesian Law No. 39 of 1999 regarding Human Rights.

#### Gender Equality and Empowerment

This foundation emphasized the critical role women play in the energy transition. Women's contributions to the energy sector, along with the gender-specific social factors that influence energy access and use, must be recognized not just in their roles as beneficiaries but as active participants and drivers of change (Feenstra & Özerol, 2021). The JT Framework goes beyond viewing women as marginalized or stakeholders in vulnerable situations, instead, it seeks to highlight pathways for empowering women, integrating gender mainstreaming, and promoting social inclusion throughout the various stages of energy transition.

#### Accountability

Accountability serves as a primary foundation of the just energy transition process, fostering transparency, fairness, and engagement with stakeholders. This principle promotes stakeholder engagement through public consultations, transparency in decision-making processes, and the availability of accurate, accessible information. Moreover, it includes the establishment of a functional grievance mechanism that enables affected communities and stakeholders to voice concerns, seek resolution, and engage in monitoring and evaluation efforts. Investments must promote robust accountability mechanisms, ensuring that affected communities and stakeholders have the tools and resources to hold decision-makers accountable. Financial responsibilities, grievance redress mechanism, and community monitoring must be built into these investments to resolve conflicts efficiently and fairly.

### 3.2 Pillars

#### Leaving No One Behind

The pillar of LNOB mandates that the just energy transition takes into account the needs of all affected stakeholders, with particular attention to the most vulnerable and adversely affected by the impacts of energy transition. The goal is not only to prioritize these groups but also to empower them as active agents in the energy transition process, giving them a

voice in decision-making and ensuring their socio-economic inclusion. Multistakeholder participation in investments should follow good practice standards, ensuring that stakeholders in vulnerable situations benefit from the economic and social opportunities of the transition. Addressing social disparities and reducing inequalities must be central to the transition, ensuring equitable access to the benefits of a more sustainable energy system.

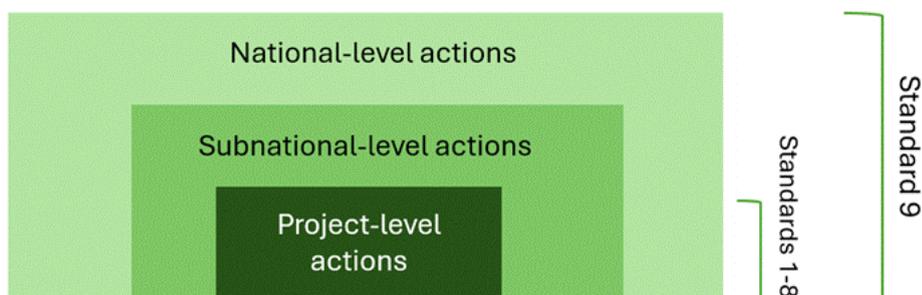
### Sustainability and Resilience

This pillar emphasizes the need to strengthen the resilience of societies to withstand shocks such as natural disasters, conflicts, and emergencies. It promotes the sustainable management of energy and natural resources by integrating circular economy principles, which focus on reducing waste, reusing materials, and maximizing resource efficiency. This includes conserving and restoring natural habitats, biodiversity, and essential ecosystem functions. By aligning with circular economy practices, this principle ensures the long-term sustainability of resources while enhancing the ability of communities and ecosystems to adapt and thrive in the face of environmental and economic challenges.

### 3.3 Standards

JT standards represent thematic areas relevant under both pillars and cut across the three overarching foundations of the JT Framework. These standards guide the process, implementation, and outcomes of Indonesia’s energy transition. Most of these standards are commonly applied as project-level safeguards.

In the context of this report, projects refer to initiatives related to the energy transition, implemented by project developers. These include, among others, the construction of renewable energy facilities, manufacturing of renewable power components, and are characterized by a clear starting point at financial close, a construction phase, and a commercial operation date (COD). Just transition projects aim to consciously operationalize the JT Framework throughout the project process, ensuring the project planning and implementation are conducted in a just manner. With this understanding, the scope of Standard 9 goes beyond the typical project-level focus of Standards 1-8, encompassing both national and subnational-level actions. This expanded scope is essential because EDT requires the coordination of strategies to diversify away from vulnerable products, markets and industries amidst the energy transition. The following Figure 3.3-1 illustrates the difference in scope between Standards 1-8 and Standard 9.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 3.3-1. JT Standards’ Applicability**

The actions scope covered by Standard 9 will address JETP IFAs. The growth of alternative sectors to diversify the economy in the long term requires coordinated actions from various

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stakeholders, which may take years to yield significant results. Therefore, a combination of those short-, medium-, and longer-term actions for Standard 9 should be monitored at both the national and subnational level to reflect the scale necessary to determine progress in EDT.

While Standards 1-8 focus on the strengthening and implementation of safeguards, risk assessment, management and mitigation, Standard 9 emphasizes assessing and actively pursuing opportunities to diversify the economy towards decarbonization, while guiding stakeholders to take the appropriate steps and precautions to with aim to ensure a just transition.

Furthermore, interventions under Standards 1-8 are typically tied to specific projects, undertaken throughout the project life cycle. In contrast, the additionality of Standard 9 in the JT Framework lies in its applicability beyond the project level, encompassing programs at both national and subnational levels, as well as implementation beyond project lifecycles. It addresses economic diversification issues, which demand longer-term programs with active stakeholder collaboration. The following Table 3.3-1 summarizes the differences in application between Standards 1-8 and Standard 9, highlighting their key aspects.

**Table 3.3-1. Summary of Differences in Application Between Standards 1-8 and Standard 9**

Aspect	Standards 1-8	Standard 9
<b>Objectives</b>	Strengthening and implementation of safeguards, risk assessment, management and mitigation at a project level.	Assessing comprehensively and actively pursuing opportunities to diversify the economy towards decarbonization, while appropriately planning for socio-economic impacts and potential benefits.
<b>Focus</b>	<ol style="list-style-type: none"> <li>1. Cultural heritage</li> <li>2. Displacement &amp; resettlement</li> <li>3. Local &amp; customary communities</li> <li>4. Labor and working conditions</li> <li>5. Biodiversity and sustainable NRM</li> <li>6. Climate change and disaster risk</li> <li>7. Community health, security and safety</li> <li>8. Pollution prevention &amp; resource efficiency</li> </ol>	<ol style="list-style-type: none"> <li>1. Economic and financial policies</li> <li>2. Human capital development</li> <li>3. Innovation and technology</li> </ol>
<b>Scope</b>	Typically sufficient to be applied only at the project level.	Beyond the project level, also implemented at the national and subnational levels.
<b>Main Acting Stakeholder</b>	Primarily led by management of the project developer, in response to safeguard requirements of financial institutions.	Involves multiple stakeholders with their respective responsibilities and roles, including the project developer, financial institutions, subnational government, national government, and community.
<b>Stakeholder Engagement</b>	Continuous stakeholder engagement to manage impacts throughout the project life cycle and address grievances, ensuring	Coordinating with stakeholders to identify socio-economic needs and opportunities arising from the effects of the transition. Collaboratively

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Aspect	Standards 1-8	Standard 9
	risks and impacts are mitigated before project closure.	performing actions to effectively achieve the desired outcomes at the national level.

Source: (JETP Secretariat and Working Group, 2025)

### 3.3.1 Standards 1-8

#### Standard 1: Cultural heritage

This standard emphasizes the protection of human rights by safeguarding the cultural heritage and identity of communities. It ensures gender equality and empowerment by providing equal access to cultural heritage and acknowledging the significant role of women and marginalized groups in preserving traditions. Accountability is promoted through the requirement for transparency in managing cultural resources and involving local communities in decision-making processes. The pillar of "LNOB" is upheld by actively including customary and minority groups in the preservation and sharing of cultural heritage. The pillar of sustainability and resilience is upheld by encouraging the sustainable management of cultural heritage sites, ensuring their long-term preservation and resilience.

#### Standard 2: Displacement and resettlement

This standard focuses on protecting the human rights of individuals and communities during displacement, ensuring they are treated with dignity and receive adequate compensation and support. It emphasizes gender equality and empowerment by addressing the specific needs of women, children, and stakeholders in vulnerable situations during resettlement. Accountability is ensured through transparent and participatory processes in planning and implementing resettlement, along with mechanisms for grievance redress. The principle of LNOB is reflected in providing displaced persons, especially the most vulnerable, with sufficient resources. It aims to create sustainable livelihood opportunities and build resilient communities if resettlement is taking place to reflect the principle of sustainability and resilience.

#### Standard 3: Local/customary communities

This standard recognizes and protects the rights of local and customary communities to their lands, resources, and cultural practices, emphasizing the importance of human rights. It acknowledges the crucial roles of affected communities and marginalized groups, including women, youth, and people with disabilities, supporting their empowerment within these communities. Accountability is ensured by involving local communities in decision-making processes that directly affect their lives and livelihoods. The principle of LNOB is upheld by prioritizing the inclusion and support of customary communities, ensuring their voices are heard and respected. This standard also promotes the use of traditional knowledge and practices, contributing to environmental sustainability and community resilience to uphold the pillar of sustainability and resilience.

#### **Standard 4: Labor and working conditions**

This standard upholds the rights of workers to fair treatment, safe working conditions, and freedom from exploitation, as stipulated by the human rights principle. It ensures gender equality and empowerment by providing equal employment opportunities, fair wages, and safe conditions for all workers, regardless of gender. Accountability is mandated through adherence to labor laws and standards, including mechanisms for addressing grievances. The principle of LNOB is reflected in protecting all workers, including those in vulnerable or informal sectors. This standard also supports decent work and economic growth, which are crucial to uphold sustainable development and community resilience.

#### **Standard 5: Biodiversity conservation and sustainable natural resource management**

This standard protects the rights of communities to access and preserve biodiversity. It promotes gender equality and empowerment by encouraging the involvement of women and marginalized groups in conservation efforts and resource management. Transparent and inclusive decision-making processes will ensure accountability for managing natural resources and protecting biodiversity. The LNOB principle is reflected in promoting equitable access to natural resources and the benefits of conservation initiatives. This standard also focuses on preserving ecosystems and promoting practices that enhance environmental sustainability and community resilience.

#### **Standard 6: Climate change and disaster risks**

This standard protects communities from the adverse impacts of climate change and disasters, ensuring they have access to adaptation and mitigation resources. It addresses the disproportionate effects of climate change on women and stakeholders in vulnerable situations, promoting their involvement in climate action for gender equality and empowerment. Accountability is ensured through the call for transparent and inclusive climate policies and disaster risk management plans. The LNOB principle prioritizes the needs of marginalized and vulnerable groups in climate adaptation and disaster response strategies. Additionally, to uphold the pillar of sustainability and resilience, it promotes disaster risks initiatives to enhance communities' capacity to withstand and recover from climate-related shocks.

#### **Standard 7: Community health, safety and security**

This standard community health, safety, and security for the community, protecting them from environmental and social hazards. It addresses the specific health and safety needs of women and stakeholders in vulnerable situations, promoting their well-being and empowerment. Accountability is emphasized by requiring monitoring and reporting on health and safety impacts, with mechanisms for community feedback and grievance in place. The principle of LNOB ensures that all community members, especially the most vulnerable, have access to safe and healthy living conditions. In upholding the pillar of sustainability and resilience, it promotes practices that enhance public health, safety, and overall community resilience.

## Standard 8: Pollution prevention and resource efficiency

This standard protects the right to a clean and healthy environment for all by reducing exposure to pollution and harmful substances. It recognizes that pollution often disproportionately affects women and stakeholders in vulnerable situations, advocating for their protection and participation in resource management to promote gender equality and empowerment. Accountability is emphasized through the responsible use of resources and pollution control, with mechanisms for monitoring and enforcement. The LNOB principle ensures that marginalized communities are not disproportionately burdened by pollution and have access to clean resources. In terms of sustainability principle, it minimizes waste and promotes efficient resource use, contributing to environmental resilience.

### 3.3.2 Standard 9: Economic Diversification and Transformation

In the context of a just energy transition, EDT strategies are employed to diversify economies away from vulnerable products, markets, and jobs that rely on non-RE sources. The focus is on developing income sources that are low-emission and more climate-resilient, ensuring communities can sustain their livelihoods throughout the energy transition process. The significance of EDT is grounded in the understanding that the energy transition itself does not merely involve a technological shift. Rather, it encompasses the development of political, social, environmental, and economic dimensions related to energy production and consumption (Bank Indonesia, 2023). This broader perspective recognizes that achieving a successful transition requires addressing multiple interconnected systems simultaneously.

It is important to note that EDT, in the context of the JT Framework, serves as a process to achieve a just transition rather than an end goal in and of itself. The concept of Indonesia's EDT, along with the standards in the JT Framework, considers the country's status as a developing nation and aims to drive a sustainable and resilient economy during the country's energy transition. This approach ensures that economic development goals remain aligned with climate objectives while addressing Indonesia's specific development needs.

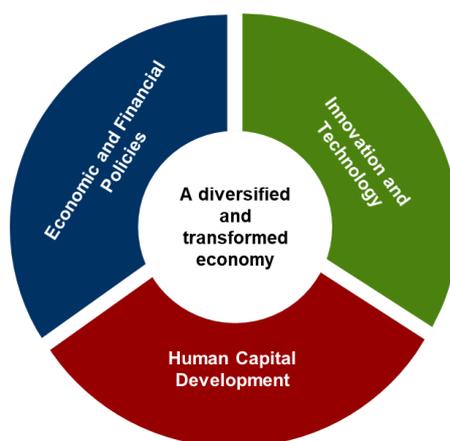
EDT has been embedded in Indonesia's long-term development goals, specifically as part of National Development Planning Agency's (*Badan Perencanaan Pembangunan Nasional/Bappenas*) RPJPN third development agenda on Economic Transformation. This agenda identifies the development of the green economy, technology, innovation and enhanced productivity of the economy as part of the agenda's goals. Consequently, the concept of advancing EDT has also been reflected in RPJMN's second and fifth national priorities, which recognize the need to realize Indonesia's transformation to a green economy and increase the value-added of domestically produced goods through downstream processing and industrial development.

To standardize the approach in driving EDT, the JT Framework incorporated Standard 9, which serves as a basis for mobilizing required funding, accountability measures, and technical assistance to support a just and socially responsible energy transition. Since energy transition is inevitable, it is essential for Indonesia to ensure a just energy transition in which economic, social and environmental risks and opportunities are anticipated, mitigated and managed appropriately while being shared equitably among stakeholders.

### 3.3.2.1 Core Areas of Standard 9

Several definitions of EDT have emerged based on benchmarking against academic literature and international case studies, sharing common features in their integration within just transition contexts. These similarities can be used to standardize the understanding within the context of the JT Framework.

EDT involves diversification of markets and development of new markets, which can lead to shifts in traditional jobs and transform the economy from high-carbon to low-carbon technologies, processes, and products. UNFCCC highlights that EDT should be seen as an opportunity to overcome existing discrimination and systemic injustices and therefore should include exploring new avenues for green jobs in evolving markets including green infrastructure development, clean energy programs (KCI, 2023).



Source: (JETP Secretariat and Working Group, 2025)

**Figure 3.3-2. Core Areas of Standard 9**

Drawing on international processes, Standard 9 identifies three core areas for stakeholders to consider during JT operationalization, namely i) Human Capital Development, ii) Innovation and Technology, and iii) Economic and Financial Policies, as shown in Figure 3.3-2. These core areas align with Bappenas' 2025-2029 RPJMN, specifically focusing on their priorities to strengthen the implementation of a just energy transition and support the country's efforts to achieve a successful transformation towards a green economy. Other core areas could be added if considered crucial and not yet covered under the three core areas of EDT.

#### **Economic and Financial Policies**

This core area encompasses the broadest scope of interconnected actions among stakeholders. This involves reducing economic reliance on a single sector, with an increased focus on decarbonization, the development of renewable energy, and increasing the availability of funding to support the just energy transition. This goal aligns with Indonesia's second National Priority as stated in the RPJMN 2025-2029, which emphasizes the need to realize Indonesia's transformation towards a green economy.

#### **Human Capital Development**

This core area is to increase the number of high-quality human resources. To support low-carbon development and create jobs suited to the changing landscape due to the energy

transition, it is crucial to prepare workers for new opportunities to help build a green economy. This aligns with Bappenas' RPJMN 2025-2029, which highlights the need to develop green jobs in the country by building a supportive ecosystem and developing green competencies for the workforce.

### Innovation and Technology

Innovation and technology aims to increase the development and adoption of sustainable and clean technologies. This core area aligns with Bappenas' RPJMN 2025-2029 by encouraging the adoption of renewable energy in Indonesia to enhance competitiveness against fossil fuels and reduce the cost of electricity production from renewable sources.

Defining specific outcomes associated with each core area is essential for implementing Standard 9. To realize these outcomes, each core area is further broken down into several elements. Each element is accompanied by indicators developed based on the RPJPN 2025–2045 and the RPJMN 2025–2029. These indicators serve as the basis for formulating proposed actions for various stakeholders, including project developers, financial institutions, national and subnational governments, and others. The Standard 9 matrix shown in Figure 3.3-3 serves as a guideline, illustrating the relationships between outcomes, elements, and indicators, as well as example actions for each stakeholder group to achieve EDT outcomes, though it is not intended to be exhaustive.

Outcomes	Economic and Financial Policies		Human Capital Development		Innovation and Technology		
		Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy		Increased number of high quality, local human capital		Increased development and adoption of sustainable technologies at both national and local community levels	
Elements	Implementing appropriate social protection measures to protect the people from adverse effects of the transition	Enhancing fiscal, financial, and business facilitation incentives, and increasing financing and funding availability for the development of resource-efficient, green industries	Creating employment and generating income in energy transition sectors	Addressing skill gaps by equipping educational institutions with the latest industry knowledge, including efforts for a just transition	Increasing strategic innovations to enable a just transition	Adopting sustainable, low-carbon technologies and its supply chain	Enhancing capacity and inclusion of MSMEs to encourage broad public participation, fostering adaptation and growth within a green economy
	Specific element indicators	Specific element indicators	Specific element indicators	Specific element indicators	Specific element indicators	Specific element indicators	Specific element indicators
Actions	Developers		Financial Institutions	Subnational Government	National Government	Other Stakeholders	
	Just actions that can be integrated to daily operational project activities or CSR activities. This includes transitioning towards low-carbon technologies and reskilling/upskilling programs.		Actions that coordinate with both developers and national governments to fund just transition projects, including JT considerations in project processes.	Actions that drive the development for local level low-carbon technologies to transition away from fossil-fuel based activities that maximize local potential.	Actions that incentivizes the development of green industries and the establishment of social protection against the adverse impacts of EDT.	Actions by CSOs, think tanks, academics, NGOs, and associations that provide support in capacity building, knowledge transfer, policy advocacy and build partnerships to promote justice-related principles.	

Source: (JETP Secretariat and Working Group, 2025)

**Figure 3.3-3. Standard 9 Matrix for a Diversified and Transformed Economy**

Elements under the Economic and Financial Policies core area encompass implementing appropriate social protection measures to protect people and businesses from financial losses caused by the transition, as well as increasing incentives, financing, and funding availability (public and private) for the development of resource-efficient green industries. The Human Capital Development core area involves elements such as education and training to meet the increasing demand for green jobs, as well as employment and income

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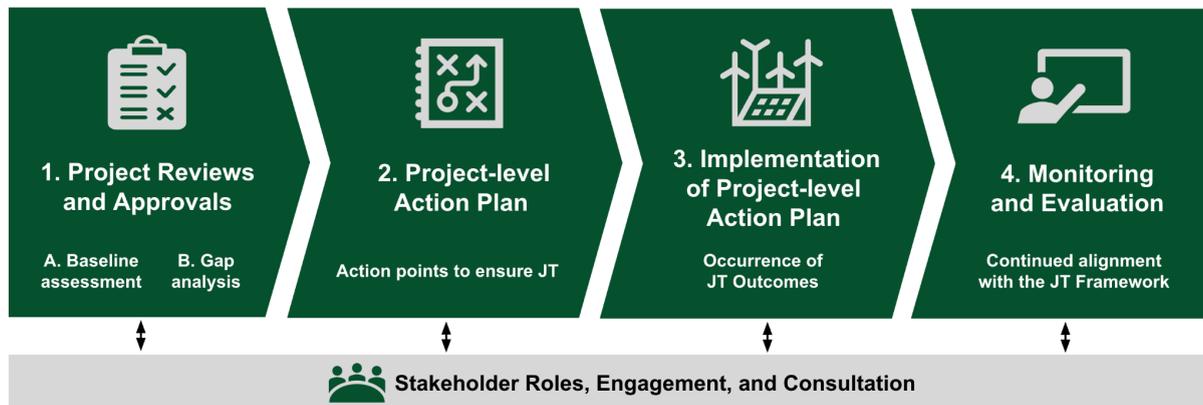
creation in energy transition sectors. Within the Innovation and Technology core area, elements include increasing strategic innovations to enable a just transition, the adoption of sustainable, low-carbon technologies and enhancing the capacity and inclusion of MSMEs in the green economy.

A checklist for the proposed actions that can be taken by each stakeholder group can be found in Appendix 4. Due to the diverse nature of energy transition projects, certain indicators may not be applicable to every project or program. As a result, just transition indicators should be applied selectively, based on their relevance to the specific context of each project or program.

## 4. Operationalization Stages of Just Transition Framework Standards 1-8

The JT operationalization provides guidelines for implementing the JT Framework. It supports, complements, and reinforces existing Gol regulations, particularly assisting project developers and financial institutions that lack comprehensive JT safeguards and indicators. The guidance also strengthens existing lenders' safeguards, where needed and defines broader national and sub-national EDT outcomes beyond individual project results.

JT operationalization follows four stages: (i) project reviews and approvals, (ii) project-level action plan, (iii) project implementation and (iv) monitoring and evaluation. The first stage includes baseline assessment and gap analysis to identify relevant JT indicators. The second stage develops action points to enhance opportunities and mitigate risks across all JETP Investment Focus Areas (IFAs). During implementation, stakeholders address opportunities and mitigate risks and impacts throughout the project cycle. Finally, monitoring and evaluation tracks project progress, ensures actions follow the plan, and implements corrective measures when needed to ensure positive impact. Figure 4-1 displays these four stages.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 4-1 JT Operationalization Stages**

### 4.1 Project Reviews and Approvals

The first operationalization stage is project reviews and approvals. Project developers and lenders are expected to review their projects compliance with social and environmental safeguards laws and regulations before approval. This includes, among others, labor laws, environmental impact assessments, social mapping, economic diversification and transformation plans (Standard 9).

A baseline assessment evaluates the project current state and serves as a reference point for developing proposals and planning documents. The assessment identifies social and environmental conditions before project implementation, including how inequities and disparities affect vulnerable populations and how to address these issues. It should be tailored to local culture, wisdom, and the community needs. Primary data best present the actual context, though secondary data is acceptable when primary data is unavailable. Baseline assessment can be conducted through self-assessment or by engaging consultants.

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Effective assessment for integrating the JT Framework include:

- **Risks and opportunities identification:** assessing potential disruptions and opportunities related to the transition, including the socioeconomic and macro economic condition, and prioritizing them by impact, feasibility, and inclusivity. This enables more informed and equitable project-level interventions.
- **Stakeholder mapping:** identifying all impacted stakeholders, including communities and groups most vulnerable to energy transition impacts. This ensures affected stakeholders have access to accurate project information and grievances mechanisms.
- **Policy and regulatory readiness assessment:** Evaluating the existing policy environment, regulations, frameworks, and initiatives that could support or hinder the transition. Additional assessments can identify gaps and recommend policy enhancements if needed.

After completing the baseline assessment, the next step is gap analysis. This examines the differences between the current and desired future state, identifying JT aspects to address during the project, including tailored support for micro and medium businesses to access skilled employment and financing. Gap analysis reviews baseline assessment results and systematically evaluates the transition's implications for JT Standards and monitoring policies.

JT indicators must be defined in order to ensure all JT elements are considered and monitored. These indicators measure and evaluate environmental, social, and economic changes and establish JT goals during project planning and implementation. The indicators track both project-specific outcomes and regional and national economic transformation.

A non-exhaustive set of potential JT keypoints has been developed based on Standards 1-8 of the JT Framework (Appendix 1). Indicators can be designed using these keypoints as reference. These indicators serve as recommendations for stakeholders when lenders or project developers lack their own safeguards. Project developers and lenders may select indicators suited to their specific context, considering location, culture, local socioeconomic conditions, and technology.

When lenders' safeguards already exist, standards 1-8 indicators may be excluded to avoid redundancy. Furthermore, standard 9 indicators could be used to assess and support economic diversification and transformation. Standard 9 indicators align with government measurement methods, drawing from Bappenas' RPJPN 2025-2045 and RPJMN 2025-2029 performance report. However, indicator use should be determined on project relevance.

Both baseline assessment and gap analysis will support feasibility studies (FS) and environmental and social instruments, including Environmental and Social Management Plan (ESMP), Resettlement Plan (RP), and Stakeholder Engagement Plan (SEP).

## 4.2 Project Action Plan

An action plan includes action points to address gaps identified during project reviews and approvals across IFAs, enhancing opportunities and mitigating risks tailored to the project's specific context and local socioeconomic conditions. The action plan ensures JT is effective, inclusive, and equitable, particularly for vulnerable stakeholders. Project developers, financial institutions, and government lead project-level interventions.

### 4.3 Project Implementation

After securing financing, JT action should be implemented from planning, construction, through operational phases to embed the JT principles in project delivery. For example, project developers should prioritize hiring local community members throughout all phases. Project developers implement and report their JT actions to maintain transparency and accountability. Meanwhile, financial institutions monitor compliance through regular progress reports from project developers.

Project developers must address opportunities and mitigate risks throughout the project cycle to achieve JT outcomes which provide environmental, social, and economic benefits to all stakeholders. The outcomes include energy access, energy security, economic participation, inclusivity, and economic diversification. Grievances about project activities and impact on surrounding communities and environment may arise during the implementation. Project developers must address feedback and grievances, particularly from affected local communities.

### 4.4 Monitoring and Evaluation

The Monitoring and Evaluation (M&E) process is structured according to the project's timeline, requiring continuous monitoring and reporting to maintain consistency with the JT Framework throughout the project lifecycle. Project developers and financial institutions monitor approved indicators during implementation, comparing results against project goals and desired outcomes.

For Standard 9, it is proposed that national and sub-national governments undertake monitoring of the indicators, as these actions support their economic diversification and transformation (EDT) efforts. Since EDT progress cannot be measured through individual project alone, collective sub-national/national-level monitoring is essential

The government will assess the net positive impact of JT projects on Indonesia's economy. When outcomes fall short of targets, stakeholders will be consulted and targets readjusted accordingly. This monitoring approach is necessary considering EDT impacts take years to materialize.

## 5. Operationalization Stages of Just Transition Framework Standard 9

Standard 9 has operational characteristics that differ from those of Standards 1–8. While Standards 1–8 are primarily applied at the individual project level, Standard 9 addresses broader issues at the program level. Accordingly, the implementation of Standard 9 requires a tailored operationalization approach. Figure 5-1 below illustrates the process or stages for operationalizing Standard 9.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 5-1. Standard 9 Operationalization**

Standard 9 encompasses initiatives at both the project and program levels, which necessitates additional steps in Stage 1: EDT Potential Assessment and Stage 2: Just Transition Operationalization Action Plan. These additional steps include defining the scope (Stage 1.1), stakeholder mapping (Stage 1.2), stakeholder engagement (Stage 1.3), preparation of the action plan (Stage 2.1), and stakeholder engagement in the implementation of the action plan (Stage 2.2). These additional steps are required to provide stakeholders with appropriate space for collaboration, thereby enabling the effective implementation of actions under Standard 9.

Furthermore, to facilitate effective application and implementation of Standard 9 by users, namely stakeholders including project developers, financial institutions, subnational governments, the central government, and other relevant parties implementing Standard 9 and or the Just Transition Framework, a set of tools has been developed in the form of checklists and templates. These tools are designed to guide users through each stage of operationalization, providing clear reference points to ensure consistency and ease of use. Operational and Technical Guidelines for the implementation of Standard 9 and the Just Transition Framework, which are published separately, are also available and include step by step instructions and sample completed forms to further support users. Table 5-1 provides references to the locations of these tools and illustrates their alignment with the relevant stages of the operationalization of Standard 9.

**Table 5-1 Standard 9 Operationalization Tools**

Stage No.	Description	Tools
1	Assessment of EDT Potential Checklist	<a href="#">Appendix 2.1</a>
	Stakeholder Engagement Plan Template	<a href="#">Appendix 2.2</a>
2	Action Plan Development Checklist	<a href="#">Appendix 2.3</a>

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Stage No.	Description	Tools
	Action Plan Template	<a href="#">Appendix 2.4</a>
	Grievance Mechanism Templates <ul style="list-style-type: none"> <li>● Grievance form</li> <li>● General grievance log</li> <li>● Grievance log for land acquisition</li> </ul>	<a href="#">Appendix 3</a>
	Proposed Standard 9 Actions <ul style="list-style-type: none"> <li>● For project developers</li> <li>● For financial institutions</li> <li>● For subnational government</li> <li>● For the national government</li> <li>● For other stakeholders</li> </ul>	<a href="#">Appendix 4</a>
3	Performing Actions Checklist	<a href="#">Appendix 2.5</a>
4	Monitoring and Evaluation Framework Template	<a href="#">Appendix 2.6</a>
	Monitoring and Evaluation Template at Implementation Stage	<a href="#">Appendix 2.7</a>
5	Reporting Checklist	<a href="#">Appendix 2.8</a>

### 5.1 Stage 1: Assessment of EDT Potential

The first stage in operationalizing Standard 9 follows a similar assessment approach to Standards 1-8, but with an important distinction. While Standards 1-8 focus primarily on identifying and managing potential risks through GIIPs safeguards assessment, Standard 9 takes a different approach by actively identifying opportunities to diversify the economy towards decarbonization. This opportunity-focused assessment guides stakeholders through the steps needed to pursue economic transformation while maintaining a just transition. Figure 5.1-1 illustrates the detailed steps for Stage 1 and shows how stakeholder engagement can be integrated throughout the assessment process.

#### 1. Assessment of EDT Potential



Source: (JETP Secretariat and Working Group, 2025)

**Figure 5.1-1. Stage 1: Assessment of EDT Potential Steps**

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## Stage 1.1: Identification of Scope

### Defining the Scope of Assessment

Standard 9 can be applied by various stakeholder groups. Therefore, each user needs to identify their respective capacities and limitations and clearly articulate the objectives of the assessment to ensure that subsequent steps are aligned with the intended goals. Users should begin by defining the vision, objectives, and targets for the assessment and the actions to be generated. In addition, the scope of the application of Standard 9 must be clearly established, including the geographic areas of focus, the economic sectors to be addressed, and the implementation timeframe. Establishing these boundaries provides a realistic framework for what can be achieved and helps prevent the assessment from becoming overly broad or unfocused.

### Assessment of the current condition

EDT is inextricably linked with economic structural transformation and the movement of resources both within and between economic sectors (World Bank, 2019). This makes it essential to assess the existing status of the economy and business environment. The assessment should analyze current economic activities, employment patterns, productivity levels, the structure of market and industries in the geographical region, the distribution of the available workforce and their skillsets across low-, medium- and high-skilled categories, wealth distribution, available resources, the quality of institutions, the current policy framework and institutional capacities. An understanding of these factors enables the mapping of available infrastructure, natural and human resources, policy support, local context, and technological capacity. This mapping provides a critical foundation for identifying potential areas for development to support sustainable economic diversification and transformation.

To ensure a comprehensive and current understanding, this assessment should prioritize stakeholder consultation. Engaging with relevant stakeholders such as local businesses, policymakers, community leaders, and industry experts enables the collection of primary data is pivotal for capturing on-the-ground realities and nuanced insights. Primary data collection through interviews, surveys, focus groups, and workshops ensures the assessment reflects current conditions and stakeholder perspectives, which enhances the accuracy and relevance of the findings.

Considering the dynamic nature of the project, this baseline study is recommended to be completed within a short timeframe and preferably conducted in close proximity to the project's/activity's implementation period. Should the project or activity experience delays due to factors such as policy changes or shifts in regional or national leadership that may affect its execution, it is necessary to reassess whether these changes during the waiting period warrant a follow-up study or a repetition of the baseline assessment. These adjustments need to be made while taking into account the availability of the most up-to-date data as well as the implementing capacity, in order to ensure that the assessment results remain reliable and can be used as a basis for decision-making.

Stakeholders may choose to utilize various analytical tools to support this assessment. Economic analysis tools such as input-output analysis, and strategic analysis tools such as Strengths, Weaknesses, Opportunities, and Threats ("SWOT"); Political, Economic, Social, Technological, Legal, and Environmental ("PESTLE"); and Needs, Opportunities, Improvements, Strengths, and Exceptions ("NOISE") analysis can be applied. The tools

listed below are provided for reference and are not mandatory, as users may choose other tools based on their specific needs. A separate guideline document is available that provides step-by-step instructions for implementing these frameworks, and users should refer to that document when utilizing them. Table 5.1-1 presents a summary of these analytical tools.

**Table 5.1-1 Summary of Analytical Tools to Assess the Existing Condition**

Analysis Tool	Description	Application
<b>Economic Analysis Tools</b>		
<b>Input-output put</b>	Analyzes the interdependencies between different sectors within an economy, providing insight into structural composition and interactions.	Aid in understanding the current economic structure, identifying key sectors for diversification and mapping inter-sector relationships and dependencies.
<b>Strategic Analysis Tools</b>		
<b>SWOT</b>	Analyzes internal strengths and weaknesses, and external opportunities and threats facing the project and/or region.	Aid in understanding the competitive advantages, existing challenges and potential constraints that might impact the feasibility and implementation of EDT.
<b>PESTLE</b>	Evaluates external macro factors that can influence economic conditions and decisions.	Provide a comprehensive overview of factors affecting the economy and helps identify external opportunities and threats that inform strategic decisions for EDT.
<b>NOISE</b>	Identifies needs and areas of improvement in the project and/or region.	Diagnose the current economic condition, areas for improvement and potential expansion, aiding the formation of strategic actions that promote EDT.

Source: (NMBL Strategies, 2022)

Leveraging these tools provides a robust framework for evaluating existing conditions. This framework supports the development of actionable strategies for growth and adaptation in a dynamic economic environment. When combined with stakeholder input, these tools help users understand their position within the broader context of EDT and identify appropriate actions for the implementation of Standard 9.

### EDT potential identification

This step focuses on identifying potential opportunities that users can leverage to diversify and transform their projects, regions, or nations, as applicable. These opportunities are identified through evaluations of emerging markets, as well as industries and sectors with strong growth potential and areas where competitive advantages can be developed. The process also includes assessing opportunities and risks related to innovation, technology, and natural resources, along with identifying human capital potential.

Several tools are useful to assess the EDT potential. Economic tools such as the computable general equilibrium (CGE) model and economic multiplier analysis can provide

quantitative insights, while strategic planning tools including strengths, opportunities, aspirations and results (SOAR) analysis offer a forward-looking approach. Users may utilize other tools beyond this list according to the needs of their specific contexts. A separate guideline document provides detailed, step-by-step instructions for applying these tools, and users should consult this document when implementing them. Table 5.1-2 presents a summary of the analytical tools.

**Table 5.1-2. Summary of Analytical Tools to Assess EDT Potential**

Analysis Tool	Description	Application
<b>Economic Analysis Tools</b>		
<b>CGE</b>	A quantitative economic model that analyzes the effects of external changes on an economy. It is dynamic and can simulate how an entire economy might react to changes in policy, technology, or other factors.	Assess potential impacts of energy transition policies on different sectors and evaluate long-term economic growth scenarios.
<b>Economic multiplier</b>	Evaluates the ripple effects of an economic activity or investment through the economy, estimating the total economic impact.	Economic multipliers help assess the broader impact of energy transition investments by capturing direct, indirect, and induced effects. They quantify how initial spending stimulates economic activity and job creation across related sectors and local communities.
<b>Strategic Analysis Tools</b>		
<b>SOAR</b>	Emphasizes a positive strategic approach focused on strengths, vision and potential future aspirations.	Encourage leveraging strengths and opportunities to envision and strategize pathways for EDT by identifying areas of potential growth.

Integrating iterative stakeholder consultations throughout this process can enhance the accuracy and relevance of the assessment by providing valuable insights that help validate and refine the identified opportunities. These consultations also ensure alignment with stakeholder perspectives throughout the assessment process. In addition, this approach can strengthen the legitimacy of the assessment outcomes and enhance the likelihood of acceptance and the long-term sustainability of the implementation of the resulting recommendations.

When identifying potential opportunities, it is essential for the user to align with their own role and position within the larger context. This understanding helps them determine which actions fall within their capacity to undertake. As a result, users can effectively leverage the opportunities identified and maximize potential benefits.

### EDT actions prioritization

This step aims to prioritize the potential opportunities identified by the user and categorize them based on the Core Areas of Standard 9. Quantitative tools such as Multi Criteria Analysis (MCA) can effectively evaluate and compare the different options based on defined criteria. These criteria could include feasibility, impact, resource availability, and alignment with strategic goals and national development plans. The analytical tools outlined in Table

5.1-1 and Table 5.1-2 can also complement scenario analyses for each available option or action plan, helping users understand how robust these options are under different conditions.

Finalizing which EDT actions to prioritize involves an iterative process of engaging with stakeholders. Integrating stakeholder engagement into decision-making processes helps ensure that the actions planned for Standard 9 simultaneously meet the objectives and boundaries defined by the user, align with the potential opportunities in EDT, address impacted stakeholders' needs, conform with national development plans; and identify any collaboration opportunities available to effectively operationalize Standard 9. In addition, this process enhances transparency and accountability in priority setting, enabling the implementation of actions to be monitored and evaluated on an ongoing basis.

Meaningful stakeholder consultation combined with the use of analytical tools helps determine the most viable and impactful opportunities for further development and implementation. Based on external factors such as the JT Enablers, the prioritized actions may continue to shift as they are further refined and optimized. Therefore, a periodic review mechanism is required to ensure that action priorities remain responsive to changes in context and aligned with the objectives of Standard 9.

### **Stage 1.2 : Stakeholder mapping**

While the previous steps naturally identify stakeholders relevant to the EDT process, it is important to formally map out the impacted stakeholders and those with whom the users could partner and collaborate to implement Standard 9 actions. Stakeholders involved in just transition typically include government agencies, businesses, community leaders, academic institutions, NGOs, Intergovernmental Organization (IGOs), labor union, media, financial institutions. For project-level implementation, stakeholders may also include project sponsors, suppliers, contractors and workers.

Stakeholder mapping is a systematic process of listing all stakeholders relevant to projects and programs with the aim of building a strategic engagement plan. A stakeholder map provides a visualization of the people, communities and institutions that can influence or are impacted by the project or program. This mapping exercise helps users understand who needs to be engaged, when, and how to ensure effective collaboration throughout Standard 9 implementation.

Users may refer to the Ministry of Environment and Forestry Regulation No. 1 of 2021 on Corporate Performance Rating Program in Environmental Management, or more commonly known as 'PROPER', as it represents the gold standard for stakeholder mapping in Indonesia. While the PROPER program is voluntary, the regulation outlines comprehensive requirements on environmental and social management, including stakeholder mapping and stakeholder engagement processes. Additionally, institutions such as IFC, WB, ADB and others have established guidance on conducting stakeholder mapping that users may utilize. Table 5.1-3 below presents four simple steps to stakeholder mapping based on World Bank guidance.

**Table 5.1-3. Steps to Stakeholder Mapping**

No.	Steps	Description
1	Identifying stakeholders	<p>Stakeholders can be divided into internal and external stakeholders and categorized depending on how they are connected to the project or program. Social Network Analysis (“SNA”) can be a powerful tool in this categorization process, as it allows for the mapping and visualization of relationships within the network, uncovering how different stakeholders interact with and influence the project. Through SNA, key players can be identified, revealing those individuals or groups that hold significant sway and who might be central to communication and influence dynamics. Additionally, SNA helps detect subgroups or clusters, facilitating the understanding of internal factions that can affect project outcomes.</p> <p>During this process, identification of vulnerable groups is also important to drive the inclusivity of persons with disabilities, the elderly, pregnant women, children, and victims of natural and social disasters. SNA is instrumental here, as it can highlight underrepresented voices and aim to ensure that these groups are not overlooked by analyzing communication patterns and stakeholder positions across the network.</p> <p>In the context of just transition projects, the stakeholder mapping typically includes government agencies, businesses, community leaders, academic institutions, NGOs, IGOs, media, financial institutions and for the case of project-level implementation, may also include project sponsors, suppliers, contractors, labor union, and workers.</p> <p>It is also important to update the stakeholders’ list regularly as the project or program evolves. Through continuous SNA, project managers can monitor shifts in relationships, emerging influencers, and potential changes in stakeholder alignment. This ongoing analysis aids in adjusting engagement strategies, ensuring that resources are optimally allocated and that all stakeholders remain appropriately involved throughout the project lifecycle. However, other similar tools that serve the same purpose in identifying stakeholders may also be utilized to achieve comparable results.</p>
2	Analyzing stakeholders	<p>This includes identifying their interests, ability to influence, and potential impact both on the project or program and from it.</p> <p><b>Interest:</b> <i>what is important to the identified stakeholder?</i></p> <p><b>Influence:</b> <i>how can the stakeholders contribute to the project or program?</i></p> <p><b>Impact:</b> <i>Are they likely to benefit economically, socially, or culturally from the project? Could they be harmed, even if they are unaware of the risks?</i></p> <p>This analysis helps to further categorize stakeholders based on their roles.</p>
3	Prioritizing stakeholders	<p>Through the same factors of interest and influence, stakeholders can be prioritized and level of engagement adjusted based on the prioritization</p> <p><b>Interest:</b> <i>what is their level of involvement or level of impact to the project or program?</i></p> <p><b>Influence:</b> <i>how significant/powerful are stakeholders’ influence on the project or program?</i></p> <p><b>Impact:</b> <i>how significantly are they impacted by an issue, intervention, project, or decision?</i></p> <p>Rate the relative interest, influence, and impact of each stakeholder, using words such as “low” or “high”. Users may utilize the 3i Analytical Framework seen below to thoroughly assess the interest, influence, and impact of each stakeholder group.</p>

No.	Steps	Description
4	Engaging stakeholders	When engaging with stakeholders, it is important to build a strategic engagement plan which fosters long-term relationships and maximizes engagement value. A discussion on stakeholder engagement is detailed in the section below.

Source: (World Bank, 2023), (Reed, et al., 2025)

The 3i framework is explained in detail in a separate operational and technical guideline document for Standard 9, which outlines the sequencing and scope of their applicability. Users can assess stakeholders' interest, influence, and impact using Table 5.1-4, titled "The 3i Analytical Framework", as a practical guide. This template helps users drive inclusion, support comprehensive planning, and ensure effective mapping of stakeholders for their projects.

**Table 5.1-4 The 3i Analytical Framework**

Name of stakeholder	[Input the name of the stakeholder]
Interest	Scope of interest: Geographical or other relevant scope (e.g. regional, national, or multi-national)
	Nature of interest (preferences): What is the nature of their interest? Which parties are already interested?
	Nature of interest (values): What values might be influencing their perception of interest/disinterest in the project/program?
Influence	Nature of influence (direct power over)
	Nature of influence (indirect power with)
	Reach of influence
	Level of influence
Impact	Nature of impact (short-term)
	Nature of impact (long-term)
	Level of impact
Other context	e.g. knowledge base, expertise, funding, political context

Source: (Reed, et al., 2025)

### Tahap 1.3: Stakeholder Engagement

Stakeholder engagement is crucial for initiating effective collaboration and addressing the needs of impacted stakeholders. This collaborative approach fosters mutual understanding, builds trust, and encourages the sharing of valuable insights and resources. Engaging stakeholders early, including vulnerable groups, and maintaining continuous engagement throughout the assessment and implementation phases of projects and programs helps identify potential challenges, align interests, and co-create solutions that are more sustainable and just.

However, not all stakeholders require the same level of engagement and communication. Based on the results from the tools used in Table 5.1-3 "Steps to Stakeholder Mapping" and Table 5.1-4 "The 3i Analytical Framework", users can build a strategic engagement plan according to each stakeholder's influence, interest, and impact. Users may utilize the typology in the Table 5.1-5 below as a reference for categorizing the engagement plan for each stakeholder.

**Table 5.1-5 Stakeholder Typology based on the 3i**

Stakeholder Type	Interest	Influence	Impact
Uninterested	Low	Low	Low
Uninterested and impacted	Low	Low	High
Uninterested influencers	Low	High	Low
Uninterested, influential and impacted	Low	High	High
Only interested	High	Low	Low
Interested and impacted	High	Low	High
Interested influencers	High	High	Low
Interested, influential, and impacted	High	High	High

Source: (Reed, et al., 2025)

After assigning typologies to each stakeholder group, users should document the stakeholder engagement plan. For each stakeholder typology, the plan establishes an engagement strategy, specifying how to interact based on the required frequency and method of communication that specifies how to interact based on the required frequency and method of communication, accounting for each stakeholder's preferences or context. Users can employ various forms of stakeholder engagement depending on needs and circumstances. These range from sharing information on relevant project or program details and conducting individual or group consultations, and Forum Group Discussions (FGD) to forming strategic partnerships for mutual benefit.

The engagement approach should include tailored methods for specific groups such as informal workers, youth, women, customary communities (including FPIC) processes applied in specific areas where required. Communication media for stakeholder engagement may vary based on what is most effective and appropriate for each group. Options include emails, qualitative interviews, newsletters, social media content, flyers and posters, press releases, surveys, report publications, phone calls, face-to-face meetings, text or online messaging. Throughout this process, it is also important to consider the local context and the needs of vulnerable groups to ensure that interactions are culturally sensitive and inclusive. A stakeholder engagement plan template is available in Appendix 2.2 for reference.

As part of stakeholder engagement, users must also establish accountability mechanisms, including a grievance redress mechanism to manage and address concerns and complaints raised by stakeholders. This mechanism allows users to monitor community perception, satisfaction, and local participation throughout the planning and implementation of the project or program. The proposed grievance mechanism is detailed in Subchapter 6.4.1

### **Identification of Support needed from the JT Enablers**

To develop the EDT draft action plan, users must assess whether the following JT Enablers discussed in Chapter 6 are already in place or need to be established or strengthened. These enablers include policy and regulatory frameworks, financing for just transition, partnerships for just transition, and governance for just transition. This assessment serves

as a critical foundation to ensure that the formulated action plan can be implemented effectively, sustainably, and in alignment with existing institutional capacities.

When JT Enablers need to be established or strengthened, stakeholder engagement becomes a valuable tool for obtaining the necessary support. During this step, users collaborate with the identified stakeholders to develop a range of solutions. These solutions may include determining financing options between financial institutions and project developers, as well as identifying policy and regulatory frameworks that will enable concessions for accelerating bankable renewable energy projects in the coming years.

### **Finalization of the EDT priority action**

The process of aligning prioritized actions with national development plans and incorporating stakeholder inputs is iterative and may take months or even years to complete, particularly if the JT Enablers are not yet in place. These efforts will help finalize the EDT priority actions and advance to the next stage of Standard 9 operationalization, which is action plan development. To support users in operationalizing Standard 9, a detailed assessment checklist is available for reference in Appendix 2.3.

## **5.2 Stage 2: Action Plan**

### **Stage 2.1: Develop action plan**

Based on the prioritized actions, the available support from JT Enablers, and stakeholder inputs, users can develop an action plan to achieve EDT. The development of this action plan builds directly on the outcomes of stakeholder engagement conducted in Stage 1. The action plan should be structured across short-, medium-, and long-term horizons, with each horizon supported by time-bound indicators and targets. These indicators should be designed to enable integration at the national level and alignment with planning frameworks such as the RPJPN and RPJMN.

Stakeholders are also encouraged to develop an initial monitoring plan aligned with the selected indicators to ensure the effectiveness of implementation during the monitoring and evaluation phase. In addition to being time-bound, actions should be categorized into project-level and program-level initiatives. The baseline for measuring progress must be clearly defined drawing from the current condition assessment conducted during Stage 1: Assessment of Potential Opportunities. This baseline serves as the reference point for measuring progress against the identified indicators.

Based on the risk assessment conducted in Stage 1, users are encouraged to develop a risk management plan. The plan should include mitigation, and avoidance plan for the proposed actions. This plan should account for political, financial, partnership, and governance risks associated with JT enablers.

Different stakeholders have different capacities for implementing actions over time. Project developers, for example, are typically only available during the project lifecycle, which means their action plans are limited in duration. However, project developers can also implement program-level actions that extend beyond the project life cycle, such as reskilling or upskilling programs that support the company's transition to lower-carbon industries.

In contrast, stakeholders such as national and subnational governments can mobilize at the program level, enabling initiatives that extend beyond project scope limitations and

facilitating cross-sectoral collaborations for larger-scale initiatives. Each stakeholder must assess their own capacity and engagement level with other stakeholders, then develop appropriate accountability mechanisms to monitor progress relative to the national-level indicators stated in the RPJPN. Grievance mechanisms should also be established to allow appropriate stakeholder feedback on the implementation of these initiatives throughout the process.

The action plan should also include actions that mobilize the required financing or funding modalities as assessed in Stage 1. Since EDT actions are encouraged to be normalized across implementing stakeholders and utilize available and typical financing mechanisms to support implementation, Table 5.2-1 shows the existing modalities that can be explored for EDT projects and programs. However, recognizing that additional support may be needed to increase accessibility of financing for EDT projects, a detailed study may be needed to explore further innovative financing mechanisms.

**Table 5.2-1. Funding and Financing Modalities for EDT Projects and Programs**

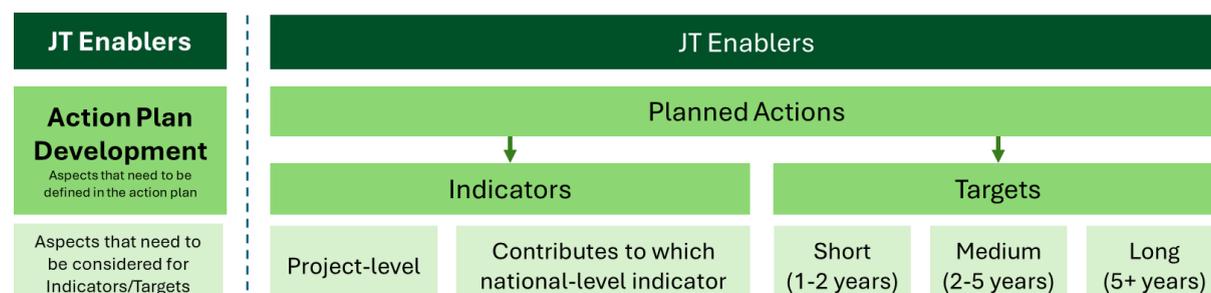
Financier and/or Funder	Funding/ Financing Modality	Stakeholders that can access the modalities			
		Private Players	SOEs	Subnational Government	National Government
<b>Government</b>	APBN allocated through the national government to be used at a national level, and allocated to the regional budget in accordance with the respective region's Regional Long-Term Development Plan ("RPJPD")			✓	✓
<b>Public Financial Institutions</b> (including MDB/DFI)	<b>Concessional loans</b> Sovereign rate, sovereign-guaranteed, long tenor, high involvement from the government, often can include grants/TA		✓	✓	✓
	<b>Non-Concessional loans</b> Providing financial and/or non-financial additionality compared to commercial loans	✓	✓	✓	✓
	<b>Equity</b> Developmental support and long-term growth	✓	✓		

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Financier and/or Funder	Funding/ Financing Modality	Stakeholders that can access the modalities			
		Private Players	SOEs	Subnational Government	National Government
	capital for enterprises, generally comprising of 5-20% of a company's total equity				
	<b>Grants/TA</b> Gifted funds that do not require repayment		✓	✓	✓
<b>Private Financial Institutions</b>	<b>Commercial loans</b> Market rate loans which can be taken through corporate finance, project, finance, etc.	✓	✓	✓	✓
	<b>Equity</b> Equity, or quasi-equity types of investment that could come in many different structures, customized to each unique project	✓	✓		
	<b>Capital market instruments</b> Including but not limited to bonds (as debt instruments)		✓	✓	✓
<b>Philanthropies</b>	<b>Grants/TA</b> Gifted funds that do not require repayment	✓	✓	✓	✓

Source: (JETP Secretariat and Working Group, 2025)

Therefore, the development of the action plan needs to define all aspects as illustrated in Figure 5.2-1 below:



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Source: (JETP Secretariat and Working Group, 2025)

### Figure 5.2-1 Action Plan Development Framework

A checklist that can be used as a guiding template for stakeholders when developing their action plans is available in Appendix 2.4, while a template to record planned actions can be found in Appendix 2.5.

Stakeholders planning to implement Standard 9 actions must coordinate with the relevant stakeholders identified earlier to share needs and resources, thereby mobilizing feasible programs or projects within their capacity. When developing the action plan, stakeholders can refer to the proposed actions in the Standard 9 Matrix outlined in Appendix 4 for guidance. Table 5.2-1 below provides an example of some of the actions for the national government under the innovation and technology core area.

**Table 5.2-2 Innovation and Technology Example Actions for the National Government**

Outcome	Element	National Level Indicators	Project/Program Specific Actions
<b>Innovation and Technology</b>			
Increased development and adoption of sustainable technologies at both national and local community levels	Adoption of sustainable, low-carbon technologies and its supply chain	<ul style="list-style-type: none"> <li>Percentage of Cumulative GHG Emission Reduction (%)</li> <li>GHG emission reduction in the energy sector (Million-ton CO<sub>2</sub> eq)</li> <li>Reduction in GHG emission intensity (%)</li> </ul>	<ul style="list-style-type: none"> <li>Increase the construction of renewable power plants and drive for the retirement of CFPPs</li> <li>Create capacity-building programs to encourage the adoption and development of sustainable low-carbon technologies within industries</li> <li>Drive the implementation of renewable energy projects in the power sector to be technically and financially feasible</li> <li>Increase the adoption of cofiring technology in Indonesian power plants</li> <li>Increase energy efficiency measures in industries and manufacturing sites</li> <li>Driving the electrification of industrial processes</li> <li>Finalization or publication of the early retirement roadmap of Indonesia</li> </ul>

Source: (JETP Secretariat and Working Group, 2025)

### Tahap 2.2: Engagement with stakeholders on action plan

After the action plan has been developed, another cycle of engagement with stakeholders, including vulnerable groups, is required. This engagement serves to verify whether the proposed actions would produce any adverse impacts and to discuss mitigation action plans that could minimize them. Stakeholder engagement should continue even after the project or

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program moves to the implementation phase to ensure ongoing alignment and address any emerging concerns.

### 5.3 Stage 3: Perform actions

Each stakeholder should carry out actions at both the project and beyond the project level according to their assigned roles in the action plan developed in the previous stage. These actions should be performed within the timeframes established in the action plans, whether it would be short, medium, and long-term. Actions performed by stakeholders for programs or projects need to be integrated into organizational or subnational and national development plans to ensure coherence with broader development objectives. A checklist to record the actions implemented is available in Appendix 2.5 for reference. The instructions for using this template are provided in a separate guideline document, which users can refer to for detailed implementation steps.

### 5.4 Stage 4: Monitoring and Evaluation

Upon completion of a project or program activity, independent monitoring and evaluation should be performed based on the scope of the activity. While stakeholders can choose appropriate indicators for each action, they are encouraged to select indicators that correspond with relevant national-level indicators. This alignment is important because the cumulative impact of these actions will be measured at the national level by subnational or national governments using indicators derived from the RPJMN and the RPJPN.

#### National Government Monitoring

At the national level, the government can monitor medium-term activities using RPJMN indicators and targets, with specific ministries assigned responsibility for each indicator. Long-term targets are monitored through RPJPN indicators. The alignment of these indicators with existing national development planning documents was intentionally designed to minimize the central government's efforts in monitoring JT-related initiatives. Users can refer to Law No. 59 of 2024 concerning the National Long-Term Development Plan for 2025-2029 and Presidential Regulation No. 12 of 2025 concerning the National Medium-Term Development Plan for 2025-2029 to view the complete list of national planning indicators.

#### Subnational Government Monitoring

Sub-national governments can refer to the Ministry of Home Affairs Instruction No. 1 of 2024, which provides Guidelines for the Preparation of the RPJPD for 2025-2045. This instruction requires that the RPJPD needs to adhere to the RPJPN and states that the Provincial and Regency/City RPJPD should consider the development direction and indicators of the RPJPN, which are formulated simultaneously and in coordination with the RPJPD. Additionally, according to Presidential Regulation No. 12 of 2025, the RPJMD for 2025-2029 serves as an elaboration of the vision, mission, and program of the regional head, while adhering to both the RPJPD and the RPJMN, for the years 2025 to 2029. This framework enables subnational governments to assess the cumulative impact of EDT actions using nationally derived indicators from the RPJMN and RPJPN, which can also be incorporated into their regional planning documents.

#### National-Level Indicators and Templates

Table 5.4-1 below presents a summary of national-level indicators from the RPJPN and RPJMN, including their baseline data and milestone targets where available. Given the

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overlap of indicators across the plans, this table consolidates them by listing each indicator once and utilizing the most recent baseline measurement year. Instances where long-term 2045 milestone targets are indicated as 'Not Available' signify that the indicator is absent from the RPJPN but may feature in future updates. This approach aims to ensure a coherent presentation of national progress metrics.

At the project level, it is important for stakeholders to set tailored targets that can be aggregated under and aligned with these national-level indicators. Templates to develop the monitoring and evaluation framework according to the Core Areas for Standard 9 and to track the progress of Standard 9 actions are available in Appendix 2.6 and 2.7, respectively. These templates are intended to support users in conducting monitoring and evaluation effectively. Each template includes indicators that can be adapted to the user's specific context, with the overarching objective of contributing to relevant national targets. Detailed instructions for applying these templates and selecting appropriate indicators are available in a separate guideline document, which users should consult for comprehensive guidance.

**Table 5.4-1 National-Level Indicators relevant for EDT from RPJPN and RPJMN**

EDT Outcomes	EDT Elements	RPJMN/RPJPJN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
<b>Economic and Financial Policies</b>							
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	9.03 (2024)	7.0 - 8.0	4.5 -5.0	0.5 - 0.8	Coordinating Ministry for Community Empowerment
		Coverage of national health insurance participation (%)	98.42 (2024)	98.60	99.00	99.50	Ministry of Health
		Coverage of social insurance for employment (%)	29.77 (2024)	32.15	43.92	99.50	Coordinating Ministry for Community Empowerment
		Percentage of poor and vulnerable families receiving social aid and social insurance (%)	64.75 (2023)	68.00	85.00	Not available	Coordinating Ministry for Community Empowerment
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	3 (2023)	3	4	Not available	Coordinating Ministry for Community Empowerment
		Percentage of climate-resilient villages (%)	33.73 (2024)	34.73	38.73	Not available	Ministry of Villages and Development of Disadvantaged Regions
		Percentage of disadvantaged and severely disadvantaged regions or <i>desa</i> upgraded to developing and/or advanced status (%)	New Indicator	16.67	56.67	Not available	Ministry of Villages and Development of Disadvantaged Regions
	Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of	Banking assets/GDP (%)	57.2 (2023)	66.9	77.2	200	Financial Services Authority / <i>Otoritas Jasa Keuangan</i> ("OJK")
		Pension fund assets/GDP (%)	7.3 (2023)	8.0	11.2	60.0	OJK
		Insurance assets/GDP (%)	9.0 (2023)	9.1	10.5	20.0	OJK
Capital market capitalization/GDP (%)		55.9 (2023)	57.8	68.0	120.0	OJK	

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EDT Outcomes	EDT Elements	RPJMN/RPJPN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
resource-efficient, green industries	Total credit/GDP (%)	33.9 (2023)	37.8	46.8	80 - 90	OJK	
	Financial inclusion (%)	88.7 (2023)	91.0	93.0	98.0	OJK	
	Green economy index	60.08 (2023)	68.34	77.20	90.65	Bappenas	
	Manufacturing industry GDP ratio (%)	18.67 (2023)	20.80	21.90	28.00	CMEA	
	Expenditure on science, technology, and innovation (% of GDP)	0.28 (2020)	0.30	0.45	2.20 - 2.30	BRIN	
	Total third party funds/GDP (%)	40.5 (2023)	43.0	50.9	Not available	OJK	
	Value of exports of green category goods (billion USD)	8.59 (2022)	17.09	42.76	Not available	Ministry of Trade	
	Number of policies issued to support the carbon economic value (policy)	2	5	5	Not available	Ministry of Environment / Environmental Protection Agency	
	Ratio of MSME credit to total bank credit (%)	20.32 (2023)	21.6	25.0	Not available	OJK	
	Percentage of investment realization in domestic investment (PMDN), including micro, small, and medium enterprises (MSME) (% of PMA/PMDN)	47.6 (2023)	48.3	49.7	Not available	Ministry of Investment and Downstreaming / Capital Investment Coordinating Agency	
	Value of PMA/PMDN in the secondary sector (trillion IDR)	596.3 (2023)	855.9	1,718.3	Not available	Ministry of Investment and Downstreaming / Capital Investment Coordinating Agency	
	Number of regions utilizing alternative funding instruments (regions (province/district/city))	7 (2024)	2	11	Not available	MoHA	

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EDT Outcomes	EDT Elements	RPJMN/RPJPJN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
		Percentage of local grant performance (%)	75	75	75	Not available	Ministry of Finance
		Proportion of non-governmental/private R&D budget (%)	12.5 (2020)	25	35	Not available	National Research and Innovation Agency
<b>Human Capital Development</b>							
Increased number of high quality, local human capital	Employment and income creation in energy transition sectors	Proportion of green jobs (%)	2.62 (2023)	2.70 - 2.73	2.96 - 3.14	Not available	MoM
		Number of policies specifically supporting green jobs (policies)	New indicator	1	1	Not available	MoM
		Number of collaborations involving associations and business and industrial sectors (“DUDIKA”) in green job development (partnerships)	New indicator	1	1	Not available	MoM
		Number of National Work Competency Standards (SKKNI) for green jobs established (documents)	New indicator	1	1	Not available	MoM
		Proportion of formal job creation (%)	23.96 (2024)	35.00	46.00	80.00	CMEA
		Open unemployment rate (%)	4.91 92024)	4.50 - 5.00	4.00 - 4.71	4.00	CMEA
		Percentage of youth with disabilities employed (%)	16.66 (2023)	17.82	19.81	Not available	Ministry of Youth and Sports
		Percentage of provincial governments involving persons with disabilities in policy formulation (%)	73 (2023)	75	95	Not available	Bappenas
		Female labor force participation rate (%)	56.42 (2024)	56.30 - 58.80	56.70 - 60.89	70.00	Ministry of Women Empowerment and Child Protection

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EDT Outcomes	EDT Elements	RPJMN/RPJPN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
		Percentage of persons with disabilities working in the formal sector (%)	9.07 (2023)	10.00	12.00	60.00	Coordinating Ministry for Community Empowerment
	Addressing skill gaps by equipping educational institutions with the latest industry knowledge, including efforts for a just transition.	Percentage of labor force graduates from vocational education in the last year who are working/entrepreneurial	12.86 (2024)	13.42	15.91	Not available	Ministry of Primary and Secondary Education
		Percentage of higher education vocational graduates in the last year who: (a) are employed; (b) are entrepreneurs	(a) 74.25 (2024) (b) 4.29 (2023)	(a)74.50 (b) 4.50	(a) 75.50 (b) 5.50	Not available	Ministry of Higher Education, Science, and Technology
		Average waiting time for higher education graduates to get jobs (months)	13 (2023)	12.5	10.5	Not available	Ministry of Higher Education, Science, and Technology
		Percentage of educational units implementing inclusive education that improves learning quality (%)	12.33 (2024)	13.08	16.05	Not available	Ministry of Primary and Secondary Education
		Number of workers whose green competencies are developed (persons)	120,000 (2023)	300,000	1,100,000	Not available	MoM
		Number of international collaborations on employment and skilled workforce movements (agreements)	New indicator	7	11	Not available	Ministry of Migrant Worker Protection/Agency for Migrant Worker Protection
		Percentage of workers with secondary and higher education working in high-level technical fields (%)	66.30 (2023)	66.78	67.66	75.00	Coordinating Ministry for Human Development and Culture

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EDT Outcomes	EDT Elements	RPJMN/RPJPN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
<b>Innovation and Technology</b>							
Increased development and adoption of sustainable technologies at both national and local community levels	Increased strategic innovations to enable a just transition	Global innovation index ranking (Ranking)	54 (2024)	53	49	Top 30	BRIN
		Number of collaborations utilizing science, technology, and strategic innovation with industry/business in priority areas (partnerships)	New indicator	25	50	Not available	BRIN
		Number of science, technology, and strategic innovation products utilized by the government and society in priority areas (Products)	New indicator	25	115	Not available	BRIN
	Enhanced capacity and inclusion of MSMEs to encourage broad public participation, fostering adaptation and growth within a green economy.	Proportion of small and medium enterprises (%)	3.06(2024)	3.1	3.3	5	The Ministry of Micro, Small, and Medium Enterprises
		Entrepreneurship ratio (%)	3.08 (2024)	3.1	3.6	8	The Ministry of Micro, Small, and Medium Enterprises
		Proportion of MSMEs with business licenses (%)	18.64 (2024)	19.5	24	Not available	The Ministry of Micro, Small, and Medium Enterprises
		Number of certified environmentally friendly products	51 (2024)	70	150	Not available	Ministry of Environment/Environmental Protection Agency
		Proportion of cooperative business volume in the production sector to total cooperative business volume (%)	8.31 (2022)	8.58	10	Not available	Ministry of Cooperatives
		Cooperative business volume ratio to GDP (%)	1.07 (2021)	1.1	1.2	5	Ministry of Cooperatives
		Adoption of sustainable, low-carbon technologies and its supply chain	Share of renewable energy in primary energy mix (%)	13.2 (2023)	20	23	70

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EDT Outcomes	EDT Elements	RPJMN/RPJPN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
		Percentage of annual greenhouse gas (GHG) emission reduction (%)	23.48 (2023)	26.67	30.11	80.98	Bappenas
		Percentage of cumulative greenhouse gas (GHG) emission reduction (%)	17.02 (2023)	18.37	21.12	51.51	Bappenas
		GHG emission reduction in the energy sector (Million ton CO <sub>2</sub> eq)	142 (2024)	164	272	Not available	Coordinating Ministry for Food Security
		Reduction in GHG emission intensity (%)	34.09 (2022)	35.53	45.17	Not available	Directorate General of Mineral and Coal
		Reduction in electricity generation emissions (Million ton CO <sub>2</sub> )	15.32 (2023)	16.41	21.11	Not available	Directorate General of Mineral and Coal
		Renewable energy electricity production (GWH)	47,657.46 (2023)	50,739	62,063	Not available	Directorate General of Mineral and Coal
		Percentage of electric vehicle production for four-wheelers compared to total four-wheel vehicle production (%)	0.94 (2023)	1	1.4	Not available	Mol
		Number of industrial companies based on location that are certified green industry (Cumulative companies)	140 (2024)	152	200	Not available	Mol
		Ratio of circular material use in the industrial sector (%)	10 (2024)	11	15	Not available	Mol
		Circular material input rate (%)	9 (2024)	9.2	10	Not available	CMEA
		Quality additional electricity connections (Units)	131,600 (2023)	100,000	100,000	Not available	Directorate General of Mineral and Coal
		National electrification ratio (%)	99.79 (2023)	100	100	Not available	Directorate General of Mineral and Coal

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EDT Outcomes	EDT Elements	RPJMN/RPJPN Indicator	Baseline (Year)	Milestone Targets			Responsible Ministry based on the RPJMN
				2025	2029	2045	
		Installed public charging stations and private charging stations (Cumulative data as of 2023) (Units)	932 (2023)	2,060	7,557	Not available	Directorate General of Mineral and Coal
		Installed Public Battery Swap Stations (Cumulative data as of 2023) (Units)	1,772 (2023)	2,070	3,031	Not available	Directorate General of Mineral and Coal

Note: \*) Indicators, Baseline and Milestone Targets are sourced from the RPJMN and RPJPN, and translated into English for this report.

## 5.5 Stage 5: Reporting

The achievement of actions related to Standard 9 may be reported at the organizational level depending on the stakeholder. At the organizational level, developers or financial institutions can document their achievements through annual reports. At the national level, government bodies report publicly through their ministries' annual performance reports, which are collated by Bappenas as part of the monitoring process for national development plans. These reports document the achievement of RPJPN and RPJMN indicators against the established baseline.

Financial institutions may report their own Standard 9 actions as well as those of their borrowers. Similarly, several multilateral development banks may report their borrowers' actions, creating a cascading effect that encourages their borrowers to also participate in performing Standard 9-related actions. This multilevel reporting approach helps track progress across different stakeholder groups and demonstrates collective momentum toward economic diversification and transformation.

### Legal Framework for Public Disclosure

The disclosure of the reports by public companies is regulated under Law No. 14 Year 2008 on Public Information Disclosure, which aims to ensure transparency and public access to information held by public bodies. The law requires public agencies to disclose information, provide mechanisms for information requests, and announce information that is relevant to the public interest. However, certain information is exempt from disclosure, such as information that could harm national security, privacy, or other protected interests. An independent commission was also established to oversee the implementation of the law and set penalties in cases of non-compliance.

### Reporting Templates

To support users in reporting the achievement of Standard 9 actions, a reporting checklist is available for reference in Appendix 2.8. Comprehensive instructions for using this template are provided in a separate guideline document, which users can review for detailed guidance on completing their reports effectively.

## 6. Just Transition Enablers

Four enablers are essential to facilitate and support the successful operationalization of the Just Energy Transition, as shown in Figure 6-1. When operationalizing the JT Framework, the stakeholders should assess whether these enablers are already in place or needed to be established to strengthen the JT Framework.

### JT Enablers



Source: (JETP Secretariat and Working Group (2025))

**Figure 6-1. Just Transition Enablers**

### 6.1 Policy and Regulatory Frameworks

A regulatory framework for JT upholds the foundation, pillars, and standards of just transition. An enabling policy ecosystem plays a crucial role for effective JT investment, ensuring JT Framework can be mainstreamed from policy and program-levels to sector-specific technical guidelines, and project levels. Comprehensive regulations and policies ensure scaled-up JT support across national and sub-national entities, actors and processes. New and enhanced policies and regulations are needed at both levels to support the transition.

#### 6.1.1 Existing Policies

Law No. 59/2024 on the RPJPN 2025-2045 explicitly recognizes “Just Energy Transition” as one of the six game changers for Indonesia’s economic transformation pillars. This vision translates into specific actions and targets in Presidential Regulation No. 12/2025 on the RPJMN 2025-2029, which identifies strengthening JT implementation as the main priority. The RPJMN emphasizes green economy transformation with goals including GHG emissions reduction and green jobs creation to reach NZE by 2060 through just energy transition.

Several power sector regulations already incorporate JT aspects. Government Regulation No. 79/2014 on the National Energy Policy establishes principles for fairness, sustainability, and environmental soundness (Article 2) and mandates equitable energy access (Article 6(f)). MEMR Regulation No. 17/2019 provides mechanisms to subsidize electricity tariffs for low-income households, enabling affordable energy access.

Other implementing regulations address social and environmental aspects. Presidential Instruction No. 9/2000 integrates gender mainstreaming into national development and proposes developing implementation strategy and action plans. MoEF Regulation No. 84/2016 enhances community and other stakeholder involvement in building capacity to adapt to climate change impacts.

Presidential Regulation No. 68/2022 on the Vocational Education and Training Revitalization establishes the National Vocational Strategy (Stranas Vokasi) to enhance vocational education and training systems, which can cushion employment effects of transitioning to

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green jobs. Presidential Regulation No. 111/2022 sets objectives for improving community economic welfare, ensuring social sustainability, maintaining environmental quality, and promoting inclusive development as part of Indonesia’s SDG commitment. The CMMAI’s Indonesian Just Transition White Paper 2024 outlines the initial JT concept and definition in Indonesia and can serve as a basis for creating and implementing JT policies and regulations.

### 6.1.2 Policy Recommendations

Multiple JT definitions from different perspectives with similar objectives exist but differ in achieving them. These varied definitions demonstrate JT’s broad scope, making it difficult to establish a comprehensive definition suited to the Indonesian context. While high-level Indonesian policy measures mention JT, they lack comprehensive regulation serving as an overarching legal framework. This has created varied perceptions among state and non-state stakeholders, significant challenges for implementing just projects (Muyasyaroh, 2024).

Developing an overarching regulatory framework is essential to ensure all stakeholders have the same understanding in JT and provide comprehensive guidelines for effective and coordinated integration of JT into national-level policies and actions. A comprehensive JT policy framework should include clear definitions, coordination mechanisms, and implementation strategies that are inclusive, gender-responsive, and considerate of vulnerable groups. The coordination mechanism should outline structured collaboration among relevant government agencies, financial institutions, project developers, CSOs, labour union, think tanks, academics, and representatives from impacted groups. This could involve establishing a multi-stakeholder forum, as proposed in Appendix 6.4.1.5.

**Table 6.1-1 Policy Recommendations for Just Transition**

Timeframe	Policy Recommendations	Implementation Guidance
Short to medium term	Overarching regulatory framework for just transition	Develop a regulation which thoroughly covers: <ul style="list-style-type: none"> <li>• Just transition definition;</li> <li>• Coordination mechanism;</li> <li>• Implementation strategies, including to strengthen the government’s institutional capacities;</li> </ul>

Source: (JETP Secretariat and Working Group, 2025)

Implementing the policy recommendations is expected to deliver a range of results, shown in Table 6.1-2. Just transition aspects can be progressively embedded into existing regulatory frameworks, ensuring that social, economic, and environmental considerations are systematically addressed in energy and development policies. It also emphasizes improved coordination among ministries, which is crucial for avoiding fragmented efforts and ensuring coherent policy implementation. Furthermore, the expected results include strengthened institutional capacity, enabling government bodies to effectively plan, finance, coordinate, and implement just transition projects.

**Table 6.1-2 Expected Result for Just Transition**

Timeframe	Expected results
Short to Medium term	<ul style="list-style-type: none"> <li>• Integration of just transition aspects into existing regulations;</li> <li>• More effective coordination and implementation of just transition initiatives across ministries;</li> <li>• Enable the government institutions to plan, finance, coordinate, and implement just transition projects.</li> </ul>

Source: (JETP Secretariat and Working Group, 2025)

## 6.2 Financing Just Transition

While JT activities may add costs to some energy projects, they generate positive social and environmental outcomes, creating broader social acceptance and reducing social and environmental risks. This creates significant social return on investment.

Diverse financing sources are available to support a just energy transition. However, each serving specific needs and contexts. Private financial institutions typically need to earn a return for their investment. Therefore, it is essential to understand that when commercial financial institutions are obliged to fund the JT, part of the cost may be passed on to others to ensure they achieve their expected returns.

In cases where projects are not commercially feasible or marginally profitable, funding in the form of grants or low-cost financing can be sourced from other sources. These sources include DFIs, the beneficiaries/users of projects and governments. Alternatively, funding may also come from non-profit sources, such as philanthropists, development partners, or donor countries as the first step to support JT.

Globally, donor countries play a pivotal role, often providing bilateral or multilateral aid to finance renewable energy projects and infrastructure development in emerging economies. Trust funds and philanthropies can provide additional financial resources, and development partners can further facilitate technical assistance and large-scale financing for green energy transitions. Additionally, private finance from business actors can help scale up renewable energy solutions and close the financing gap for investments in climate initiatives.

Establishing a JT Fund could serve as one option to pool multiple funding sources to support just energy transition, as proposed by the Climate Policy Initiative (CPI) in its study in Maluku shown in Box 6.2-1. However, further in-depth analysis is required regarding how such fund should be implemented, who should serve as its sponsor, who should act as the fund manager, and what would be the most optimal structure.

### **Box 6.2-1: De-dieselization Project in Maluku Case Study – Redefining JT Investment Needs as Opportunities for EDT**

#### **Opportunities for Mainstreaming JT in the De-dieselization Program**

The provinces of Maluku and North Maluku have been designated as priority areas, targeting 33 diesel power plants with a combined capacity of 94 MW, which are planned to be gradually replaced with RE, particularly solar power plants, under the de-dieselization program. This program is a Government initiative and also one of JETP's IFAs to achieve net-zero targets in the power sector. De-dieselization in these provinces is expected to affect around 330 direct workers, with

potentially greater impacts on the supply chain of diesel power plants. The considerations in prioritizing these provinces are:

- High emission profile and operational costs due to many aging units with inefficient fuel consumption and lack of emission control
- Energy security and electricity access that are often inadequate in remote and coastal areas

In addition, Maluku demonstrates strong potential for rapid economic growth<sup>2</sup>, with the fisheries sector serving as a cornerstone of the regional economy and contributing nearly 30% of national fisheries income (BPS, 2023). Ensuring reliable electricity supply is therefore critical to sustaining this sector, particularly in supporting local enterprises such as Fish Processing Units (UPI). These units rely on cooling systems and ice production facilities to preserve the quality of high-value commodities, for both domestic and export markets. However, a field survey by the Climate Policy Initiative (CPI) found that Buru Island and Pasir Putih<sup>3</sup>, which serve as hubs for tuna commodities, still face limited electricity supply, averaging less than 12 hours per day. This situation further emphasizes the urgency of accelerating the implementation of energy transition programs, such as de-dieselization, in line with rising electricity demand. At the same time, investment in transition projects, particularly RE, is becoming increasingly attractive because

- The geographical suitability of Maluku for integrating solar energy to improve electricity access, which subsequently leads to the Productive Use of Energy (PUE), such as to support fisheries sector, and EDT
- It has the potential to drive local and community-based industries, thereby creating opportunities for inclusive growth at both the village and district level

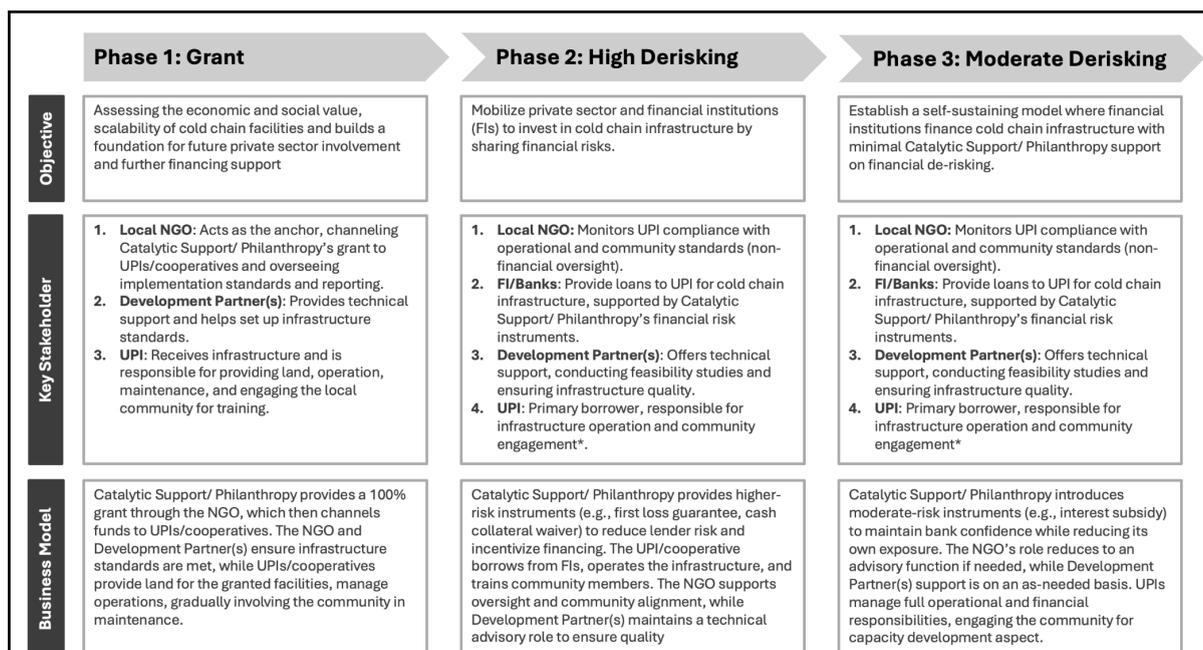
#### **Enhancing Investment Interest and Community Empowerment through the Operationalization of Standard 9 EDT**

Financing constitutes a critical determinant in the energy transition, as it directly shapes the success of the JT Program. By generating socio-economic benefits, the mainstreaming of JT enhances its attractiveness to investors. Field survey findings by CPI indicate a growing interest in financing from impact investors and the banking sector, particularly for community-based initiatives with scalability potential, such as UPI and cooperatives.

One of the main economic challenges in Maluku lies in the limited electricity supply and inadequate cold chain infrastructure, which constrain the productivity and profitability of the local fisheries sector. RE-based solutions, such as solar-powered cold chain systems, offer significant opportunities for sustainable investment while generating broader socio-economic benefits. This case study recommends a gradual approach to the operationalization of EDT, with a funding mobilization strategy that begins with catalytic grants and progressively transitions to market-based financial instruments tailored to Maluku's conditions (Figure B-1).

<sup>2</sup> Maluku recorded the highest GDP growth of 6.94% compared to other islands in 2023 on an annual basis.

<sup>3</sup> Buru Island is located in Buru Regency & South Buru Regency, Maluku. Pasir Putih is located on Kei Kecil Island, Southeast Maluku Regency.



**Figure Box 6.2-1-1 Illustration of Resource Mobilization Plan to Create Market Attractiveness in Fishery Sector**

### Establishment of the “JT Fund” to Improve Workforce Skills and Local Economic Resilience

The transition from diesel to RE, particularly solar panels, presents significant challenges in terms of workforce management. Currently, the diesel power plant employs approximately 18 local residents to operate machinery and perform operational activities. On the other hand, this transition also opens up opportunities for skills development and renewable energy development to strengthen regional economic resilience.

To support this process, the JT Fund can serve as a financing instrument that focuses on strengthening the capacity of workers and vulnerable communities. This is achieved through vocational training and certification of new skills in RE, digital technology, and green manufacturing. The JT Fund is structured with a performance-based financing approach, whereby financial support is directly linked to measurable outcomes such as job creation, competency development, and the expansion of renewable energy adoption.

### Lesson Learned

The transition from fossil fuels, such as diesel, to renewable energy is often perceived as a financial burden. Yet, through the lens of JT, this shift presents significant long-term economic and social opportunities. JT can generate tangible benefits such as: (i) the creation of new jobs, (ii) the strengthening of community-based ownership models, such as cooperatives, to encourage local participation and economic resilience, and (iii) the productive use of energy that enhances regional productivity.

The Maluku case study highlights that mainstreaming JT is pivotal not only to accelerate the deployment of clean energy solutions, but also to generate new employment opportunities, build a skilled workforce, and strengthen the empowerment of local communities. Consequently, JT investment should be defined not merely in terms of costs, but also in relation to the opportunities arising from EDT and PUE.

Source: CPI (2025)

According to the JETP Secretariat, a financing mechanism that could be considered is a JT Fund in the form of a revolving fund, in which the returns generated from individual projects investments are reinvested into the fund and subsequently redeployed to finance other projects. Through this mechanism, the JT Fund could achieve greater financial sustainability, reducing reliance on grants or continuous capital injections from public or private sources.

Financing a well-prepared and planned just energy transition today has been proven to be less costly in the long run than compensating for the social and environmental losses of an unprecedented energy transition. CPI study found that the application of Standard 9 of the JT Framework does not merely incur costs, but also creates new opportunities and benefits for local communities. Operationalizing Standard 9 of the JT Framework can create new jobs, strengthen community-based business models such as cooperatives that can enhance public participation and local economic resilience, and improve regional productivity through the use of productive energy.

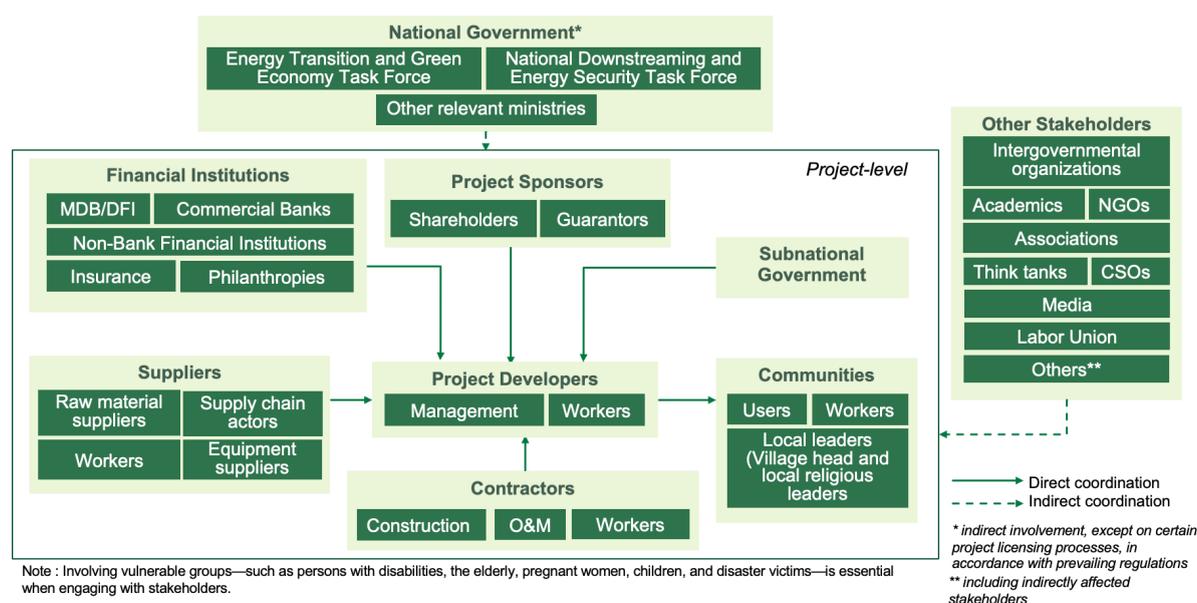
### 6.3 Partnerships for Just Transition

Partnerships are crucial for a JT, bringing together stakeholders to collectively achieve JT objectives for example through a multi-stakeholder forum as outlined in Subchapter 6.4.1.5. This collaboration balances different interests and priorities, ensuring an accelerated transition that is fair and equitable for all.

Existing governmental coordination forums, such as the National Development Planning Coordination Meeting (*Musyawarah Perencanaan Pembangunan* (Musrenbang)) under Bappenas or the Regional Energy Forum (FED) under DEN, could incorporate JT discussions. This approach could ensure effective coordination without adding bureaucratic complexity. These forums should integrate JT principles into local development plans, ensure active stakeholder engagement, and address regional needs and priorities.

#### 6.3.1 Stakeholder Roles, Engagement, and Consultation

Achieving just energy transition requires close coordination and active collaboration among stakeholders to align their goals and actions in addressing direct and broader impacts. Stakeholders such as the national government, academics, NGOs, CSOs, associations, think tanks, and intergovernmental organizations have an indirect relationship with JT project implementation. Meanwhile, subnational governments, financial institutions, project sponsors, suppliers, communities, and contractors have a direct relationship with the project developer. Figure 6.3-1 illustrates the typical stakeholders involvement and relationship in JT projects.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 6.3-1. Stakeholder Role and Engagement**

The national government plays a key role in supporting project development and overseeing the implementation of the energy transition through the establishment of regulations, formulation of policies, and monitoring of impacts at the national level. The establishment of the Indonesian Energy Transition and Green Economy Task Force (SATGAS TEH), as well as the Task Force for the Acceleration of Downstream Industries and Energy Security, as stipulated in Coordinating Minister for Economic Affairs Decree No. 141 of 2025, further strengthens governance and coordination of the energy transition at the national level. Project developers primarily interact with the central government through permitting processes and compliance with applicable regulations.

Subnational governments play a strategic role in formulating and implementing tailored regional development plans that promote the rights of local communities and support regional economic growth, which can directly affect project developers. Through the implementation of EDT actions, subnational governments can realize benefits such as local job creation, improved infrastructure readiness, and strengthened regional economic resilience throughout the just energy transition process.

Project sponsors, including shareholders or guarantors, provide equity financing and financial support to facilitate project risk mitigation. Financial institutions, such as multilateral development banks (MDBs), commercial banks, and philanthropic organizations, offer a range of financing instruments that enable the implementation of energy transition projects. Suppliers and contractors work in close coordination with project developers to ensure that projects are executed effectively, on schedule, and in accordance with established quality and safety standards.

In addition, other stakeholders, including CSO, industry associations, think tanks, NGO, IGOs, academia, the media, labor union, and indirectly affected communities, may be engaged at various stages before, throughout, and beyond the project timeline. For example, NGOs, CSOs, and intergovernmental organizations may be consulted prior to the project development stage regarding potential impacts on local communities, ecosystems, and

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indirectly affected groups, such as those residing in peripheral communities relative to the project location. These consultations aim to ensure that all stakeholders understand project mechanisms and can develop communication strategies for communities and workers that are directly and indirectly affected.

Engagement with academia, particularly in projects involving the development or deployment of new technologies, can help identify environmental and social risks as well as innovation opportunities, especially where technological advancement is involved. Such collaboration supports the mitigation of potential environmental and social impacts, reduces risks that may adversely affect surrounding areas, and simultaneously identifies opportunities for economic diversification and transformation that maximize social benefits. In parallel, engagement with the media is essential for public dissemination and transparency, helping to inform and educate the broader public about project developments, objectives, and impacts.

Table 6.3-1 Outlines the proposed roles for each stakeholder based on their interactions shown above, providing a non-exhaustive list of their responsibilities and areas of involvement in the transition process.

**Table 6.3-1. Stakeholder Proposed Roles**

Stakeholder group	Proposed Roles (i.e., mandates)
National Government	<ul style="list-style-type: none"> <li>• Ensure implementation of JT projects and achievement of JT;</li> <li>• Coordinates stakeholders within the industry through laws, regulations, and decrees;</li> <li>• Develop and enforce policies and roadmap that support just energy transition targets;</li> <li>• Facilitate the required national permits and licensing processes;</li> <li>• Monitor progress and achievement of EDT through JT Projects on national level;</li> <li>• Ensure fair treatment of all communities during the transition.</li> </ul>
Subnational Government	<ul style="list-style-type: none"> <li>• Develop and enforce local policy and roadmap that support just energy transition targets;</li> <li>• Facilitates the required local permits and licensing processes of energy projects, ensures compliance with regional regulations;</li> <li>• Monitor progress and achievement of the EDT through JT Projects on subnational level;</li> <li>• Supports community engagement and local economic development;</li> <li>• Identify the training needs and green jobs requirements in their area.</li> </ul>
Financial Institution and Sponsor	<ul style="list-style-type: none"> <li>• Provide funding for energy projects and ensure actions related to international standards;</li> <li>• Provide funding and financial backing for required risk mitigation measures;</li> <li>• Periodically collect and monitor project data to maintain accountability in investments;</li> <li>• Report progress and achievement of JT Projects that are funded to the public;</li> <li>• Disclose monitoring results to be included in the JETP Secretariat Meta- Monitoring.</li> </ul>
Project Developer (including suppliers and contractors)	<ul style="list-style-type: none"> <li>• Secure funding and obtain necessary permits;</li> <li>• Execute the energy projects in accordance with the required quality standards;</li> <li>• Engage with local communities and adhere to environmental and social standards;</li> <li>• Report progress and achievement of JT Projects either to the government (for government-owned projects) or to the public (for unsolicited projects);</li> <li>• Optional: consult with local communities prior to the project development phase regarding the potential impacts of the project on the local community and ecosystem well being;</li> <li>• Optional: engage with academics regarding potential technology advancement.</li> </ul>

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<p>Knowledge Actors: Academia Research Think tanks</p>	<ul style="list-style-type: none"> <li>• Support implementation of JT projects through research and/or advocacy;</li> <li>• Provide evidence-based policy;</li> <li>• Promote policy reform.</li> </ul>
<p>Representation from impacted groups: CSOs Labor unions Vulnerable groups Local communities</p>	<ul style="list-style-type: none"> <li>• Support implementation of JT projects through research and/or advocacy;</li> <li>• Monitor policies and interventions that align with just-related principles;</li> <li>• Develop a communication strategy for the local communities and workers.</li> </ul>

Source: (JETP Secretariat and Working Group, 2025)

### 6.3.2 Multistakeholder Forum and Consultation

A multi-stakeholder forum can facilitate effective stakeholder engagement and consultations, enabling collaboration among all involved stakeholders throughout JT operationalization stages. This ensures decision-making is inclusive and reflects diverse needs and priorities at each level, shown in Figure 6.3-2. The forum should incorporate Gender Equality, Disability, and Social Inclusion (GEDSI) principles to promote equitable participation and representation.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 6.3-2. Proposed Multistakeholder Structure**

The JETP Secretariat organized a series of multistakeholder forums at both the national level and in subnational regions with potential for renewable energy projects or needs for RE. These activities aim to encourage understanding, participation, and support for the Just Energy Transition initiative in renewable energy project regions. Specific objectives include:

- **Increasing awareness** among communities and stakeholders about energy transition opportunities and benefits and how renewable energy projects support the national energy transition.
- **Gathering input and expectations** from communities and stakeholders to ensure project implementation is more inclusive, just, and contextually appropriate, as well as to identify energy transition needs in the respective regions.
- **Building active support and participation** from communities, local governments, and stakeholders to ensure successful renewable energy project implementation as part of a fair and sustainable energy transition agenda.

**Table 6.3-2. JETP Multi-stakeholder Forum Activities**

Multi stakeholder forum	Date	Summary
FGD with Civil Society Organizations	3 December 2025	The FGD on Enhancing Just Transition with CSO, summarized the importance of multi-stakeholder collaboration in realizing a just energy transition in Indonesia through the JETP and Just Transition Framework. It emphasized social protection, gender, and vulnerable groups; the adjustment and strengthening of policy, governance, funding frameworks, and cross-sector partnerships; and the implementation of Standard 9 for diversification and economic transformation so that the benefits and risks of energy transition can be managed inclusively from national to local levels. This must be supported by CSO understanding, transparent-accountable-participatory regulations, and continuous monitoring to ensure that no group is left behind in the shift toward clean and sustainable energy.
FGD with Financial Institutions and Developers	11 December 2025	The FGD with FIs and developers discussed that the JETP Just Transition Framework must serve as clear guidance rather than an additional barrier, requiring transparent funding incentives, and Standard 9 must be addressed collaboratively involving government, developers, and FIs to achieve economic diversification. Although participants view energy transition as a catalyst for sustainable economic growth and support framework operationalization, challenges include overlapping regulations, increased project costs, developers' limited technical capacity, and concerns regarding data confidentiality in sharing information with the JETP Secretariat. Social-environmental impact costs are prioritized for funding through grant funds and derisking facilities, with all participating FIs and MDBs willing to provide financing, while 83% of participants have allocated budgets for reskilling and social protection programs, and 97% approve the role of Standard 9 although 71% agree on integration with existing standards, focusing on pilot projects to generate local best practices to accelerate a just energy transition toward NZE targets.
FGD with Government of Indonesia	20 February 2025	The FGD on Enhancing Just Transition with GoI, concluded that JETP serves as a guiding platform using existing international standards, making the Just Transition Framework (Standards 1-9) a local guideline for risk management and inclusivity. Training and practical guidance are needed for project developers and FIs to optimally apply these standards. The discussion highlighted the importance of defining just transition in Indonesia, including support for technologies such as gas and Carbon Capture and Storage (CCS), social and environmental risk management, CSO engagement, and inclusive governance. Innovative financing, transparent reporting, and multi-stakeholder collaboration are key to ensuring equitable benefits and not leaving vulnerable groups behind in the energy transition.
Dissemination of Geothermal Study in IIGCE 2025	18 September 2025	During the dissemination session at the MEMR's booth at IIGCE, visitors received one-on-one explanations about the JETP, the JTF, especially Standard 9 on Economic Diversification and Transformation, and the findings from the geothermal pilot study. The dissemination covered topics such as social

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Multi stakeholder forum	Date	Summary
		safeguards, livelihood impacts, direct-use geothermal potential, and stakeholder coordination. A diverse mix of geothermal suppliers, project developers, and college students engaged deeply with the materials, asking about opportunities for direct use and benefit-sharing mechanisms. Engagement was also boosted through a Kahoot quiz regarding key findings from the study and visitors were invited to leave comments and suggestions on sticky notes to capture real-time feedback.
Regional Multi Stakeholder Forum - Bali	29 August 2025	The Bali forum highlighted the island's role as Indonesia's primary energy transition laboratory with a vision to become a Green Island by 2045. Key initiatives include solar plants in East and West Bali, the Nusa Penida pilot project as a showcase for independent clean energy, a 450 MW rooftop solar program reducing electricity bills by 30%, and community empowerment initiatives through biogas and solar dryers based on regenerative economy models. Small group discussions identified the need for a holistic approach integrating energy transition with economic development, waste management, and transportation. Participants emphasized the importance of social justice for vulnerable groups, green financing support, consistent regulations, worker reskilling, and multi-stakeholder collaboration for inclusive and sustainable transformation.
Regional Multi Stakeholder Forum - Medan	2 October 2025	The Medan forum emphasized North Sumatra's strategic role in energy transition with USD 20 billion JETP investment to develop significant geothermal and solar energy potential as a priority program. It includes energy efficiency, public transportation, acceleration of renewable generators, and early retirement of coal-fired plants. PLN is developing the Kumbih Hydroelectric Plant (45 MW) and Sumatra Pumped Storage Hydroelectric Plant using a justice-based approach encompassing Environmental and Social Management System (ESMS), benefit sharing, Free Prior and Informed Consent (FPIC), and local fauna protection. Sarulla Operations Ltd. manages Indonesia's largest 330 MW geothermal project with IDR 85 billion production bonuses and technical innovations addressing reservoir challenges. Discussions identified needs for community grievance mechanisms, Corporate Social Responsibility (CSR) integration into just energy transition, information transparency, long-term monitoring, involvement from the planning stage, continuous technical support, low-risk microhydro systems development, and strengthened human rights monitoring to ensure net zero achievement.
Dissemination of Standard 9 Study to Government of Indonesia	13 October 2025	The FGD focuses on dissemination of the final report on the operationalization of Standard 9 on Diversification and Economic Transformation from the Just Transition Framework to GoI. JETP presented a five-stage operationalization framework consisting of local economic potential assessment, action planning, implementation, monitoring-evaluation, and reporting, supported by pilot studies. These studies demonstrated stakeholder identification, existing condition analysis, and formulation of community-based diversification priority actions. The dissemination identified the need for training and practical guides for project developers and regional governments, clear financing mechanisms at each stage, integration with existing government programs, and strengthening grievance mechanisms including protection from gender-based violence. Emphasis was placed on involving MSMEs and vulnerable groups to ensure energy transition benefits are evenly distributed in line with the principle of "no one left behind," thereby making Indonesia's economic transformation just and inclusive without leaving any sector or region behind.
Regional Multi Stakeholder Forum - Sorong	20 October 2025	The Sorong forum positioned Southwest Papua as a net zero emission pioneer by strengthening community-based energy sovereignty through inclusive, sustainable, and appropriate technology. The region faces infrastructure and energy access challenges while focusing on green fisheries and tourism sectors. The JETP Secretariat explained the energy transition roadmap based

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Multi stakeholder forum	Date	Summary
		on Investment Focus Area and Just Energy Transition Framework with Standard 9 emphasizing human resources, technology, economic policy strengthening, PLN implements the SuperSUN program targeting 447 villages for electrification by 2025-2029. GIZ's Solar Ice Maker innovation increased fisheries export efficiency from 65% to 98%, PT Aruna increased fishermen income by 40%, and KOPETINDO developed circular economy models. Recommendations include integrating energy and fisheries infrastructure on Raam Island, cross-sector collaboration, completing regional spatial plans, synchronizing energy readiness, and utilizing BUMDs to manage community facilities.
Regional Multi Stakeholder Forum - Kupang	11 - 12 December 2025	The forum in Kupang highlighted the strategic role of Kupang City in managing new and renewable energy, particularly as a center for developing geothermal energy potential in East Nusa Tenggara. The forum discussed opportunities and examined operational assumptions for Geothermal Power Plants. It also reviewed Kupang's regional energy planning documents that have adopted just transition principles, and underscored the importance of integrating renewable energy development with local economic development, protection of vulnerable groups, regulatory certainty, financing support, and multi-stakeholder collaboration to advance a sustainable and inclusive energy transition.

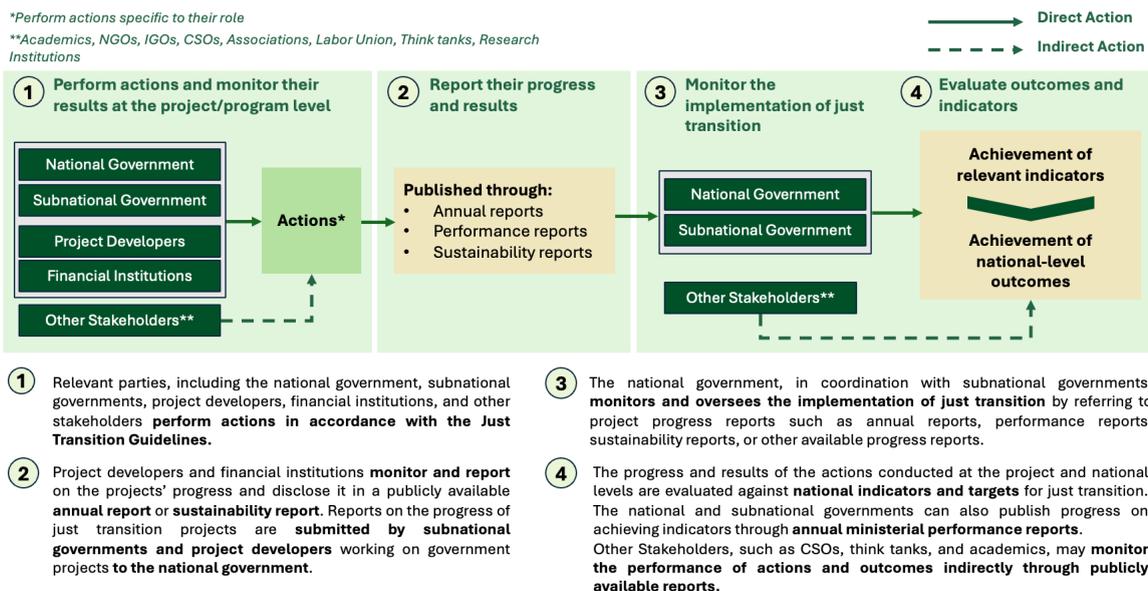
Table 6.3-2 summarizes JETP outreach activities conducted to date. These activities generated valuable insights, inputs, and feedback on the Just Energy Transition concepts. Recommended engagement and consultation practices for future multi-stakeholder forums include timeliness and inclusiveness, Free, Prior, and Informed Consent (FPIC), a continuous feedback loop, and grievance mechanisms, which will be further elaborated in chapter 5.

#### 6.4 Just Transition Governance

A national governance framework for monitoring actions and evaluating the effectiveness of JT initiatives, including EDT efforts, ensures the transition is managed effectively, promoting economic stability and resilience while minimizing socio-economic and environmental impacts.

The proposed governance framework aims to provide a structured approach to manage and coordinate the various initiatives from various stakeholders and regions. It aims to support the Gol in facilitating effective allocation of resources, especially for public initiatives that support JT efforts to ensure that no one is left behind.

The below Figure 6.4-1 depicts a holistic approach from implementing or performing actions across various stakeholder groups, reporting respective progress and achievement, to JT monitoring at the national level through collation of aforementioned progress reports. Furthermore, the governance structure includes the monitoring of JT outcomes and indicators by indirect stakeholders.



Source: (JETP Secretariat and Working Group, 2025)

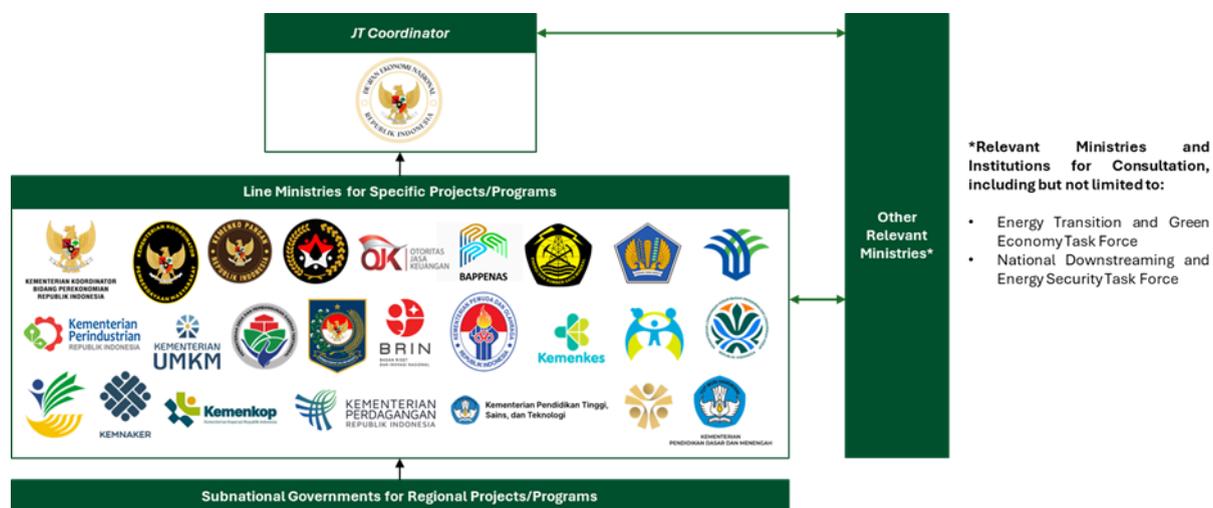
**Figure 6.4-1. Governance Structure of Just Transition**

The detailed stages of the proposed governance framework are as follows:

1. Relevant parties, including the national government, subnational governments, project developers, financial institutions, and other stakeholders undertake actions in accordance with the JT Framework. Specific to Standard 9, these can encompass both project-level and/or program-level actions to progress EDT.
2. Project developers and financial institutions monitor and report on the projects' progress and disclose it in a publicly available annual report or sustainability report. Reports on the progress of JT projects are submitted by subnational governments and project developers working on government projects to the national government.
3. The national government, in coordination with subnational governments, monitors and oversees the implementation of just transition for all relevant projects and programs by referring to project progress reports such as annual reports, performance reports, sustainability reports, or other available progress reports.
4. The progress and results of the actions conducted at the project and national levels are evaluated against national indicators and targets for just transition. The national and subnational governments can also publish progress on achieving indicators through annual ministerial performance reports. Given that Standard 9's recommended indicators have been aligned to Bappenas' RPJMN and RPJPN, the progress of EDT is also able to be monitored through Bappenas' report on the achievement of their RPJMN and RPJPN medium-term and long-term targets, respectively. The progress data is collected by the national government to consolidate the indicators nationally. The proposed data collation flow between ministries is detailed in Figure 6.4-2
5. Other Stakeholders, such as CSOs, think tanks, labor union, and academics, may monitor the performance of actions and outcomes indirectly through publicly available reports.

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The proposed governance framework is designed to leverage existing procedures to evaluate and enhance accountability and transparency of the achievement of a just transition and does not intend to establish new mechanisms and procedures, including data collection processes as outlined in Figure 6.4-2.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 6.4-2. Proposed Governance Framework**

Specific to EDT, Bappenas’ RPJMN 2025-2029 assigns coordinating bodies for each indicator and has established a process for data collection and analysis, by closely coordinating with other government ministries, agencies and subnational governments. As shown in Figure 6.4-2, subnational governments coordinate with line ministries to report sector-specific data related to their jurisdictions, enabling relevant ministries to collate this data at the national level. Line ministries may then coordinate with the National Economic Council, which leads the working group on Social, Economic, Environmental, and Human Resource Capacity Development within SATGAS TEH, in accordance with Coordinating Ministry of Economic Affairs (CMEA) Decree No. 141 of 2025. Bappenas, a member of this working group, may provide national-level data for specific projects/programs relevant to their medium-and long-term indicators. Other relevant ministries can also be consulted with the aim to ensure that the implementation of the programs/projects are inclusive.

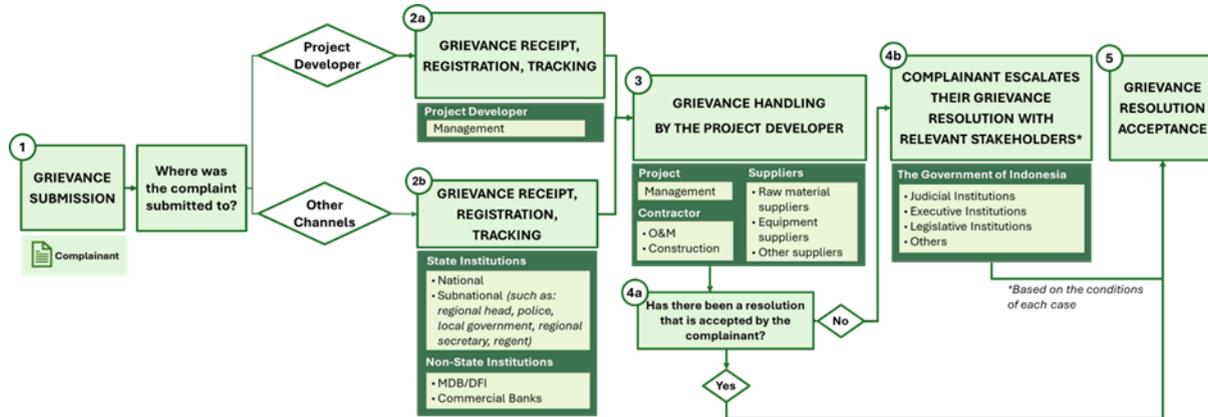
It is hence proposed that the National Economic Council also takes on the role of JT Coordinator to monitor and compile the progress of Indonesia’s just transition in accordance with all standards of the JT Framework given its current role within SATGAS TEH. However, since Indonesia is yet to have regulation on the implementation of Standard 9, this arrangement will need to be further discussed with the government.

### 6.4.1 Grievance Mechanism

A transparent, accessible, accountable and streamlined grievance mechanism procedure is essential to ensure just energy transition efforts anticipate risks and adverse impacts to surrounding communities, and support larger processes creating positive social change (The Office of the Compliance Advisor/Ombudsman, 2008). Responsibility for grievance resolution is shared among project developers, sponsors, financial institutions, contractors, suppliers, and national and subnational government institutions. The mechanism should be adapted to the local context throughout planning, construction, and operations to enhance effectiveness.

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Project-specific grievance mechanisms are used for complaints tied to individual projects, while program-level grievance mechanisms handle complaints related to initiatives extending beyond a single project, such as long-term programs or recurring public services. The proposed grievance mechanism is presented in Figure 6.4-3.



Source: (JETP Secretariat and Working Group, 2025)

**Figure 6.4-3. Grievance Mechanism**

The proposed grievance mechanism is designed to address issues covered under Standards 1–9, with a primary emphasis on implementation at the project level and alignment with the existing safeguards. This approach is based on the understanding that communities generally experience impacts most directly at the project level and are therefore more likely to raise grievances at that scale. For projects that already have an existing grievance mechanism, users may integrate the features of that mechanism as appropriate.

To ensure a comprehensive grievance mechanism, a multi-channel approach is adopted. This arrangement enables a national-level platform to collaborate with project developers in resolving grievances that require cross-project coordination. Such flexibility is particularly important for grievances related to Standard 9, which may involve not only project-specific actions but also initiatives linked to national-level programs aimed at realizing a just transition. The mechanism promotes an inclusive process, allowing complainants to submit grievances either directly at the project level or through the national platform.

Beyond project grievances, complaints can be submitted through existing government platforms, including those shown in Table 6.4-1 below. These centralized complaint management systems facilitate grievance receipt, registration, and tracking through multiple channels, ensuring coordinated and timely resolution. However, using these platforms for JT programs requires further discussion and agreement with related ministries and institutions to effectively address JT-related issues.

**Table 6.4-1. Grievance Platform**

Platforms	Type of Complaints Handled
<b>National Platforms</b>	
<b>National Public Service Complaint Management System – People’s Online Service for Aspirations and Complaints (SP4N LAPOR)</b>	Complaints related to public services managed by the Ministry of State Apparatus Utilization and Bureaucratic Reform.

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<b>Ombudsman Online Complaint Platform</b>	Complaints related to public services, including administrative process errors by government agencies.
<b>Human Rights Complaint Information and Management System (SIMASHAM)</b>	Human rights violations including environmental and social issues, operated by the Ministry of Human Rights.
<b>National Commission on Violence against Women's Complaints Receiving System</b>	Complaints related to violence against women.
<b>Judicial Commission's Supervision Information System (SIWAS)</b>	Judicial misconduct, ethical violations and violations of the law.
<b>MoFr's Online Complaint System (SIPONGI)</b>	Environmental complaints and violations of environmental and forestry laws.
<b>Corruption Eradication Commission (KPK) JAGA</b>	Complaints related to corruption.
<b>Supreme Audit Agency (BPK) Complaint Monitoring Application (SIPADU)</b>	Complaints related to financial irregularities and other issues under BPK's jurisdiction.
<b>Indonesian Police Labor Desk</b>	Labor disputes across the country, a strategic collaboration between the Indonesian National Police, Ministry of Manpower and the House of Representatives.
<b>Ministry of State-Owned Enterprises Whistleblowing System</b>	Reports on misconduct, corruption and other unethical behaviours within SoEs.
<b>Energy Sector Platforms</b>	
<b>PLN Online Complaint System</b>	Complaints for PT PLN's projects, service or other incidents within the group.
<b>MEMR Complaints Service</b>	Complaints from electricity consumers to the Directorate General of Electricity.

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## 7. Just Transition Framework Pilot Study

The pilot study on the operationalization of Standards 1-9, discussed in this chapter, was conducted on two Renewable Energy (RE) projects. This study aims to review and ensure that the operational guidelines for Standards 1-9 can be implemented effectively and adapted to local conditions. In addition, the study seeks to identify necessary adjustments to the guidelines, particularly at the project level, to ensure their inclusive, practical, and replicable implementation. This entails ensuring that the standards are inclusive, operationally feasible, and readily replicable across other projects.

The Dieng Geothermal Power Plant and the Tolo Jeneponto Wind Power Plant are located in areas whose socioeconomic conditions are largely dependent on agriculture, creating strong demand and opportunities for economic diversification and transformation. Moreover, Dieng has significant potential for the development of direct-use geothermal applications—using geothermal heat directly for business and industry, while Jeneponto offers prospects for wind-energy-landscape-based tourism. Consequently, both areas were selected as pilot projects for the implementation of Standard 9.

As outlined in Chapter 3, the operationalization of the JT Framework is grounded in internationally recognized sustainability practices and standards applicable at both the project and program levels, with particular emphasis on Standard 9. In this pilot study, the operationalization of Standard 9 follows the Operationalization Stage framework described in Chapter 5 (Figure 5-1). Stage 1 assesses the potential for economic diversification and transformation through three sequential steps: (1) identifying the scope—defining what we will examine, (2) stakeholder mapping—identifying all groups who have an interest or stake in the project, and (3) stakeholder-engagement planning—planning how to work with these groups effectively. Stage 2 subsequently focuses on collaborative development of an action plan with diverse stakeholder groups to ensure its relevance, robustness, and meaningful impact.

### 7.1 Objectives of the Pilot Study

The review process for operationalizing the JT Framework Standards 1-8 aims to assess the extent to which their implementation aligns with sustainability practices and international standards already adopted by project developers. It further identifies gaps and areas requiring reinforcement or enhancement to strengthen the effective application of the JT Framework. This process is intended to support the advancement of just transition principles in energy projects, particularly in promoting inclusive and sustainable clean energy transitions. In essence, the study examines what aspects of the standards are functioning effectively, identifies remaining gaps, and proposes improvements to ensure the standards support fair, inclusive, and sustainable energy transitions.

The objectives of the baseline assessment for operationalizing the JT Framework Standard 9 and assessing the potential for EDT in the Dieng region are as follows:

1. To evaluate the application of the JT Framework Standard 9 at the Dieng Geothermal Power Plant as a replicable model for implementation in other projects and regions.

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This involves assessing whether the approach is transferable and can be effectively applied in other project contexts and geographic settings.

2. To identify opportunities for economic diversification and transformation in the Dieng region, encompassing Banjarnegara and Wonosobo Regencies. This involves identifying alternative economic activities with the potential to generate employment and income opportunities for local communities.
3. To ensure the creation of long-term economic benefits for vulnerable affected groups, including women, persons with disabilities, and low-income households.
4. To develop recommendations for multi-stakeholder collaboration that address institutional and financing challenges, and technical capacity constraints.

## 7.2 Research Methodology

The pilot study on operationalizing the JT Framework at Dieng Geothermal Power Plant entails a comprehensive review of compliance with Standards 1-8, alongside an assessment of existing conditions and the potential for EDT as an application of Standard 9.

### 7.2.1 Operationalization Methodology for JT Standards 1-8

The review process commences with a comprehensive literature study that examines policies, procedures, and reports related to environmental and social safeguards. This stage aims to establish an analytical foundation for understanding the regulatory and institutional context governing safeguard implementation. It is subsequently complemented by a detailed assessment of technical documents, including the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), and other relevant environmental and social policies applicable to the case study.

To complement the analytical review, field observations and structured interviews were conducted with project developers and workers to obtain firsthand insights into the implementation of the standards. This allowed us to see how the standards work in practice and hear directly from the people involved. This approach enables a systematic assessment of compliance with Just Transition (JT) Framework Standards 1–8 within the pilot study. It also facilitates the identification of existing best practices aligned with the standards, as well as gaps and areas requiring further attention and improvement.

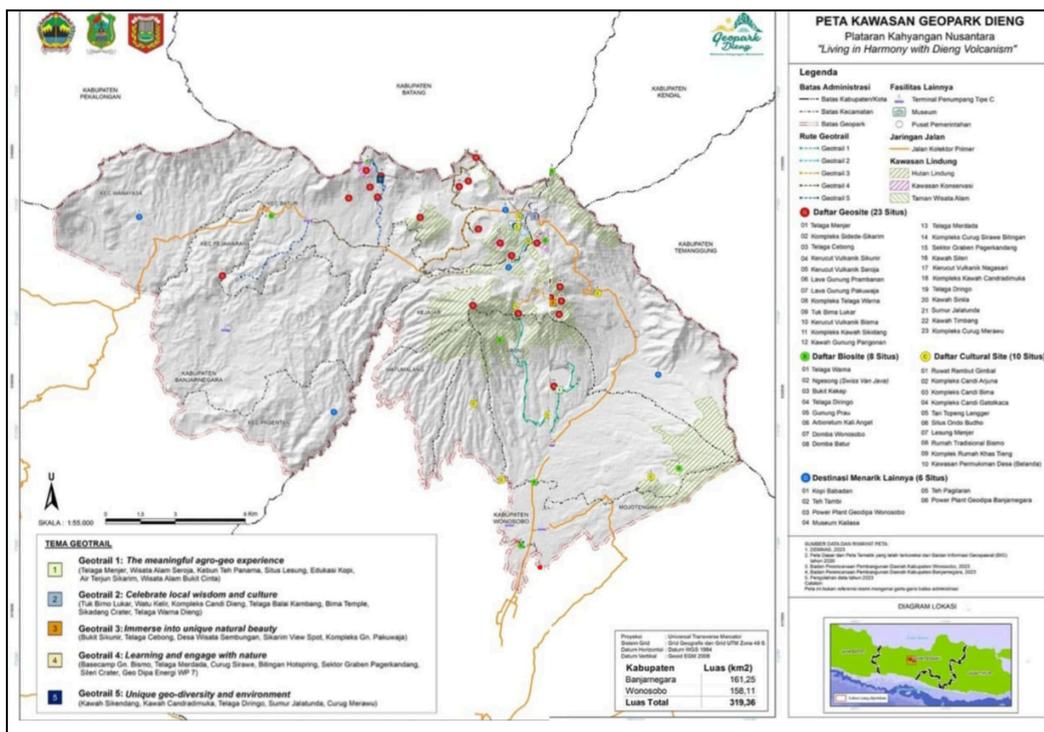
### 7.2.2 Operationalization Methodology for JT Standards 9

The baseline assessment and evaluation of EDT potential were conducted using a mixed-methods approach that integrates multiple data collection and analytical techniques to ensure a comprehensive contextual understanding. It used several different research methods together to get a complete picture of the situation. Data were gathered through four primary methods: a literature review, household surveys, in-depth interviews, and FGDs. The collected data were subsequently analyzed using descriptive statistics, social impact analysis, thematic analysis, and gender equality and social inclusion (GESI) analysis, enabling a systematic identification of EDT potential as well as a structured mapping of the socioeconomic impacts and vulnerabilities of affected groups. These analysis methods helped to understand the numbers, identify patterns, and assess how different groups especially women, persons with disabilities, and marginalized communities are affected.

The Assessment of EDT potential is guided by the principles of the Strengths, Opportunities, Aspirations, Results (SOAR) framework, as recommended in Chapter 5 (Table 5.1-2), with a particular emphasis on identifying local strengths, community development aspirations, and sustainable development opportunities. This framework facilitates a structured assessment of existing community strengths, development aspirations, and opportunities for sustainable growth. The application of the SOAR framework in this study is adaptive rather than prescriptive, allowing flexibility to ensure alignment with the local context and the specific analytical requirements of EDT. We adapted the framework to fit project site's unique situation rather than following it rigidly. In addition, stakeholder analysis was conducted using the 3i framework—interests, influence, and impact—as outlined in Chapter 5 (Tables 5.1-3, 5.1-4, and 5.1-5). This helped clarify the interests of each stakeholder group, their relative levels of influence, and the extent to which they are affected. Meanwhile the formulation of the action plan and the monitoring and evaluation mechanism follow the formats provided in Appendix 2.4 (action plan) and Appendix 2.6 (monitoring and evaluation) of the Standard 9 Operationalization Guide Document.

### 7.3 Dieng Geothermal Power Plant Pilot Study

#### 7.3.1 Dieng Geothermal Area



Source: Banjarnegara Tourism and Culture Office (2025)

Figure 7.3-1 Dieng Area Map

The Dieng Plateau extends across the Banjarnegara and Wonosobo regencies of Central Java and is characterized by a highland volcanic landscape with elevations reaching approximately 2,060 meters above sea level and an average ambient temperature of around 14°C. The region is subject to notable climatic variability, including the occurrence of frost

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(locally known as *bun upas*) during the peak dry season, and forms part of an active volcanic complex within the Pacific Ring of Fire. Its topography varies from relatively flat terrain to steep slopes exceeding a 70% gradient, and the area contains numerous volcanic cones, craters, and geothermal features—such as hot springs, fumaroles, and solfataras that naturally emit sulfur and carbon dioxide gases, often resulting in a pronounced pungent odor (Asian Development Bank, 2021).

Pradana et al. (2015) mentioned that potato cultivation on the steep slopes of the Dieng Plateau, without adequate soil and water conservation measures and accompanied by the conversion of protected forest areas into agricultural land, could accelerate erosion and increase the risk of landslides and land degradation. Furthermore, 95.3% of farmers were reported use heavy amounts of fertilizer and pesticides that has contributed to further degradation of agricultural soils. These pressures, combined with the region's high exposure to natural disasters such as landslides, floods, earthquakes, volcanic eruptions, and toxic gas emissions, substantially exacerbate the environmental and socio-economic vulnerability of the region (Ningrum et al., 2024; Pujiwinarko et al., 2023). The combination of poor farming practices and frequent natural disasters makes communities here particularly vulnerable.

Groundwater availability in the Dieng area is relatively limited due to the low permeability of the underlying geological formations, meaning water unable to easily soak through the rock layers below ground. This results in a heavy reliance on surface water to meet agricultural and household demands. Seasonal water scarcity during the dry period further constrains water availability for irrigation and domestic use. These conditions collectively undermine agricultural productivity and adversely affect farmers' income.

The natural landscape of Dieng Plateau, encompassing volcanic craters and caldera lakes such as Telaga Warna and Telaga Pengilon along with the historical Dieng Temple Complex, offers substantial potential for tourism development. This tourism potential presents significant economic opportunities for micro, small, and medium enterprises (MSMEs), particularly in the provision of accommodation services such as homestays. It also supports value-added activities, including the processing of local products such as carica—a local fruit—and *purwaceng* coffee, as well as the expansion of transportation services and professional tour guiding. In other words, tourism can create many new job opportunities beyond farming.

Within this area, the Dieng Geothermal Power Plant project has been operated by PT Geo Dipa Energi (Persero) since 2011. This project was selected as a pilot for implementation of the Just Transition (JT) Framework due to its production bonus mechanism, revenue-sharing arrangements, and initiatives for the direct utilization of geothermal resources. Collectively, these instruments and initiatives hold significant potential to promote economic diversification and transformation in the Dieng region, which has historically been dominated by potato farming. These measures therefore offer opportunities to generate alternative income sources for communities that have traditionally relied predominantly on potato farming.

### 7.3.2 Overview of the Dieng Region

An assessment of the demographic and socioeconomic conditions in Banjarnegara and Wonosobo was undertaken to establish a structured baseline of community characteristics prior to the development of economic diversification and transformation (EDT) initiatives. It studied the population and economic conditions to understand existing situations before implementing new programs. Dieng's geographic and topographic characteristics significantly shape the local economy, which is predominantly driven by agriculture and tourism. The analysis also highlights persistent socioeconomic challenges requiring attention, including poverty incidence and Human Development Index (HDI) levels in both regencies. The HDI measures overall well-being, including health, education, and income.

**Table 7.3-1. Demographic and Socioeconomic Conditions of Banjarnegara and Wonosobo in 2024**

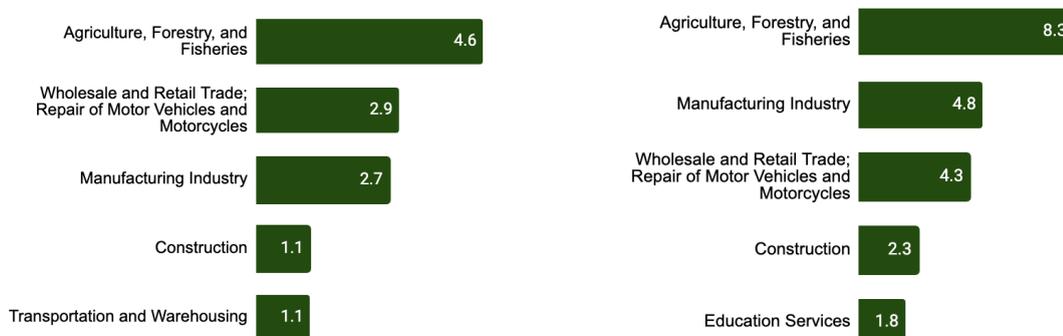
No	Component	Banjarnegara	Wonosobo
<b>1.</b>	<b>Total Population (persons)</b>	1.071.977	920.506
1.1.	Male (persons)	545.513 (50,9%)	468.526 (50,9%)
1.2.	Female (persons)	526.464 (49,1%)	451.980 (49,1%)
<b>2.</b>	<b>Dependency Ratio (%)</b>	46,2%	45,2%
1.1.	Working-Age Population (thousand persons)	732.989	634.018
1.2.	Non-Working-Age Population (thousand persons)	338.988	286.488
<b>3.</b>	<b>Education</b>		
3.1.	Primary School (thousand persons)	398.112 (55,6%)	451.109 (54,7%)
3.2.	Junior High School (thousand persons)	166.882 (23,3%)	177.068 (21,5%)
3.3.	Senior High School (thousand persons)	112.452 (15,7%)	148.829 (18,1%)
3.4.	Higher Education (thousand persons)	38.158 (5,3%)	47.136 (5,7%)
<b>4.</b>	<b>Population with Functional Difficulties</b>		
4.1.	Physical Disabilities (thousand persons)	103,9	176,2
4.2.	Mental Disorders (thousand persons)	16,2	18,9
<b>5.</b>	<b>Human Development Index</b>	69,62	70,6
<b>6.</b>	<b>Poverty</b>		
6.1.	Total (thousand persons)	137,7	121,5
6.2.	Proportion (%)	14,7%	15,3%

Source: Banjarnegara Statistics Bureau (2025), Wonosobo Statistics Bureau (2025), processed

The existing economic structure of Wonosobo and Banjarnegara Regencies is heavily dependent on agriculture, forestry, and fisheries, as reflected in their respective gross regional domestic product (GRDP) of IDR 4.6 trillion for Wonosobo and IDR 8.3 trillion for Banjarnegara (Figures 7.3-2 and 7.3-3). GRDP measures the total value of goods and services produced in a region. This reliance underscores the continued predominance of traditional livelihoods and natural resource-based activities in both regencies. This indicates

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that livelihoods in both regencies remain largely concentrated in farming, forestry, and fisheries activities. Nevertheless, Banjarnegara has begun to diversify its economic base, as evidenced by the growing contribution of the manufacturing and services sectors.



Source: Banjarnegara Statistics Bureau (2025), Wonosobo Statistics Bureau (2025), processed

**Figure 7.3-2 GRDP by Economic Sector in Wonosobo (IDR trillion)**      **Figure 7.3-3 GRDP by Economic Sector in Banjarnegara (IDR trillion)**

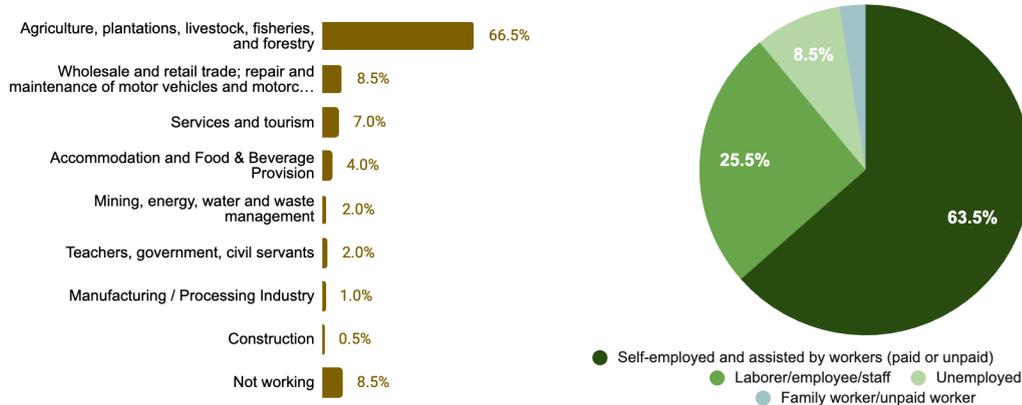
This pattern is corroborated by household surveys, which indicate that 66.5% of 200 respondents derive their primary income from agriculture, followed by trade (8.5%), services and tourism (7.0%), and other sectors (Figure 7.3-4). In terms of employment status (Figure 7.3-5), the majority (63.5%) are self-employed, either working independently, with unpaid family workers, or with paid employees<sup>4</sup>. Only 25.5% are salaried employees, while 8.5% are not currently employed, underscoring employment arrangements that differ in levels of business risk and the nature of employment relationships within economic units. This indicates that most respondents rely on self-employment in small-scale enterprises or farming, which entails different levels of economic risk compared to salaried employment.

The majority of respondents are self-employed and engaged in the agricultural sector, indicating a high prevalence of informality in the local labor market. According to Bappenas (2021), informal workers are disproportionately vulnerable to economic and social shocks—they are hit harder by economic problems—including commodity price volatility—sudden changes in crop prices, pandemics, natural disasters, and the impacts of climate change. This heightened vulnerability is largely attributable to limited access to social security schemes and employment insurance mechanisms that could otherwise mitigate the risks of income loss.

<sup>4</sup> **Employment Status according to Statistics Indonesia**

- **Self-employed:** Operating an enterprise at one's own risk without employing any workers.
- **Self-employed assisted by unpaid or non-permanent workers:** Operating an enterprise at one's own risk with assistance from casual workers or family members who do not receive regular wages.
- **Self-employed assisted by permanent or paid workers:** Operating an enterprise at one's own risk while employing permanent workers who receive regular remuneration.
- **Employee / Worker:** A person who works for another individual or an institution on a permanent basis and receives wages or a salary.

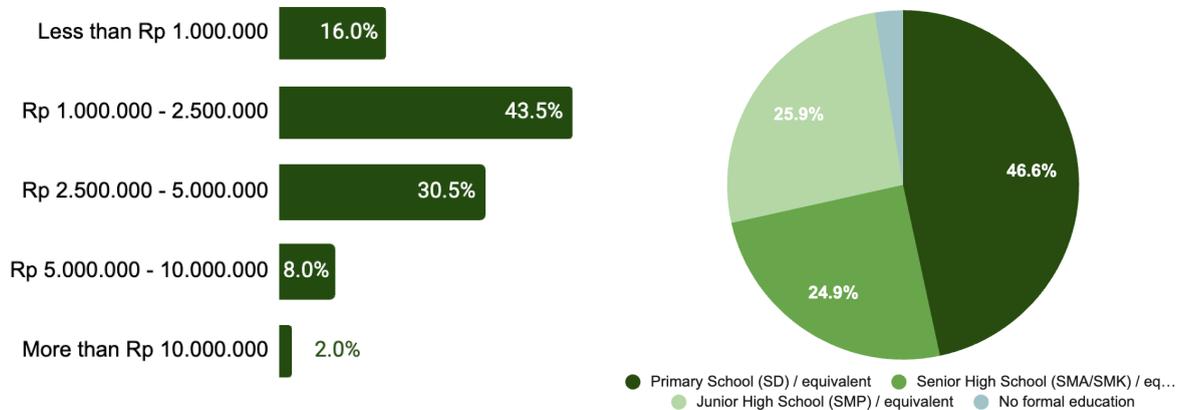
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Source: Household survey (2025), processed

**Figure 7.3-4 Respondents' Occupation by Economic Sector**      **Figure 7.3-5 Respondents' Employment Status**

The poverty rates in Wonosobo (15.3%) and Banjarnegara (14.7%) exceed the provincial average of 9.6%. This condition is further confirmed by household survey findings, which show that 43.5% of respondents report monthly incomes in the range of Rp1-2.5 million (Figure 7.3-6). This is approximately USD 62-155 per month, which is relatively low. This indicates that a substantial proportion of households in the Dieng region face income constraints and remain relatively economically vulnerable.



Source: Household survey (2025), processed

**Figure 7.3-6 Average Monthly Household Income**      **Figure 7.3-7 Respondents' Last Education Attained**

With respect to human resource development—improving people's skills and education, the Human Development Index (HDI) scores of Wonosobo (70.6) and Banjarnegara (69.6) in 2024 remain below both the provincial average (74.77) and national average (75.02). The HDI measures overall quality of life, including health, education, and income levels. Educational attainment in both regencies continues to be dominated by individuals with elementary-level education or lower, accounting for 55% of the population in Wonosobo and 56% in Banjarnegara. This means more than half of adults have only completed elementary

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school or less. This is also reflected in the survey respondents, with the majority (46.6%) having completed only elementary education (Figure 7.3-7). Furthermore, both regencies exhibit a relatively large working-age population and a balanced gender distribution, presenting both challenges and opportunities for future human capital development. This demographic profile indicates that a substantial working-age population could benefit from targeted education and skills development programs to strengthen future human capital.

### 7.3.3 Dieng Respondents' Demographics

To implement this methodology, the research conducted household surveys with 200 respondents, in-depth interviews with 17 stakeholders, and FGDs involving project developers, local government officials, and community representatives. The study was carried out in the villages of Karangtengah, Kepakisan, Dieng Kulon, and Sikunang, which are directly associated with the infrastructure and operational activities of the geothermal power plant. These locations were deliberately selected to ensure that the assessment of EDT potential, socio-economic impacts, and stakeholder dynamics was focused on areas most directly affected by and relevant to the geothermal project.

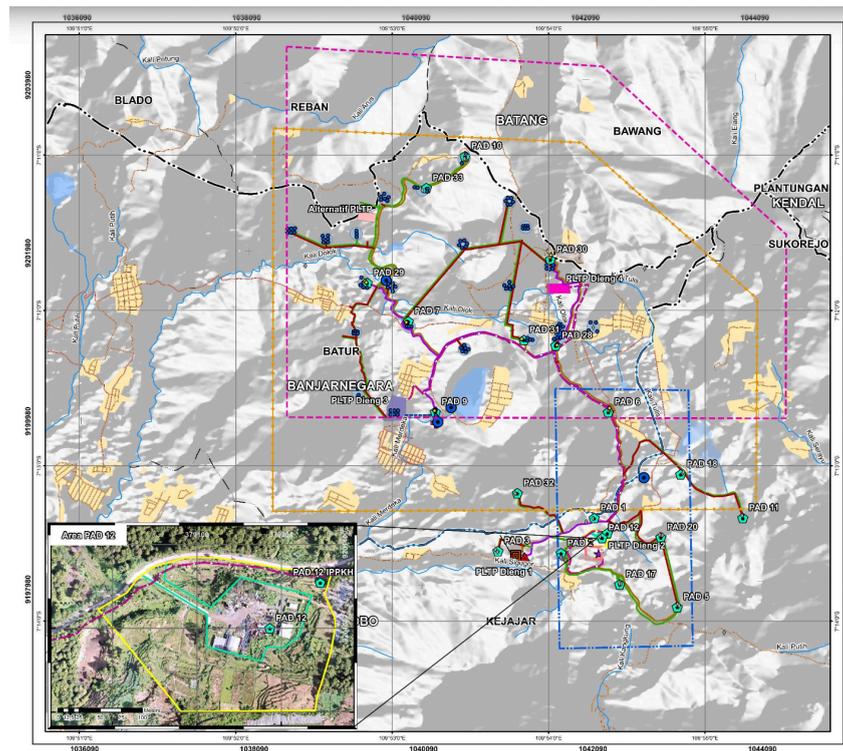
Sampling for this study was conducted based on the proportional population size of each village to ensure adequate geographical representation, without imposing specific criteria related to respondents' residential distance from the project site. As shown in Figure 7.3-8, the respondent distribution consisted of 32.5% from Karangtengah, 28% from Dieng Kulon, 21.5% from Kepakisan, and 18% from Sikunang. Meanwhile, Figure 7.3-9 indicates that the majority of respondents (91.5%) lived within a two-km radius of the geothermal power plant, while the remaining 8.5% resided beyond this distance, reflecting the settlement patterns within the study area.



Source: Household survey, processed (2025)

**Figure 7.3-8 Respondents per Village** **Figure 7.3-9 Distance of Residences from the Geothermal Power Plant Facility**

### 7.3.4 Review of JTF Standards 1-8



Source: EMP/EMoP of Dieng Geothermal (2024)

**Figure 7.3-10 Dieng Geothermal Area Map**

The Dieng Geothermal Power Plant (PLTP Dieng) Unit 2 is financed by the Asian Development Bank (ADB), which requires compliance with its rigorous Environmental and Social Safeguard Standards, consistent with Just Transition Framework (JTF) Standards 1 - 8. As part of these requirements, project developers are obligated to conduct semiannual monitoring of social and environmental performance indicators. The results of this monitoring must be publicly disclosed through the ADB website to ensure transparency and accountability.

PLTP Dieng Unit 2 encompasses the planning, development, and operation of geothermal facilities, including drilling activities, steam pipeline construction, power plant installation, and interconnection with existing substations operated by PT Perusahaan Listrik Negara (PLN), the State Electricity Company. In line with the Asian Development Bank's Safeguard Policy Statement, the project developer is responsible for implementing an Environmental Monitoring Plan (EMP) in accordance with ADB's Safeguard Policy Statement, while contractors are required to execute a Construction Environmental Monitoring Plan (CEMP).

Environmental monitoring focuses on drilling and well-testing activities, covering H<sub>2</sub>S emissions—hydrogen sulfide gas, which has a strong smell and can be harmful, noise, dust, vehicle emissions, water use, waste management, and occupational health and safety risks. The implementation of the CEMP is overseen through routine inspections and regular reporting by contractors. In addition, periodic consultations with communities in the project

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area are conducted to ensure transparency, address concerns, and support continuous improvement in environmental and social performance.

Concurrently, the Dieng Geothermal Power Plant implements a comprehensive Social Monitoring Program to assess the project's social risks and performance. This program covers land management issues, operationalization of the Grievance Redress Mechanism (GRM)—a formal system for people to file complaints and get them resolved, public consultations, and the resolution of community complaint resolution. In accordance with the Land Acquisition and Resettlement Plan (LARP)—the plan for compensating people whose land was needed for the project, compensation payments to all affected households have been fully disbursed and are complemented by livelihood restoration measures and targeted social support initiatives. This indicates that all affected households have received compensation, accompanied by measures to support livelihood restoration and targeted social assistance. The social monitoring program also evaluates transparency of information, adherence to grievance procedures, resolution of outstanding issues requiring management attention, project benefits for local communities, and the ability of affected households to rebuild their livelihoods and living conditions.

The assessment results demonstrate a strong commitment by the geothermal project developer to environmental and social responsibility. This commitment is reflected in key governance and policy instruments, including the Environmental and Social Protection Policy, the Gender Mainstreaming and Human Rights Policy, the Land Acquisition and Resettlement Plan (LARP), and the Livelihood Restoration Program (LRP)—programs to help affected families restore their income sources. It is further evidenced by supporting documentation, such as the Asian Development Bank (ADB) Semi-Annual Social Protection Monitoring Reports and Environmental Monitoring Reports. The project developer has created comprehensive policies and regularly reports on the safeguards implementation.

The Dieng case study shows that the Just Transition (JT) Framework can be effectively applied to the project and has the potential to generate added value. This is particularly relevant for projects or expansion phases that lack comprehensive environmental and social protection standards. In such contexts, the JT Framework may serve as an additional risk mitigation instrument to strengthen long-term project sustainability. For projects without strong existing safeguards, the JT Framework provides an extra layer of protection and improves long-term success.

A review of Standards 1-8 of the JT Framework at the Dieng geothermal project indicates strong alignment with international standards, particularly the IFC Performance Standards (PS), while also highlighting areas that require further strengthening. The project demonstrates a clear commitment to cultural heritage protection under Standard 1 through the implementation of preventive measures and chance-find procedures for what to do if cultural artifacts are discovered unexpectedly during construction. However, gaps persist in the explicit definition of intangible cultural heritage (non-physical heritage like traditions, languages, and practices) and in the systematic documentation of stakeholder consultation processes.

Resettlement practices under Standard 2 are broadly consistent with the ADB requirements, as evidenced by the implementation of structured LARP and LRP, fair compensation, and

established grievance mechanisms. With respect to indigenous peoples and local communities under Standard 3, the project's policies demonstrate respect for indigenous rights and adherence to the principle of the FPIC. However, further strengthening is required in the operationalization of these commitments, particularly with regard to the implementation of benefit-sharing mechanisms.

Worker conditions and work environments under Standard 4 demonstrate strong compliance with principles of non-discrimination, occupational health and safety, and ethical supply chain management. However, the monitoring and evaluation of equality outcomes for vulnerable and marginalized groups require further enhancement. Biodiversity management under Standard 5 is aligned with the IFC Performance Standard, as reflected in systematic ecosystem monitoring and community engagement. Implementation of the Access and Benefit-Sharing (ABS) mechanism, a structured approach to ensure that communities and stakeholders are granted fair access to project resources and receive an equitable share of the benefits generated, may be further optimized, where relevant, to ensure fair and equitable distribution of benefits arising from the utilization of genetic resources. Climate change mitigation and disaster risk management under Standard 6 are addressed proactively through the integration of emissions monitoring, adaptive strategies, and resilience-building measures.

Community health, safety, and security under Standard 7 show strong compliance with Performance Standard 4, particularly through robust emergency preparedness measures and the implementation of human rights-based security protocols. Pollution prevention and resource efficiency under Standard 8 place a strong emphasis on sustainable operational practices, circular economy principles, and comprehensive waste management approaches. These efforts are underpinned by an integrated governance system that supports effective oversight and continuous improvement.

Overall, the Dieng Geothermal Power Plant (PLTP) Unit 2 Project demonstrates a substantial level of compliance with global standards, with key opportunities to further strengthen documentation, transparency, and measurable outcomes in cultural, social, and environmental protection.

### **7.3.5 Assessment of the Dieng Geothermal Work Area Conditions**

The assessment of the Dieng geothermal working area establishes a structured baseline, offering an initial description of the pre-development context within the broader EDT framework. It facilitates a comprehensive evaluation of infrastructure availability, natural resource quality and environmental carrying capacity, human capital endowments, and technological readiness. Moreover, the assessment examines the adequacy of the existing policy and regulatory framework to support sustainable development and effective project implementation. In other words, it evaluated what infrastructure, resources, skills, and policies are currently in place to support economic development.

The study identifies comparative advantages, emerging constraints, and structural challenges affecting EDT strategy implementation. It prioritizes stakeholder consultation and primary data collection through surveys, interviews, and focus groups to ensure contextual validity. This evidence-based approach underpins reliable, locally grounded recommendations.

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### 7.3.5.1 Local Economic Development

#### 7.3.5.1.1 Production Bonus Allocation

The allocation of geothermal production bonuses is regulated under Law No. 21 of 2014 on Geothermal Energy and Government Regulation No. 28 of 2016. These provisions require geothermal business license holders to distribute production bonuses to local governments whose administrative jurisdictions encompass the geothermal working area. The bonus is calculated as a specified percentage of gross revenue generated from commercial operation of the first generating unit. In this context, geothermal production bonuses constitute a potential source of subnational financing to support the implementation of EDT initiatives.

The primary objective of the geothermal production bonus distribution mechanism is to ensure that producing regions derive direct benefits from geothermal operations. Distribution priority is assigned to areas in closest proximity to operational sites and to communities directly affected by geothermal activities. In accordance with prevailing regulations, operators are not permitted to distribute production bonuses directly to villages or surrounding communities; instead, all allocations are channeled through local government fiscal mechanisms.

At the subnational level, geothermal production bonuses are managed within the Regional Revenue and Expenditure Budget (APBD). To operationalize the allocation and utilization of these funds, the Government of Banjarnegara Regency has established detailed implementation mechanisms. These mechanisms are formalized under Regent Regulation No. 14 of 2025 concerning the Utilization and Distribution of Geothermal Production Bonuses.

In contrast, at the time of assessment, Wonosobo Regency had not yet established a specific regulatory framework governing the allocation and utilization of geothermal production bonuses. This regulatory gap has contributed to perceptions that the utilization of these funds remains suboptimal. Moreover, the relatively modest size of the production bonus has raised concerns that the establishment of a dedicated regulatory instrument could disproportionately absorb the allocation for administrative purposes. Consequently, the local government continues to evaluate the most efficient and proportionate management approach to managing these resources.

#### 7.3.5.1.2 Geothermal Power Plant Contributions to Tourism Development

Interviews revealed the presence of existing local economic development initiatives, particularly tourism activities centered around Mount Bismo. The project operator supports this sector primarily through the infrastructure provision, including visitor facilities and community capacity building programs. Current development efforts emphasize improving visitor comfort and safety through routine trail maintenance, enhanced site accessibility, and environmental education delivered through interpretive signage on local flora and fauna.

Local communities also receive conservation-related training to strengthen sustainable area management practices. These efforts are complemented by improved accessibility measures, including the leveling of parking areas and the construction of restroom facilities.

Collectively, these interventions ensure that supporting infrastructure contributes to a more organized, inclusive, and sustainable tourism experience.

Implemented under the CSR program, this initiative demonstrates a progressively strengthening collaborative partnership between the geothermal project and Sikunang Village. Initiated in 2020, the program is now independently managed by the village, indicating an increased level of local ownership and institutional capacity. Interview findings indicate expanding community participation across key tourism activities, including parking-fee collection, tour-guiding services, and upkeep of tourist facilities. Youth groups are also engaged through the Sikunang Village Forest Community Institution (LMDH), a community organization managing forest resources, thereby broadening economic benefits while reinforcing community-based natural resource management.

In addition, the project developer engages the Sisinga Village-Owned Enterprise (BUMDes) of Sikunang Village (BUMDes) in the management of Mount Bismo's hiking basecamp as part of ecotourism development initiatives. Revenue generated from tourism activities at Mount Bismo is administered through a transparent income-sharing mechanism. A detailed breakdown of revenue allocation is presented in Table 7.3-2.

**Table 7.3-2 Mount Bismo Income Allocation Details**

Income Recipient	Percentage Allocation	Notes / Remarks
Tourism Operators	42%	Distributed to 23 tourism operators.
LMDH Sikunang	10%	Allocated to LMDH Sikunang, involving 8 members.
Village Government	10%	Allocated for village activities.
Perum Perhutani	20%	Allocated to Perum Perhutani.
Basecamp Gunung Bismo	18%	Allocated for facility maintenance.

Source: Interview results, processed (2025)

This initiative contributes to local economic transformation by diversifying income sources and enabling communities to gradually reduce their exclusive reliance on potato farming and develop a range of tourism-related economic activities. Interview findings indicate that Mount Bismo's tourism growth has also fostered a dynamic new business ecosystem, evidenced by the emergence of porter services, motorcycle taxis, and small-scale trade. Additionally, tourism has created new business opportunities, including seven guesthouses and three cabins owned by local residents.

The collaboration among the project developer, village government, and regional government constitutes a crucial foundation for this program's long-term sustainability. This cooperative arrangement strengthens governance for tourism development by aligning institutional roles, resources, and decision-making processes. Moreover, it offers a replicable framework for other regions with similar socioeconomic and environmental characteristics.

Beyond the Mount Bismo area, geothermal-based educational tourism in Dieng has expanded through collaboration between the operator and Regional Government Organizations (OPD). A memorandum of understanding in effect since 2023 formalizes the implementation of educational tourism programs targeting students from primary to

university levels. Under this arrangement, the operator supports the maintenance of infrastructure, including information boards and pedestrian bridges in the Sikidang Crater area.

In addition, the geothermal pipeline inspection road has indirectly enabled community access to hot spring sites. In the Batang Regency segment, these areas are now managed by local communities through Tourism Awareness Groups (Pokdarwis), community groups focused on promoting and managing tourism, and Village-Owned Enterprises (BUMDes). Community-led initiatives have focused on the development of water-based attractions and locally managed hot spring facilities. Improved accessibility has transformed previously difficult-to-reach locations into viable water tourism destinations for both local residents and visitors.

#### **7.3.5.1.3 Tourism Development Opportunities**

Efforts to strengthen the tourism ecosystem are further evidenced by the emerging potential tourism sites at Pawuhan and Kepakisan hamlets. Although these areas have not yet been fully developed, they exhibit landscape characteristics that are conducive to tourism expansion. Such development can be pursued without significantly disrupting existing local social and cultural dynamics.

According to the developer's Social Mapping Document, Merdada Lake has been identified as having potential for nature-based tourism development. However, this potential is constrained by extensive water hyacinth growth, which has degraded water quality and reduced the site's aesthetic value. These conditions highlight the need for integrated ecosystem revitalization and management measures to restore ecological functions while positioning Merdada Lake as an agroecology-themed educational destination.

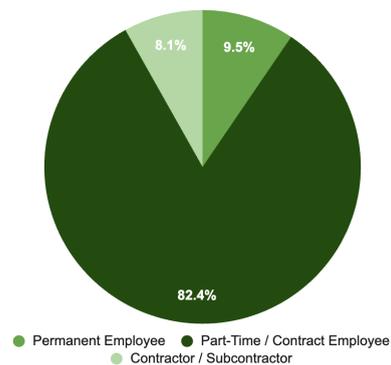
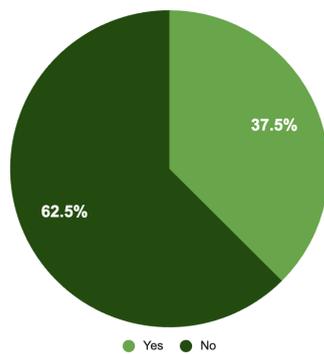
In Kepakisan Village, Sipandu Hot Springs is facing increasing competition from newer tourism destinations in the surrounding area. In response, site operators are pursuing strategies to enhance the site's competitiveness through targeted facility upgrades. These efforts also include the integration of wellness tourism concepts to strengthen its market positioning.

Beyond Mount Bismo tourism, Sikunang Village also possesses additional nature-based tourism potential, such as Batu Lik-Lik. However, development efforts remain constrained by limited funding availability. Separately, the Siterus area, which serves as the primary access point to the Sikidang Crater, requires expansion of parking facilities to accommodate steadily increasing visitor numbers.

Tourism development in the area faces significant spatial planning challenges. The proliferation of cabin construction and accommodation facilities in close proximity to geothermal power plant pipelines poses potential safety risks. Therefore, local government intervention is essential to strengthen regulatory oversight and rigorously enforce spatial planning policies, particularly with regard to the designation and implementation of safety zones for property development around geothermal infrastructure.

### 7.3.5.1.4 Local Employment

According to a household survey (Figure 7.3-11), 37.5% of respondents reported having at least one family member employed at the Dieng Geothermal Power Plant or its contractors. Of these individuals, 82.4% are employed as part-time or contract workers, 9.5% as permanent employees, and the remainder as contractors or subcontractors (Figure 7.3-12). Most local workers have temporary jobs rather than permanent positions. Further discussions with relevant regency-level government agencies indicate that project contractors employ 45 residents from Banjarnegara as cleaning staff and an additional 116 residents as security guards.



Source: Household survey (2025), processed

**Figure 7.3-11 Households with Family Members Employed at the Project**

**Figure 7.3-12 Employment Status of Family Members at the Project**

Interviews with project developers indicate that female workforce participation currently reaches 23%, exceeding the minimum threshold of 20% stipulated by project funders. This policy is applied consistently across all company operations and reflects the developer's commitment to gender equality and social inclusion in both recruitment and operational practices. Although the geothermal industry remains male-dominated and is influenced by local socio-cultural dynamics, the project continues to promote women's participation through inclusive recruitment approaches and the provision of suitable employment opportunities, particularly in administrative and support-service roles. These efforts represent a sustained commitment to expanding equitable access to employment for women.

### 7.3.5.1.5 Empowering Village-Owned Enterprises (BUMDes)

The integration of Village-Owned Enterprises (Badan Usaha Milik Desa, BUMDes) into the project developer's supply chain represents a strategic initiative to strengthen the local economy through the procurement of goods and services from village-level enterprises. In material procurement, the developer prioritizes local suppliers, including BUMDes, for sand and stone, supported by targeted training to ensure compliance with required material quality standards. In addition, BUMDes have been involved in the management of construction waste generated by the company and its contractors.

Within the services sector, the project developer has supported BUMDes in Kepakisan and Karangtengah villages to operate as catering providers for project-related needs. This program is complemented by capacity-building activities and training on culinary quality standards. Village businesses now provide food services for the project, with training to ensure food quality and safety. Beyond material supply and catering services, BUMDes also contribute to the provision of local labor, with one BUMDes in Kepakisan Village engaged in supplying labor services for project activities. Collectively, these initiatives demonstrate a systemic effort by the project developer to expand the role of BUMDes throughout the supply chain and to promote a more equitable distribution of local economic benefits through direct participation in the procurement process.

#### 7.3.5.1.6 Circular Economy Practices

As part of its CSR program, the project operator has implemented a waste bank initiative in four villages, including Karangtengah, Kepakisan, Dieng Kulon, and Sikunang. A waste bank is a community program where people collect and sort recyclable waste to earn compensation. Although waste management challenges persist, including habitual littering and the limited availability of temporary waste collection facilities (with the exception of Kepakisan Village), this program represents an important mechanism for strengthening circular economy practices at the village level. Key outcomes include improved household waste segregation, reduced public health risks, and increased economic value derived from both organic and inorganic waste (Developer's Social Mapping Document, 2024).

Circular economy practices have also gained momentum in Dieng Kulon Village through the operation of the Integrated Waste Management Site (Tempat Pembuangan Sampah Terpadu/TPST) Dewanata facility, which has been in operation since 2023. The facility processes organic waste into fertilizer for use in potato farming and collects plastic waste for resale. In relation to construction waste management, the project developer collaborates with BUMDes Merdada Karya Sejahtera, while the management of operational solid waste is undertaken in partnership with the Sikunang Independent Waste Management Group (Kelompok Pengelolaan Sampah Mandiri/KPSM)—a community group managing waste independently.

Additional support in the form of pyrolysis equipment, technology for converting waste into fuel by using high temperature, has enabled the TPST to convert plastic waste into fuel oil for use in waste sorting and transportation activities, thereby reducing operational costs. These interventions enhance the operational efficiency and financial sustainability of local waste management systems. Overall, the waste bank and TPST Dewanata initiatives demonstrate the effective application of the reduce, reuse, recycle (3R) principles, along with improved management of non-hazardous and organic waste.

#### 7.3.5.1.7 Mineral Extraction Opportunities

Residual geothermal fluid (brine) from the Dieng Geothermal Power Plant (PLTP Dieng) is known to contain silica as its main associated mineral. Silica derived from Dieng brine also has potential applications in the automotive, construction, and electronics sectors. At present, the most relevant utilization of this resource is its processing as a component of a liquid booster for environmentally friendly organic fertilizer, known as *Sulasih Sulanjana*,

developed through a collaboration between Dieng Geothermal Power Plant (GPP) and Universitas Gadjah Mada.

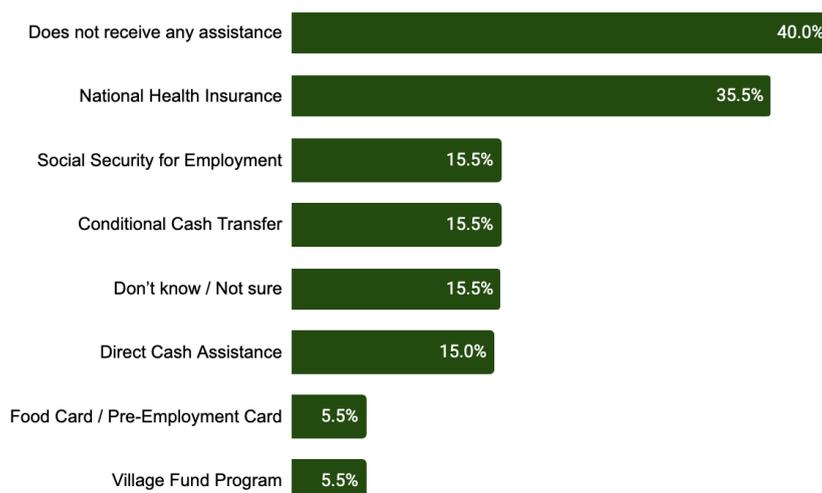
According to the Developer’s Annual Report (2024), corroborated by interviews, the formulation combines geothermal-derived silica with seafood waste to produce an eco-friendly fertilizer. Field applications have demonstrated its potential to increase agricultural yields while reducing farmers’ dependence on chemical fertilizers and pesticides. In parallel, the project developer is undertaking trials on further mineral extraction and exploring the development of a binary power system to optimize geothermal resource utilization. However, these initiatives remain at an early planning stage. To support technology selection, a comparative study on silica extraction technologies was conducted in New Zealand to assess their technical performance and commercial feasibility. The project developer is still studying different technologies to find the best and most cost-effective approach.

If successfully implemented, this initiative is expected to create new revenue streams and generate added value for communities surrounding the project area, particularly for local farmers. However, its realization depends on technology readiness and the viability of the underlying business model. In addition, the identification of a reliable offtaker remains a critical prerequisite for implementation.

### 7.3.5.2 Current Socio-Economic Challenges

#### 7.3.5.2.1 Social Protection for Ring 1 Communities

Household-survey results indicate that 40% of respondents reported receiving no form of social protection (Figure 7.3-13). Among those who reported covered, 35.5% were enrolled in BPJS Kesehatan, while participation in BPJS Ketenagakerjaan and the Conditional Cash Transfer (Program Keluarga Harapan/PKH) each accounted for 15.5%. Additionally, 15% of respondents received Direct Cash Assistance, and 5.5% benefited from basic necessities programs and the Village Fund program.



Source: Household survey (2025), processed

**Figure 7.3-13 Social Protection Coverage Among Respondents**

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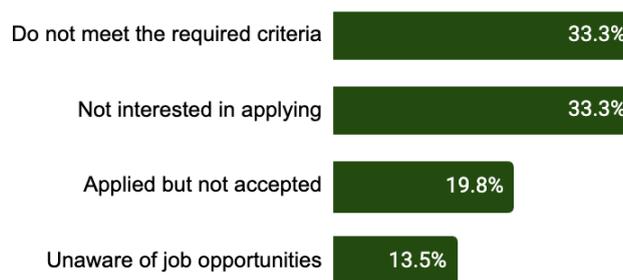
At the local level, the government has implemented a range of regular social protection initiatives, including job training programs, job fairs, assistance for the elderly, and food distribution schemes. While these measures provide an initial foundation for addressing the social impacts associated with the geothermal project, the survey findings above indicate a high level of social vulnerability among communities in the Dieng area. By comparison, in advanced economies only around 14.1% of the population lacks access to social protection (ILO, 2024). The absence of adequate social protection increases communities' exposure to economic and climate-related shocks, potentially trapping them in persistent poverty (Correa et al., 2023; Kangasniemi et al., 2025; Kim et al., 2025).

Under Standard 9, social protection constitutes a key element in supporting EDT initiatives by safeguarding vulnerable groups and enabling meaningful community participation. These findings indicate a low level of baseline resilience which constrains communities' capacity to seize new economic opportunities. In the absence of universal social protection, communities are more likely to adopt risk-averse strategies and remain dependent on traditional livelihoods, such as agriculture, which generate relatively low value added and limited multiplier effects.

In this context, certain social protection functions are partially addressed through the CSR programs of the project developer. These CSR initiatives align with local government priorities including stunting reduction, poverty alleviation, clean water and sanitation provision, free healthcare services, nutritional support for children, and scholarships through the developer's program. While such contributions help mitigate social vulnerability at the community level, the establishment of a more structured and sustainable social protection system is generally expected to be undertaken by local and central government institutions..

### 7.3.5.2.2 Education Level and Skills

The limited absorption of local labor by the projects is closely associated with the low level of formal education among the local population, resulting in a substantial mismatch with the competency requirements of project-related employment. For instance, the average length of schooling in Banjarnegara is only 6.9 years. Moreover, the majority of residents in the Dieng area have attained education only at the elementary or junior high school level.



Source: Household survey (2025), processed

**Figure 7.3-14 Reasons Family Members are not Working at the Project**

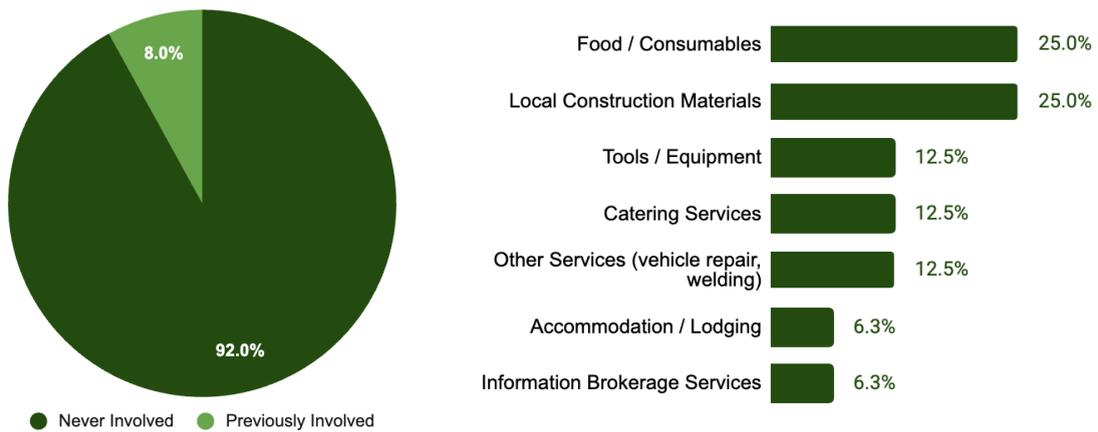
On the other hand, interviews with project developers indicate that technical positions responsible for managing critical project assets require personnel with at least a college degree. Although the developer has lowered qualification standards and accepts candidates with only elementary-level education for helper roles, the project continues to face difficulties

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in identifying candidates who meet basic competency requirements. This is consistent with household survey findings, which show that 33.3% of respondents reported not working at the project site due to a mismatch between their skills and the job requirements (Figure 7.3-14).

### 7.3.5.2.3 Challenges of MSMEs Integration

According to the household survey, 8% of MSME respondents reported having served as suppliers for the geothermal project, providing food or consumables (25%), local construction materials (25%), tools or equipment (12.5%), catering services (12.5%), and other services. 92% of MSME respondents reported never being involved as suppliers for the project.



Source: Household survey (2025), processed

**Figure 7.3-15 Involvement as a Supplier of Goods/Services to the Project**

**Figure 7.3-16 Types of Businesses Engaged with the Project**

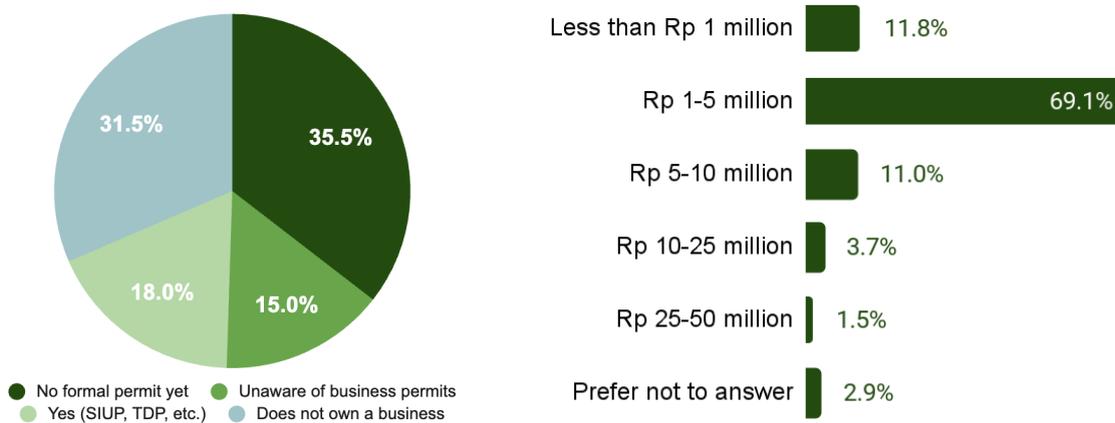
The same survey shows that challenges preventing MSMEs from entering the project's supply chain include competition with suppliers from outside the region (28.5%), limited capital (16%), lack of permits or certifications (14%), and product quality below required standards (7.5%). These findings are corroborated by the project developer's Social Mapping document, which identifies limited capital, low technical skills, and weak business management capabilities as the primary challenges faced by MSMEs and village-owned enterprises. Collectively, these constraints hinder local enterprises from fully participating in project-related economic opportunities.



Source: Household survey (2025), processed

**Figure 7.3-17 Challenges to MSME Integration in the GPP Supply Chain**

Overall, 50.5% of MSME respondents reported lacking formal business permits, while 15.5% indicated that they were unaware of requirements such as the Trade Business License (Surat Izin Usaha Perdagangan/SIUP) and the Company Registration Certificate (Tanda Daftar Perusahaan/TDP). Figure 7.3-17 shows that 80.9% of MSME respondents reported monthly revenues below Rp5 million, with the majority (68.12%) earning between Rp1 and 5 million. These findings highlight significant regulatory and financial constraints that limit the growth and formalization of local enterprises.



Source: Household survey (2025), processed

**Figure 7.3-18 Involvement as a Supplier of Goods/Services to the Project**      **Figure 7.3-19 Average Turnover per Month of Goods/Services to the Project**

#### 7.3.5.2.4 Challenges of Direct Use of Geothermal Energy

The continuously updated regulations on direct geothermal utilization demonstrate the government's commitment to fostering new economic opportunities. Direct use means using geothermal heat for purposes other than generating electricity, such as drying crops, heating buildings, or running spas. However, field implementation remains largely limited to pilot projects, and a fully developed business ecosystem has yet to emerge. The Ministry of Energy and Mineral Resources' drafting of direct-use guidelines in June 2025, followed by the issuance of technical guidelines in July 2025, signals evolving policy directions.

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However, the detailed mechanisms for community access to residual resources from existing facilities are still under development, leaving the potential for local collaboration largely unrealized.

Beyond power generation, the project developer plans to expand direct uses of geothermal resources at both the community development and the commercial scale, utilizing steam, hot brine, and condensate water formed when steam cools as resource inputs. This broad business scope provides an institutional foundation for diverse non-electric applications. However, direct-use development requires a reliable supply of non-electric geothermal fluids, enhanced safety standards, and internal process adjustments, which may elevate operational costs if not systematically integrated. Consequently, an enabling regulatory framework and strict adherence to the Operational Feasibility Certificate (SLO) are critical. In addition, workers involved in operating the system must comply with occupational safety and health standards. Therefore, capacity building is essential to ensure that community members who will operate the direct-use facilities have adequate technical skills, safety awareness, and operational competence.

Moreover, direct-use applications entail risks distinct from power generation, such as meeting specific heat requirements for agricultural drying or health facilities. Without mature technical specifications and sufficient resource availability, the likelihood of technical failure and regulatory non-compliance increases.

In addition, direct-use, such as drying agricultural products, the development of health-compliant spas, the establishment of educational centers, and the creation of industrial symbioses, require precise temperature control, a continuous supply of geothermal fluids, and facility-specific design. A mismatch between the characteristics of geothermal fluids and the requirements of downstream industries—businesses that would use the geothermal heat—can compromise project viability. Furthermore, limited local technical capacity, including the need for targeted training and standardized operational procedures, poses challenges to program sustainability. Addressing these technical constraints is essential for the steady expansion of direct use applications and the realization of broader economic benefits. Success requires matching the right heat levels to the right uses, plus training local people to operate these facilities properly.

#### **7.3.5.2.5 Reliance on Potato Farming**

The Dieng community's economic reliance on potato farming plays a central role in shaping local livelihood structures and sustaining the regional economy. The Environmental Impact Assessment (*Analisis Mengenai Dampak Lingkungan/AMDAL*) and the Environmental Management Plan (EMP)/Environmental Monitoring Plan (EMoP) prepared by the project developer show that 98% of respondents in villages such as Sikunang depend on potato cultivation for their livelihood, primarily due to strong market demand and a relatively short production cycle of approximately three months. Potatoes sell well and can be harvested quickly, making them attractive to farmers. Interview findings further corroborate this, emphasizing the competitive economic value of potatoes, supported by relatively straightforward marketing mechanisms and their contribution to regional GDP.

However, intensive potato cultivation poses significant threats to land sustainability due to the heavy use of chemical fertilizers and pesticides, continuous year-round cropping, and terracing that disregards natural contours, all of which accelerate soil fertility degradation. On steep slopes, these practices further increase the risk of erosion, particularly when fields are left bare after harvest during periods of heavy rainfall. Such conditions underscore the environmental challenges associated with current agricultural practices in the region. Constant potato farming damages the soil and increases the risk of landslides, especially on steep hillsides.

Interviews provide further evidence of ecological strain in the region. The expansion of farmland for intensive cropping has been reported to increase sedimentation and reduce vegetative cover, which is essential for maintaining hydrological balance—the natural water cycle. These impacts have contributed to recent flooding and a dramatic decline in potato yields, from approximately 20 tonnes per hectare to just a few tonnes, due to soil exhaustion and terrace damage associated with intensive fungicide use.

These dynamics emphasize the need for policies that balance economic development with environmental sustainability. Interviews with local-government officials indicate that residents are aware of the environmental risks associated with potato cultivation, yet continue to grow potatoes because it underpins the local economy. Consequently, district authorities must carefully consider the trade-offs between community welfare and environmental protection.

### **7.3.6 Assessment of Gender Equality and Social Inclusion**

The project developer demonstrates a strong institutional commitment to gender equality, social inclusion, and adherence to global environmental and social standards. The female labor force participation rate at the Dieng Geothermal has reached 23%, exceeding the minimum threshold of 20% established by financiers. The plant operator also implements Gender Mainstreaming (PUG)—policies ensuring gender considerations are integrated into all activities—and Human Rights (HAM) policies, ensuring compliance with the principles of non-discrimination, occupational safety, supplier ethics, and the prohibition of forced labor, child labor, and all forms of harassment. Furthermore, there are ongoing efforts to expand the role of women through more inclusive recruitment mechanisms and appropriate placement in positions such as administration and support services, as part of a long-term strategy to establish more equitable career pathways.

The project developer actively invests in community capacity-building initiatives, with particular emphasis on vulnerable groups and youth. Formal education scholarship programs aim to improve the quality of local human resources, with recipients' selection based on data from the Social Services Office (*Dinas Sosial*). Various MSME development programs are targeted at women and youth, covering production training, business modeling, marketing strategies, and facilitation of formal certifications such as the Home Industry Food Production Certificate (*Produk Industri Rumah Tangga/PIRT*), the National Agency of Drug and Food Control (*Badan Pengawas Obat dan Makanan/BPOM*), and Halal certifications. These programs help women and youth obtain official permits and certifications so they can sell their products legally and reach wider markets. Furthermore, technical training in areas such as welding and mechanics, combined with the provision of

toolkits to the best participants, contributes to the development of a local talent pool capable of meeting the workforce demands of the geothermal industry and other economic sectors.

Regarding the protection of vulnerable groups, the Livelihood Restoration Program (LRP) is designed to ensure comprehensive and inclusive recovery support to those most affected, including female-headed households, the elderly, persons with disabilities, and low-income households. Public consultations for the Resettlement Plan were conducted using a gender-sensitive approach, aiming for at least 30% female participation, with actual participation rates ranging from 24 to 39% across various villages. The LRP prioritizes women and vulnerable groups in accessing economic empowerment initiatives, such as local product processing for women's groups and technical skill training, including mechanics and welding for youth. This approach aligns with the Gender Equality and Social Inclusion (GESI) agenda and is further reinforced by the company's commitment to allocate 30% of the Community Development Program budget to support women's livelihood development and educational scholarships.

Furthermore, the Grievance Redress Mechanism (GRM) is established to enable all affected parties to submit complaints safely and inclusively submit complaints, without fear of retaliation. The Grievance Redress Committee (GRC) for the developer's project includes 27% female representation, thereby integrating gender perspectives into the verification and resolution of complaints. The Complaint and Grievance Management Procedure (Prosedur Pengelolaan Pengaduan dan Keluhan/P2K) provides a three-tier mechanism to address issues based on scope and complexity, supported by multiple access channels including the Halo Dieng Hotline. People can file complaints through various channels including a dedicated phone hotline, and complaints are handled at different levels depending on their complexity. This approach demonstrates the project developer's systematic commitment to transparency, accountability, and equitable responsiveness, particularly for women and vulnerable groups, in complaint submission and resolution.

### **7.3.7 Assessment of EDT Potential in the Dieng Area**

The findings of the EDT potential assessment findings were developed from a household survey, in-depth interviews, and FGD with relevant stakeholders, supplemented by qualitative analysis to identify strategic opportunities that support EDT. This approach emphasizes the identification of realistic and contextually relevant opportunities aligned with local capacities. The assessment process encompasses reviewing sectors with growth potential, mapping opportunities for regional competitive advantage, identifying pathways for technology and innovation adoption, and evaluating available human capital. By emphasizing regional strengths, development aspirations, and future prospects, the assessment provides a foundation for formulating a contextualized, forward-looking, and actionable EDT development strategy for the Dieng region.

#### **7.3.7.1 Economic Development and Social Protection**

##### **7.3.7.1.1 Potential Utilization of Production Bonuses for EDT**

Geothermal production bonuses hold strategic potential as public financing instruments to support the EDT agenda in geothermal-producing regions. Interviews with relevant OPD

indicate that Banjarnegara has received a Geothermal Production Bonus allocated for regional development and priority programs, such as poverty alleviation and social protection. This practice confirms the capacity of production bonuses as a funding source that can be utilized for EDT programs. Furthermore, local officials reported that environmental information and technical data provided by the project developers are used to inform development planning and spatial management, highlighting how financial and knowledge contributions from the geothermal sector can be integrated to promote more sustainable development policies.

Stakeholder interviews revealed aspirations to replicate a similar mechanism in Wonosobo, which currently lacks comparable regulations. The absence of such rules poses a risk that production bonuses may be diverted to administrative expenditures. OPD in Wonosobo Regency emphasized the importance of adopting and adapting regulatory frameworks from other regions to ensure more targeted fund allocation, such as for MSME development or investment in local economic infrastructure.

Aligning production bonus governance with CSR programs can expand collaboration to finance activities that support economic development. Since companies are unable to directly allocate production bonuses to villages or communities, regency-level policies are critical to ensuring these funds generate tangible and sustainable benefits. When strategically directed toward infrastructure, public services, and workforce development, including skills training, production bonuses can serve as effective catalysts for regional economic development within a clear, targeted, and transparent policy framework.

#### **7.3.7.1.2 Potential for Integrated Tourism Development**

Dieng is designated as a National Strategic Tourism Area (KPSN) under Government Regulation No. 50 of 2011 on the National Tourism Development Master Plan 2010 to 2025. This designation prioritizes Dieng as a national destination for nature, culture, and economic development. It provides a clear legal mandate to enhance tourist attractions, strengthen supporting infrastructure, and accelerate tourism-led local economic growth. This designation provides a strong legal basis for tourism investment and positions Dieng as a priority area for national tourism funding and development support.

In addition, the KPSN designation highlights the need to innovatively leverage local potential while respecting the unique environmental conditions of the Dieng Plateau. Within this policy framework, tourism development has a strategic foundation to be advanced through an integrated tourism concept. Dieng offers a broad scope for expanding tourist destinations and increasing local economic value-added. Educational tourism that integrates agriculture and geothermal energy is projected to become a key innovation. It is hoped that existing attractions can be developed into programs that combine 'Agro' (agriculture), 'EcoEdu' (education on disaster risk and geothermal energy), and 'Tourism' (natural beauty and the arts).

This model is considered capable of strengthening village incomes, expanding MSME opportunities, and generating employment. Moreover, potential infrastructure upgrades at tourist sites open up scope for support facilities such as rest areas and MSME kiosks, which are expected to extend visitor stays and increase local spending. The revitalization of

hot-spring baths, including natural-based therapy and spa facilities, further diversifies tourism offerings while aligning with the distinctive character of the area.

Interview and FGD findings also reinforce aspirations to increase accessibility to new tourist spots regarded as promising by the community, especially the hilly areas of Pawuhan and Kepakisan. In addition, geothermal utilization is expected to directly support tourism infrastructure, such as space heating and geothermal-based commodity processing centers. A more structured spatial plan is also considered essential to ensure visitor safety and to guide the orderly development of accommodations.

Ultimately, there is an aspiration for Dieng to obtain UNESCO Global Geopark status, representing a strategic opportunity to strengthen cross-district ecotourism governance. Such recognition is expected to provide a platform that integrates ecological, cultural, and tourism development efforts in an integrated manner. It would also enhance the region's international profile as a sustainable tourism destination. This prestigious status would attract more international visitors and provide a framework for coordinated tourism development across district boundaries.

### **7.3.7.2 Human Resources Development**

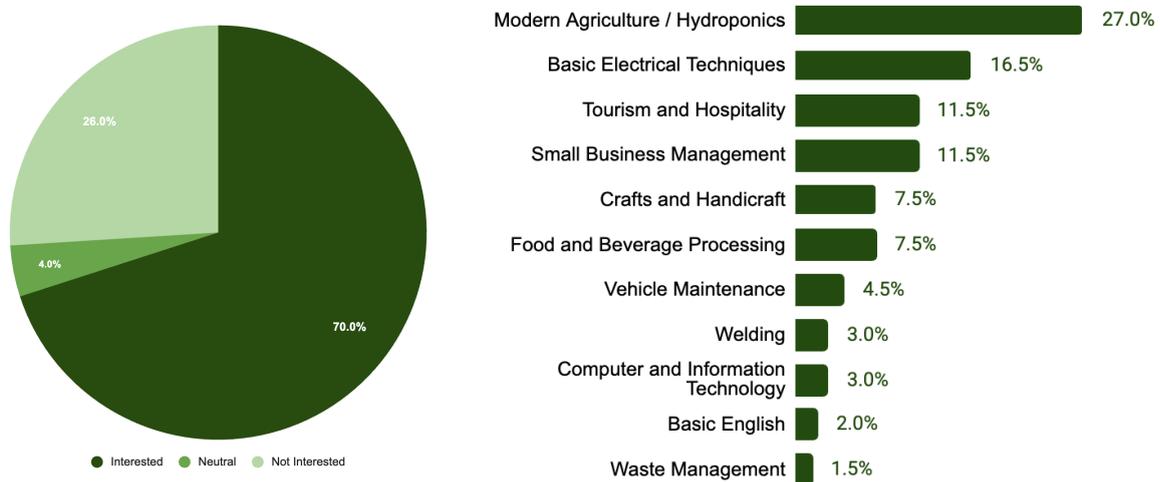
#### **7.3.7.2.1 Needs-Based Human Capacity Building**

According to the Land Acquisition and Resettlement Plan (LARP) documents, community development programs are primarily focused on enhancing skills that support non-agricultural sectors, including basic technical competencies relevant to renewable energy industry operations. For instance, the Well Testing Patrol Team (*Tim Ronda Uji Sumur* or Rojimur) program provides technical training to communities in nearby villages, enabling local residents to monitor environmental parameters such as hydrogen sulfide (H<sub>2</sub>S) levels, noise, and ground vibration. Complementary initiatives, such as motorcycle repair workshop training, demonstrate how local capabilities can be strategically aligned with the operational requirements of renewable energy projects while simultaneously generating added value for the local workforce.

In addition, the project developer has emphasized the development of value-added agriculture and food processing through the implementation of Good Agricultural Practices (GAP). This approach enhances soil quality and crop yields while creating opportunities for MSMEs and home-based industries to process local agricultural products, such as potato chips and carica-based products. Through these initiatives, the region can progressively develop a competitive advantage in the agricultural processing sector.

Human resource development also constitutes a critical instrument in advancing regional economic diversification and transformation (EDT). Interviews with the project developer and relevant local government agencies indicate that formal education levels within village communities remain relatively low, accompanied by persistent negative perceptions toward higher education. Farming is commonly regarded as a source of faster and sufficiently stable income without requiring formal academic qualifications. This perception persists despite the fact that the productive-age population in Banjarnegara and Wonosobo represents a substantial labor supply.

CSR programs in the form of formal education scholarships have been positioned as a long-term strategy to enhance local human capital, enabling community members to meet industry qualification requirements and access higher-value employment opportunities. This approach is further reinforced by findings from FGDs with village and subdistrict stakeholders, which highlight the importance of sustained scholarship schemes in preparing affected communities to adopt new technologies and actively participate in renewable energy projects.



Source: Household survey (2025), processed

**Figure 7.3-20 Respondent Interest in Training Programs**      **Figure 7.3-21 Types of Training Respondents are Most Interested in**

Based on household survey results, 70.0% of respondents expressed interest in participating in training programs, 4.0% were neutral, and the remainder indicated no interest (Figure 7.3-20). The most preferred types of training included modern agriculture or hydroponics (27.0%), basic electrical engineering skills (16.5%), and tourism, hospitality, and small business management (each 11.5%), with detailed breakdowns presented in Figure 7.3-21. These training preferences are closely aligned with the priority areas for regional economic diversification, particularly the development of integrated tourism and the advancement of agriculture and agro-processing through direct-use applications.

By enhancing human resource capacity, strengthening relevant skill sets, and productively leveraging natural resource potential, the Dieng region can cultivate new high value-added sectors and create targeted employment opportunities. This approach also supports the establishment of long-term competitive advantages. Overall, it reflects a proactive and forward-looking approach that capitalizes on local strengths to promote sustainable, inclusive, and innovation-driven economic growth.

#### 7.3.7.2.2 Development of a Green Curriculum

The analysis in Banjarnegara indicates that strengthening vocational curricula constitutes a strategic pathway to enhance workforce readiness for the renewable energy sector and the broader green economy. Interviews with relevant district-level government agencies indicate that existing vocational training curricula have yet to incorporate green economy skills, including renewable energy technologies, recycling, or energy efficiency. The lack of

dedicated modules or specialized trainers in the field of energy transition has contributed to a persistent mismatch between industry requirements and the capacities of the local workforce.

Simultaneously, this situation highlights a strategic opportunity for the development of new economic sectors. By designing curricula that integrate green skills, local governments can equip the local workforce with competencies and capabilities that are directly relevant to renewable energy industries and clean technology-based innovation. Such an approach would confer a competitive advantage for the region, as a workforce skilled in the green economy becomes a critical asset in supporting renewable energy projects.

Furthermore, the findings reveal that strengthening trainer capacity is a key determinant of the successful implementation of new curricula. Currently, the Manpower Office lacks a specific strategy to equip trainers and facilitators with the skills needed to deliver content related to the green economy. This gap presents an opportunity for government and private sector partners to develop training-of-trainers programs, enabling effective and sustainable knowledge transfer. Investment in instructor capacity will reinforce the foundation of local human resource development, open pathways for community participation in green industries, and maximize human capital potential as a driver of economic transformation.

Strengthening vocational curricula needs to be designed in alignment with actual labor market demands, particularly in the geothermal sector and green jobs. Regional education and training institutions are encouraged to refer to industry competency requirements. In this context, aligning vocational curricula with the Indonesian National Work Competency Standards (SKKNI) in renewable energy and green jobs is crucial to ensure that graduates possess nationally recognized certifications and competencies. An industry-needs-based approach has the potential to increase labor absorption and strengthen business confidence in the quality of local human resources as part of the green industry value chain.

Integrating green skills into vocational curricula, together with strengthening trainer capacity, addresses current industry needs and enhances workforce readiness. This approach creates strategic opportunities for the region to develop new economic sectors and reinforce innovation grounded in technology and local resources. Ultimately, it establishes a pathway toward sustainable, competitive, and inclusive economic growth.

#### **7.3.7.2.3 Initiation of a Talent Pool**

The establishment of a village- or district-level talent pool offers a strategic opportunity to enhance the workforce readiness for current projects and emerging downstream sectors that process or use products from the geothermal plant. Interviews with village and subdistrict officials indicate that a well-structured talent pool enables the deployment of trained workers for both ongoing and future projects. In this way, talent pools serve as a long-term investment in the development of local human resources.

FGD with various stakeholders emphasize that the talent pool can be oriented toward developing skills relevant to renewable energy operations and related downstream industrial activities, including roles that do not require high levels of formal qualification. Through this approach, the region can bridge industry demand with local community capacity, manage human resources more efficiently, and create structured career pathways for village-based

workers. Continuous technical training programs, such as progressive skill upgrading in welding, illustrate how a talent pool can be developed incrementally to meet industry standards and build an advanced skilled workforce that can be mobilized at a larger scale.

### 7.3.7.3 Integration of Innovation and Technology

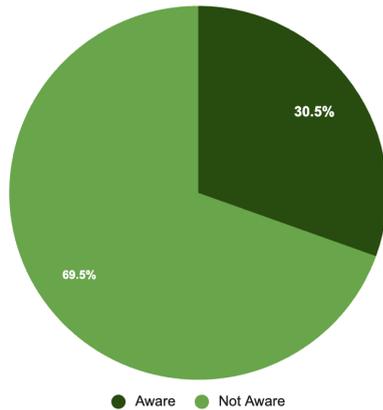
#### 7.3.7.3.1 Potential for Modern Agriculture and Agricultural Product Processing

The Dieng region offers strategic opportunities to develop modern agriculture leveraging geothermal energy and to expand the agricultural product processing industry as part of local economic diversification. Direct utilization of geothermal energy is considered highly relevant for supporting agricultural product drying processes and for operating greenhouse nurseries that require stable temperatures, creating opportunities for more profitable farming.. These applications highlight the potential for integrating renewable energy into high-value agricultural practices to strengthen regional economic development. Geothermal heat can be used to dry crops and maintain warm temperatures in greenhouses.

Community aspirations and those of micro, small, and medium enterprises (MSMEs) further reinforce these opportunities. Household industries in surrounding villages have already been producing various processed food products derived from carica, potatoes, coffee, and other horticultural commodities, despite facing challenges related to marketing, fluctuations in raw material availability, and limitations in production technology. Experiences from New Zealand, where geothermal energy has been integrated with processing industries to establish robust, export-oriented economic zones, such as the Kawerau Industrial Complex, highlight the significant potential for the Dieng region to sustainably integrate agricultural product processing with geothermal energy utilization.

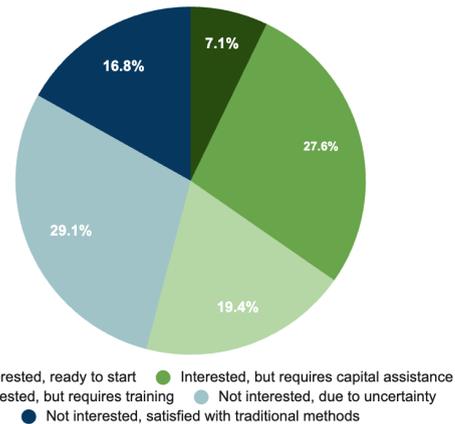
These opportunities are increasingly relevant given the high demand for training, product innovation, and capital support expressed by micro, small, and medium enterprise (MSME) actors and other stakeholders. Programs focused on processed product development, certification, and entrepreneurship literacy are deemed essential to enable micro-enterprises to scale up and integrate into broader supply chains. Best practices in New Zealand further demonstrate that the adoption of sustainability standards and environmental certifications can significantly enhance the international economic value of products, suggesting similar potential for distinctive Dieng commodities, such as carica, Cape gooseberry (*Physalis peruviana*), and processed coffee, if developed using modern processing technologies and higher quality standards. International certifications could help Dieng products reach export markets and command higher prices.

Overall, the convergence of geothermal energy potential, the aspirations of MSME actors for business diversification, and international experiences in integrating geothermal energy with agriculture and processing industries indicates the strategic opportunities in the Dieng region. These factors indicate significant potential for developing a new economic model that leverages local resources and innovation. By capitalizing on these opportunities, the region can advance toward a more competitive, sustainable, and resilient economy.



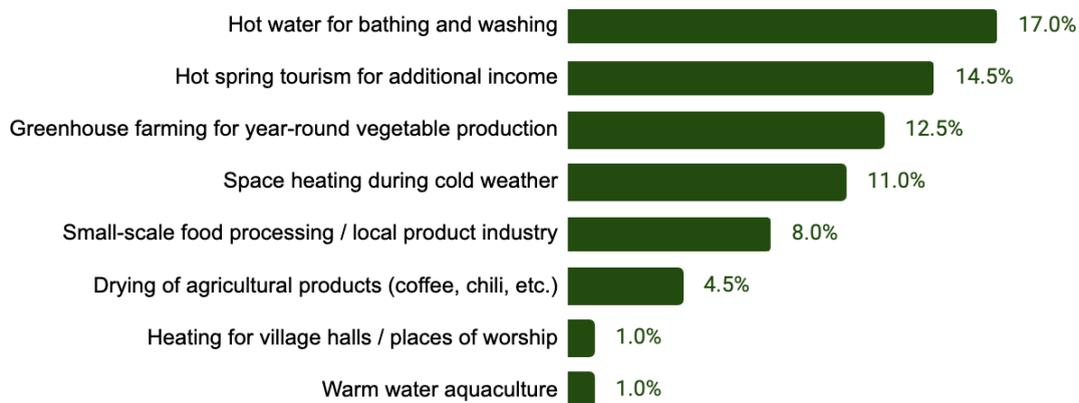
Source: Household survey (2025), processed

**Figure 7.3-22 Understanding of Geothermal Direct Use**



**Figure 7.3-23 Interest in Utilizing Direct Use for Business Development**

Based on the household survey results, public understanding of the direct utilization of geothermal energy remains suboptimal and warrants further optimization. Figure 7.3-22 indicates that 69.5% of respondents were either unaware of or uncertain about the direct utilization of geothermal energy. Nevertheless, community interest in developing businesses based on the direct use of geothermal energy is relatively high, with 54.1% of respondents expressing such interest.



Source: Household survey (2025), processed

**Figure 7.3-24 Priority Areas for Direct Geothermal Utilization**

Community interest in direct geothermal utilization (direct use) is predominantly oriented toward household needs, particularly the provision of hot water for bathing and washing, as indicated by 17.0% of respondents. However, there is also notable interest in commercial applications, including the development of hot spring tourism (14.5%), greenhouse agriculture (12.5%), small-scale industries for processing food or local products (8.0%), and agricultural product drying (4.5%). Further details are presented in Figure 7.3-24.

### 7.3.7.4 Governance and Policy

#### 7.3.7.4.1 Strengthening Governance for Direct Geothermal Utilization

Direct geothermal utilization presents strategic opportunities to support EDT. However, it continues to encounter several challenges, including incomplete regulatory frameworks, limited cross-sectoral coordination, and technical risks. A review of documents, such as the Social Mapping, P2K Procedures, GIMS Policy, and Annual Reports, alongside insights from interviews and focus group discussions with village and subdistrict officials and relevant OPD, identifies multiple opportunities to strengthen governance and regulatory structures.

First, strengthening the regulatory and institutional framework is essential to ensure community access to non-electric geothermal energy utilization and to integrate the benefits of direct use into local development programs. This approach involves the formulation and finalization of regulations governing community-based geothermal utilization procedures (e.g., rules for how communities can access geothermal heat), the establishment of cross-sectoral teams at the regional level, the implementation of regular coordination mechanisms, and the designation of a specific OPD or institution to coordinate and promote synergies among various direct use initiatives, including active participation from the Agriculture and Tourism Departments.

Second, the integration of internal processes and technical standardization is necessary to mitigate technical risks and ensure the reliability of geothermal supply. This can be achieved by incorporating direct use into corporate quality and risk management systems, developing specific Standard Operating Procedures (SOPs) for direct utilization activities, and establishing local technical specifications, such as temperature standards for agricultural product drying. Furthermore, support for pilot projects, enhanced oversight mechanisms, and attention to commercialization are critical instruments for improving the scalability of direct geothermal utilization.

Third, enhancing human resource capacity and fostering cross-sectoral partnerships presents strategic opportunities to ensure the sustainability of direct geothermal utilization. Integrating geoheat utilization modules into vocational training curricula, providing specialized trainers or facilitators, and enhancing collaboration between relevant government agencies and project developers can improve local competencies for the productive management and use of non-electric geothermal energy. These initiatives encompass the diversification of agricultural commodities growing different types of crops and the development of agricultural product processing industries.

Overall, reinforcing governance and regulatory frameworks through the integration of cross-sectoral coordination, technical standardization, and human resource capacity building creates strategic opportunities for the region. Such measures enable the development of new growth pathways based on geothermal utilization and enhance local competitive advantages. Ultimately, this approach establishes a sustainable and innovative model for implementing direct geothermal use.

#### 7.3.7.4.2 Strengthening Coordination and Governance at the Regional Level

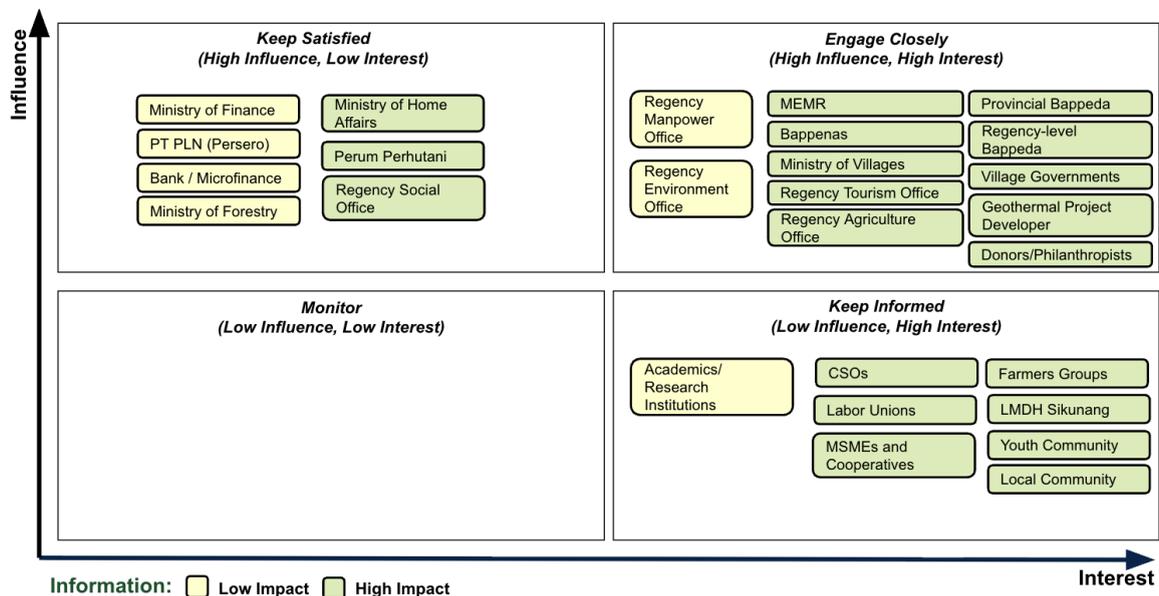
Enhancing coordination among OPD, village-owned enterprises (BUMDes), farmers' associations, project developers, and other relevant stakeholders is essential. Improved collaboration can synchronize programs and accelerate responses to community needs. This approach also helps ensure the sustainability of cross-sectoral economic impacts.

Triangulation of interviews and focus group discussions with all stakeholders indicates that cross-sectoral coordination can be focused on several strategic opportunities. First, integrating the planning and monitoring of production bonuses and CSR programs enables local governments to direct financial contributions more effectively to priority initiatives while reinforcing operational oversight and spatial planning mechanisms. Second, cross-sectoral governance can facilitate the development of ecotourism through synergies between the Tourism Department, village authorities, and project developers, including in spatial planning and risk mitigation for tourists. Third, collaboration among OPD, BUMDes, and developers can support the transformation of the agriculture and micro, small, and medium enterprise (MSME) sectors toward processing industries, integrating geothermal utilization for agricultural product processing, the provision of supporting infrastructure, and post-training mentoring.

Furthermore, cross-sectoral governance offers opportunities to enhance responses to environmental issues and disaster mitigation through the establishment of monitoring posts, disaster information centers, and regular preparedness training conducted in collaboration with the regency government, the Regional Disaster Management Agency (BPBD), and relevant stakeholders. Existing institutional frameworks, such as the P2K Procedures and ESG policies, provide a foundation for strengthening such integration. Together, these mechanisms ensure that environmental, social, and economic issues are addressed in a systematic, coordinated, and participatory manner.

### 7.3.8 Stakeholder Mapping in the Dieng Geothermal Power Plant Area

An assessment of the interests, influence, and impacts of stakeholders identified in the implementation of regional economic EDT in the Dieng geothermal area is presented in Figure 7.3-25.



Source: FGD and in-depth interview results (2025), processed

**Figure 7.3-25 Stakeholder Mapping Matrix in the Dieng Geothermal Area**

In this study, stakeholder mapping is conducted to facilitate effective collaboration, optimize resource use, and ensure the sustainability of EDT project impacts. The mapping process

draws on a review of relevant documents, interviews, and FGD with key stakeholders, including village and subdistrict administrations, district-level governments, and the project developer. Stakeholder relationships are categorized into six main groups in order to formulate engagement strategies that are better aligned with varying levels of interest, influence, and potential impact. This categorization is based on their interest in the project, their power to influence it, and how much they are affected by it.

The first stakeholder category is described as **Interested, Influential, and Highly Impacted**. Project developers occupy a central role in the implementation of EDT, operationalized through procurement policies, workforce training programs, and contributions to local communities, including the prioritization of women's participation and employment creation. Developer engagement includes coordination with local governments to align CSR initiatives and direct-use geothermal utilization, as well as collaboration with donors and MDBs to support strategic financing, human resource capacity building, and the scaling up of local economic transformation. Collectively, these efforts integrate GEDSI principles, strengthen local capacities, and promote inclusive and sustainable economic opportunities.

Meanwhile, the Ministry of Energy and Mineral Resources, Bappenas, and the Ministry of Villages hold strategic roles in ensuring alignment between project implementation, national policy priorities, and sustainable development objectives. The Ministry of Energy and Mineral Resources oversees the regulation of technical aspects of direct-use geothermal utilization and the management of production bonus mechanisms<sup>5</sup>; Bappenas integrates pilot project outcomes into national development planning<sup>6</sup>; and the Ministry of Villages supports the strengthening of village-owned enterprises (BUMDes) and rural economic development<sup>7</sup>. Accordingly, formal interministerial coordination mechanisms are essential to ensure program continuity and lessons-learned are integrated into national policies, enhance cross-sectoral synergies, and strengthen community capacity to access the benefits of renewable energy-based economic transformation.

At the district and village levels<sup>8</sup>, the Regional Development Planning Agency (Bappeda) serves as the central planning coordination hub by integrating technical data and community priorities to assess EDT opportunities. The Department of Tourism and Culture leads the development of integrated tourism, while the Department of Agriculture facilitates the application of geothermal energy for agricultural diversification and agro-processing. Village governments lead community engagement processes, including outreach to vulnerable groups, to ensure that livelihood needs underpin the foundation of development planning. Collectively, this cross-institutional collaboration reflects an integrated governance framework designed to maximize economic opportunities, enhance project sustainability, and strengthen local capacity within the EDT framework.

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<sup>5</sup> Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply, MEMR Regulation No. 10 of 2025 on the Energy Transition Roadmap for the Energy Sector.

<sup>6</sup> Law No. 59 of 2024 on the National Long-Term Development Plan (RPJPN) 2025–2045, Presidential Regulation No. 12 of 2025 on the National Medium-Term Development Plan (RPJMN) 2025–2029.

<sup>7</sup> Law No. 3 of 2024 on Villages, Minister of Villages, Development of Disadvantaged Regions, and Transmigration Regulation No. 7 of 2023 on the Priority Use of Village Funds.

<sup>8</sup> Law No. 23 of 2014 on Regional Government, MoHA Regulation No. 86 of 2017 on Procedures for Regional Development Planning, Control, and Evaluation.

The **Uninterested, Influential, and Highly Impacted** stakeholder group exercises substantial influence and experiences significant impacts, yet demonstrates relatively low levels of direct engagement in day-to-day EDT implementation, as their roles are primarily structural and regulatory. This group includes the Ministry of Home Affairs, the Social Affairs Office, and forest area managers such as Perum Perhutani. The Ministry of Home Affairs contributes through periodic coordination with district governments to support transparency and consistency in the utilization of production bonuses as a strategic financing mechanism for EDT initiatives<sup>9</sup>. Meanwhile, Perum Perhutani participates in joint field assessments with the Ministry of Forestry to align land-use practices and support the sustainable development of ecotourism within forest areas.

The **Uninterested Influencers** group exercises substantial influence but exhibits relatively low levels of interest and direct impact in relation to specific EDT projects. Engagement with this group is predominantly indirect and occurs mainly through fiscal policy processes and market-based mechanisms. This group includes the Ministry of Finance and PT PLN, as well as commercial banks and microfinance institutions. The Ministry of Finance plays a role in formulating regulations and providing fiscal instruments, including viability gap funding (VGF) or government grants, to support blended finance schemes for MSME development and green technology investment<sup>10</sup>. PT PLN participates in annual technical coordination meetings with Bappenas to align energy planning and explore electricity tariff incentive mechanisms for Ring 1 communities<sup>11</sup>. Meanwhile, commercial banks and microfinance institutions provide coaching clinics for local MSMEs and village-owned enterprises (BUMDes), along with credit products and financial management support to enable business scaling and greater participation of local communities in the project's supply chain.

The **Interested Influencers** exhibit high levels of interest and influence, while their direct impact on EDT outcomes remains secondary or indirect. Stakeholders in this category play a critical role in workforce development and environmental oversight to enable EDT success, including the District Manpower Office and the District Environmental Agency. The Manpower Office organizes joint working groups with project developers to align vocational training curricula, including green skills, with the requirements of the geothermal supply chain. Meanwhile, the Agriculture Office participates in bimonthly field-based technical teams expected to define technical specifications for the direct use of geothermal energy in the agricultural sector, such as crop drying and greenhouse development.

The **Interested and Impacted** stakeholder group demonstrates high levels of interest and is directly affected by EDT implementation while possessing limited influence over formal decision-making processes. This group includes local communities, MSMEs and cooperatives, farmer groups, labor unions, and civil society organizations (CSOs). Engagement is conducted through monthly hamlet-level discussions and FGDs with vulnerable groups, such as women and youth, to ensure that livelihood priorities are

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<sup>9</sup> Government Regulation No. 12 of 2017 on the Guidance and Supervision of the Implementation of Regional Government, MoHA Regulation No. 19 of 2023 on Planning for the Guidance and Supervision of the Implementation of Regional Government.

<sup>10</sup> Minister of Finance Regulation No. 103 of 2023 on the Provision of Fiscal Support through Funding and Financing Frameworks to Accelerate the Energy Transition in the Electricity Sector.

<sup>11</sup> Law No. 30 of 2009 on Electricity, Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply.

incorporated into direct-use geothermal applications and integrated tourism development. Additionally, women's groups are supported through biannual dedicated sessions to discuss tender opportunities and procurement quotas, facilitating the integration of women-led local MSMEs into the project's supply chain. Regular community meetings ensure local voices are heard, and special sessions help women-owned businesses access project contracts.

The **Only Interested** group exhibits a high level of interest but relatively limited influence and impact. This group contributes primarily through research activities, technical validation, and long-term capacity development, and consists primarily of scholars and research institutions. Collaborative arrangements include formal research partnerships, joint seminars with project developers, the provision of access to data and research sites, the implementation of technical validation initiatives, such as silica extraction from geothermal brine for fertilizer applications, and the incorporation of EDT potential into official local government planning documents.

### 7.3.9 Summary of the Findings

1. The pilot study conducted at the Dieng Geothermal Power Plant demonstrates that the operationalization of the JT Framework is broadly aligned with global environmental and social safeguard standards, particularly with respect to the integration of gender considerations beyond the minimum requirements set by financial institutions. Nevertheless, further improvements are needed in the quality of documentation, transparency, and operational frameworks to strengthen the measurement and attribution of benefits to local communities. In addition, project developers could enhance community engagement by placing greater emphasis on outreach to surrounding communities regarding the implementation of the Grievance Redress Mechanism, thereby improving the effectiveness and accessibility of grievance management processes.
2. The local economic structure, which is heavily dominated by intensive potato farming, presents significant risks of environmental degradation. Persistently low income levels, a high incidence of poverty, and limited attainment of formal education underscore the importance of regional EDT initiatives as strategic interventions to strengthen local capacity, diversify livelihood options, and promote sustainable and inclusive economic development.
3. The direct utilization of geothermal energy presents innovative opportunities to support modern agriculture and agro-processing, including crop drying, greenhouse development, and pilot testing of silica extraction as an environmentally friendly fertilizer input. These initiatives have the potential to enhance value added within local agricultural systems and their downstream value chains, while simultaneously strengthening the economic resilience of local communities.
4. Dieng also demonstrates significant potential to develop an integrated tourism model that combines agricultural activities, energy education, and wellness tourism through the revitalization of hot spring facilities. Such development is aligned with longer-term aspirations for designation as a UNESCO Global Geopark, thereby fostering synergies among conservation objectives, educational initiatives, and the strengthening of the local economy.

5. There are clear opportunities to strengthen human resource capacity through the integration of green skills into vocational education curricula and the establishment of structured talent pools, particularly in response to low average years of schooling and limited technical qualifications among local communities. These measures are further reinforced by corporate commitments to allocate community development budgets toward women's empowerment initiatives and education scholarship programs for vulnerable groups. Collectively, these measures aim to bridge community interest in skills training with the qualification requirements of the renewable energy sector, while supporting more effective absorption of local labor into the industry.
6. The optimization of production bonuses—revenue sharing from the geothermal—as a financing source for EDT initiatives can be further strengthened through the establishment of clear regulatory frameworks at the district level, accompanied by the application of targeted management mechanisms. In parallel, strengthening the capacity of local MSMEs to comply with quality standards and obtain formal licensing has the potential to expand opportunities for their integration into the project's supply chain.
7. The success of regional EDT and the effective operationalization of the JT framework depend substantially on strengthened cross-sectoral coordination among OPD, village-owned enterprises (BUMDes), and project developers, thereby enabling closer alignment between the planning and implementation of priority programs. Such coordination should ensure the provision of responsive and inclusive social protection mechanisms for women, the elderly, and persons with disabilities, resulting in coherent priority interventions that enhance community welfare and ensure the long-term sustainability of these initiatives.

### 7.3.10 Proposed EDT Action Plans for the Dieng Region

Note: The figures shown for proposed short-term, medium-term, and long-term project/program targets are illustrative and may be adjusted according to the capacity and preferences of relevant stakeholders.

No.	Proposed Action Plans	Relevant Stakeholders	Proposed Indicators		Proposed Project/Program Targets		
			Project/Program Level	National Indicators Targeted for Contribution	Short-Term	Medium-Term	Long-Term
<b>I. Core Area 1: Economic and Financial Policies</b>							
1	<b>Establish transparent and well-targeted benefit-sharing mechanisms (including production bonuses, CSR programs, and other funding sources) to support the implementation of EDT).</b>	Regency-level Development Planning Agency, Regency-level Government, Village Government, CSOs, Project Developers	<ul style="list-style-type: none"> <li>• Existence of a formal production bonus-sharing mechanism.</li> <li>• Level of alignment between program implementation and the economic priorities of affected villages and surrounding project areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Percentage of poor and vulnerable households receiving social assistance and social security (%)</li> </ul>	<ul style="list-style-type: none"> <li>• Issuance of formal mechanisms (Regent Regulation/MoU)</li> <li>• Preparation of a village-level mapping of community aspirations and economic priorities to inform the planning and development of EDT-based programs, using a structured social mapping methodology.</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanisms operating with independent audits</li> <li>• EDT-based priority economic programs in project-adjacent areas are implemented in accordance with the established short-term targets.</li> </ul>	<ul style="list-style-type: none"> <li>• Integration of mechanisms into regional regulations and replication at the regional level</li> <li>• Implementation of EDT-based priority economic programs in the project's surrounding areas, designed to achieve village self-reliance and long-term program sustainability, up to and including a clearly defined exit strategy.</li> </ul>
2	<b>Develop national guidelines for geothermal production bonus allocation to ensure more consistent interprovincial EDT funding.</b>	Ministry of Home Affairs, Ministry of Energy and Mineral Resources, Ministry of Finance, Bappenas, Provincial Bappeda	The issuance of national guidelines to regulate geothermal production bonus allocation	A growing number of policies that inclusively improve the quality and benefits of social security programs	<ul style="list-style-type: none"> <li>• Completion of technical studies and drafts</li> <li>• Ministerial regulation issued</li> </ul>	<ul style="list-style-type: none"> <li>• Districts or cities with geothermal potential adopt the geothermal production bonus allocation guidelines</li> <li>• Implementation of national guidelines</li> </ul>	Districts or cities with geothermal potential adopt the geothermal production bonus allocation guidelines

Disclaimer: This document forms part of the Indonesia Just Energy Transition Partnership (JETP) thematic reporting. It does not constitute a legally binding document. It is a strategy document that the Government of Indonesia may use as a basis for power sector planning and policymaking as part of the JETP process. For more information about JETP Indonesia, please refer to the [2023 Comprehensive Investment and Policy Plan](#) (CIPP) and [2025 Progress Report](#). The CIPP is a document for the implementation of the [Joint Statement](#) agreed in November 2022.

No.	Proposed Action Plans	Relevant Stakeholders	Proposed Indicators		Proposed Project/Program Targets		
			Project/Program Level	National Indicators Targeted for Contribution	Short-Term	Medium-Term	Long-Term
3	<b>Establishing an MSME readiness program and supply chain integration to address key challenges: information (clear procurement guidelines), capacity (quality training/certification), and financing (financial literacy).</b>	Regency-level Cooperative and MSME Office, Project Developers, Local MSMEs and Cooperatives, Commercial Banks/Microfinance Institutions	<ul style="list-style-type: none"> <li>Percentage increase in revenue for supported MSMEs</li> <li>Number of local MSMEs serving as project suppliers/local business service providers</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of domestic investment realization, including MSMEs</li> </ul>	<ul style="list-style-type: none"> <li>10% of supported MSMEs report revenue growth</li> <li>10% increase in the number of MSMEs in affected areas becoming project suppliers or local business supporters</li> </ul>	<ul style="list-style-type: none"> <li>15% of supported MSMEs report revenue growth</li> <li>15% increase in the number of MSMEs in affected areas becoming project suppliers or local business supporters</li> </ul>	<ul style="list-style-type: none"> <li>20% of supported MSMEs report revenue growth</li> <li>20% increase in the number of MSMEs in affected areas becoming project suppliers or local business supporters</li> </ul>
4	<b>The Ministry of Energy and Mineral Resources/PLN is proposing a regulation to ensure communities in RE development areas receive reliable electricity access.</b>	Ministry of Energy and Mineral Resources, Developers, PLN, Local Government, Village Government, Communities	Reliable electricity access for communities in ET development areas	<ul style="list-style-type: none"> <li>National electrification ratio (%)</li> <li>Percentage of poor and vulnerable households receiving social assistance (%)</li> </ul>	<ul style="list-style-type: none"> <li>Completion of technical study</li> <li>Establishment of regulation to ensure communities in RE development areas receive reliable electricity access</li> </ul>	Meeting part of the total electricity needs of communities in RE development areas	Meeting the electricity needs of communities in RE development areas
<b>II. Core Area 2: Human Capital Development</b>							
5	<b>Build a systematic talent pool with green-skills training programs aligned to industry needs.</b>	Regency-level Manpower Office, Dinas Tenaga Kerja Kabupaten, Balai Pelatihan Vokasi, Pengembang Proyek	Number of local workers trained, certified, and absorbed into geothermal/green energy jobs	Number of workers with developed green competencies (persons)	Approximately ≥25 local workers are trained and employed.	Approximately ≥50 local workers are trained and employed.	Approximately ≥75 local workers are trained and employed.

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No.	Proposed Action Plans	Relevant Stakeholders	Proposed Indicators		Proposed Project/Program Targets		
			Project/Program Level	National Indicators Targeted for Contribution	Short-Term	Medium-Term	Long-Term
6	<b>Align vocational curricula with the needs of the renewable energy sector, particularly geothermal, through partnerships between geothermal power plants and vocational schools as well as industry certification bodies.</b>	Regency-level Manpower Office Vocational Schools, Project Developers, Universities, Women and Youth Groups, National Professional Certification Agency (BNSP)	Level of achievement and scaling-up of green education programs whose curricula are aligned with geothermal sector requirements and the National Work Competency Standards (SKKNI) for green occupations.	Number of collaborations between associations and business/industrial sectors in green job development (partnerships)	One draft SKKNI-based green jobs curriculum tailored to the geothermal and other renewable energy sectors is established, with implementation beginning in at least one vocational school or training center (BLK).	Regular monitoring and evaluation of the implementation of SKKNI-based green jobs vocational curricula, adapted to the needs of the geothermal and other renewable energy sectors, to measure curriculum effectiveness and learner competency attainment and identify improvement areas for continuous curriculum refinement.	Replication and scaling-up of the adoption of SKKNI-based green jobs vocational curricula, aligned with the requirements of the geothermal and other renewable energy sectors, to multiple education or training institutions, informed by lessons learned from pilot implementation.
<b>III. Core Area 3: Innovation and Technology</b>							
7	<b>Accelerate implementation of the master plan and pilot direct-use geothermal projects (drying, seedling, tourism) through community-based approaches, with priority given to local communities surrounding the Geothermal Working Area.</b>	MEMR (Geothermal Directorate), Project Developers, Village-Owned Enterprises, Farmers' Groups, Regency-level Agriculture Office, Regency-level Government Agencies	Level of achievement of community-based direct-use geothermal utilization with priority given to local communities surrounding the Geothermal Working Area.	<ul style="list-style-type: none"> <li>• Number of strategic science, technology, and innovation products utilized by the government and communities in priority areas (products)</li> <li>• Science, technology, and innovation expenditure (% of GDP)</li> </ul>	<p>Issuance of direct-use guidelines, regulation, and technical guidelines regulating community access rights, economically viable business models, and procedures for Cleanliness, Health, Safety, and Environmental Sustainability (CHSE).</p> <p>Capacity-building programs for communities on the use of direct-use geothermal energy are implemented.</p>	Operationalization of direct-use pilots with stable geothermal direct-use supply, supported by routine monitoring and evaluation systems, and managed by personnel certified through capacity-building programs.	The program becomes a pillar of financially and operationally self-reliant village economies, with the exit strategy transitioning direct-use geothermal utilization from pro developers to community-based management, serving as a national reference model.

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No.	Proposed Action Plans	Relevant Stakeholders	Proposed Indicators		Proposed Project/Program Targets		
			Project/Program Level	National Indicators Targeted for Contribution	Short-Term	Medium-Term	Long-Term
8	<b>Establishing a multi-stakeholder coordination forum with clear terms of reference, defined membership, and public accountability; and implementing a proactive multichannel communication strategy with inclusive language to reach all groups.</b>	Subnational Governments, Project Developers, CSOs, Financial Institutions, Academics, Village Governments	Number of forums that are held/organized per year	Green Economy Index	<ul style="list-style-type: none"> <li>•Establishment of a multi-stakeholder forum that upholds the principle of meaningful consultation.</li> <li>•At least one meeting is convened per year.</li> </ul>	At least two meetings are convened per year.	<ul style="list-style-type: none"> <li>• At least two meetings are convened per year.</li> <li>• Full integration of the forum, with accountability mechanisms, into district-level regulations.</li> </ul>

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### 7.3.11 Proposed EDT Monitoring and Evaluation for Dieng Region

Note: The figures shown for proposed short-term, medium-term, and long-term project/program targets are illustrative and may be adjusted according to the capacity and preferences of relevant stakeholders.

No.	Proposed Indicators	Baseline	Proposed Target			Proposed Collection Methods	Frequency	Proposed PIC	Related Stakeholders
			Short-Term	Midterm	Long-Term				
<b>I. Core Area 1: Economic and Financial Policies</b>									
1	<b>Existence of a formal benefit-sharing mechanism</b>	No formal or specific mechanism for the distribution of production bonuses	Formal mechanism established	Mechanism operational with independent audit	Mechanism integrated into local regulations and replicated at the regional level	Legal document review, MoUs, and audit reports	Annually	Regency-level Development Planning Agency (Bappeda)	District Bappeda, District Government, Village Government, CSOs, Project Developer
2	<b>Level of alignment between program implementation and the economic priorities of affected villages and surrounding project areas.</b>	No specific mechanism	Preparation of a village-level mapping of community aspirations and economic priorities to inform the planning and development of EDT-based programs, using a structured social mapping methodology.	EDT-based priority economic programs in project-adjacent areas are implemented, in accordance with the established short-term targets.	Implementation of EDT-based priority economic programs in the project's surrounding areas, designed to achieve village self-reliance and long-term program sustainability, up to and including a clearly defined exit strategy.	A list of prioritized village economic programs and an evaluation report on the implementation of benefit programs.	Annually	District Government	District Bappeda, District Government, Village Government, CSOs, Project Developer

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No.	Proposed Indicators	Baseline	Proposed Target			Proposed Collection Methods	Frequency	Proposed PIC	Related Stakeholders
			Short-Term	Midterm	Long-Term				
3	<b>Issuance of national guidelines on geothermal production bonus allocation</b>	No national guidelines	Technical study and draft completed	Ministerial regulation issued and adopted by several provinces	Guidelines fully implemented and increasing number of districts allocating geothermal bonuses for EDT	Review of regulatory documents and provincial adoption records	Semi-annually	Ministry of Home Affairs and Ministry of Energy and Mineral Resources	Ministry of Home Affairs, Ministry of Energy and Mineral Resources, Ministry of Finance, Bappenas, Provincial Bappeda
4	<b>Fulfillment of community electricity access in the project area</b>	No prioritization mechanism	Regulatory framework established  Establishment of regulation to ensure communities in RE development areas receive reliable electricity access	Partial fulfillment of community electricity demand	Full fulfillment of community electricity demand	Regulatory development and reliability assessment of electricity supply in Ring 1 villages	Annually	PT PLN (Persero) and Ministry of Energy and Mineral Resources	Ministry of Energy and Mineral Resources, Project Developer, PLN, District Government, Village Government, Communities
5	<b>Percentage increase in income of supported MSMEs</b>	Limited participation of local MSMEs as project suppliers or supporting businesses	At least 10% of supported MSMEs report increased income.	At least 15% of supported MSMEs report increased income.	At least 20% of supported MSMEs report increased income.	Training attendance lists and completion certificates	Quarterly	Regency-level Office for Cooperatives and MSMEs	District Office for Cooperatives and MSMEs, Project Developer, Local MSMEs and Cooperatives, Commercial Banks/MFIs

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No.	Proposed Indicators	Baseline	Proposed Target			Proposed Collection Methods	Frequency	Proposed PIC	Related Stakeholders
			Short-Term	Midterm	Long-Term				
6	<b>Number/percentage of local MSMEs serving as geothermal project suppliers or supporting businesses</b>	Limited number of local MSMEs engaged	A 10% increase in the number of MSMEs in the affected area serving as project suppliers or local supporting businesses.	A 15% increase in the number of MSMEs in the affected area serving as project suppliers or local supporting businesses.	A 20% increase in the number of MSMEs in the affected area serving as project suppliers or local supporting businesses.	Procurement records and supplier databases	Semi-annually	Project Developer	District Office for Cooperatives and MSMEs, Project Developer, Local MSMEs and Cooperatives, Commercial Banks/MFIs
<b>II. Core Area 2: Human Capital Development</b>									
7	<b>Number of local workers trained, certified, and absorbed into geothermal/green energy jobs</b>	No local green energy certification	Approximately ≥25 local workers trained and absorbed.	Approximately ≥50 local workers trained and absorbed.	Approximately ≥75 local workers trained and absorbed.	Training records, certification data, and talent pool registry	Quarterly	Regency-level Manpower Office	Project Developer, Regency-level Manpower Office, Vocational Training Centers
8	<b>Level of achievement and scaling-up of green education programs whose curricula are aligned with geothermal sector requirements and the National Work Competency Standards (SKKNI) for green occupations.</b>	Limited collaboration with vocational institutions	One draft SKKNI-based green jobs curriculum tailored to the geothermal and other renewable energy sectors is established, with implementation beginning in at least one vocational school	Regular monitoring and evaluation of the implementation of SKKNI-based green jobs vocational curricula, adapted to the needs of the geothermal and other renewable energy sectors, to	Replication and scaling-up of the adoption of SKKNI-based green jobs vocational curricula, aligned with the requirements of the geothermal and other renewable energy sectors, to	Annual reports	Annually	Regency-level Manpower Office	Regency-level Manpower Office, Vocational Schools, Project Developer, Universities, Women and Youth Groups, National Professional Certification Agency (BNSP)

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No.	Proposed Indicators	Baseline	Proposed Target			Proposed Collection Methods	Frequency	Proposed PIC	Related Stakeholders
			Short-Term	Midterm	Long-Term				
			or training center (BLK).	measure curriculum effectiveness and learner competency attainment and identify improvement areas for continuous curriculum refinement.	multiple education or training institutions, informed by lessons learned from pilot implementation.				
<b>III. Core Area 3: Innovation and Technology</b>									
9	<b>Level of achievement of community-based direct-use geothermal utilization with priority given to local communities surrounding the Geothermal Working Area.</b>	Direct-use development limited to pilot and small-scale trials	Issuance of direct-use guidelines, regulation, and technical guidelines regulating community access rights, economically viable business models, and procedures for Cleanliness, Health, Safety, and Environmental	Operationalization of direct-use pilots with stable geothermal direct-use supply, supported by routine monitoring and evaluation systems, and managed by personnel certified through capacity-building programs.	The program becomes a pillar of financially and operationally self-reliant village economies, with the exit strategy transitioning direct-use geothermal utilization from pro developers to community-based management, serving as a national reference model.	Draft guidelines for direct use, field implementation reports, and operational approvals	Semi-annually	MEMR (Geothermal Directorate)	Project Developer, Village-Owned Enterprises (BUMDes), Farmer Groups, Regency-Level Agriculture Office, Regency-level Governmen

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No.	Proposed Indicators	Baseline	Proposed Target			Proposed Collection Methods	Frequency	Proposed PIC	Related Stakeholders
			Short-Term	Midterm	Long-Term				
			Sustainability (CHSE).  Capacity-building programs for communities on the use of direct-use geothermal energy are implemented.						
10	<b>Number of multi-stakeholder coordination meetings held per year</b>	Coordination remains ad hoc	Establishment of a multi-stakeholder forum that upholds the principle of meaningful consultation and at least one meeting convened per year	At least two coordination meetings convened per year	At least two coordination meetings convened per year, with the forum fully integrated and subject to accountability mechanisms within district-level regulations	Location verification reports	Semi-annually	District Bappeda	Local Government, Project Developer, CSOs, Academic Institutions, Central Government

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According to the ADB’s Environmental and Social Monitoring Report (2021), the Tolo Wind Power Plant project crosses at least four villages: Empoang Utara, Kayuloe Timur, Maccini Baji, and Pa’rasangan Beru. Empoang Utara contains the largest extent of dryland agricultural area within the study site and is highly dependent on a single growing season, a condition that constrains the stability and sustainability of household incomes. Kayuloe Timur is a small village characterized by traditional agricultural practices and a relatively high rate of male out-migration. The low value added of the agricultural sector contributes to a weak local economic structure and unstable household incomes.

Maccini Baji exhibits a relatively high population density and more diversified livelihood structures compared to other villages. In contrast, Pa’rasangan Beru is also a densely populated village but maintains an economic structure that remains largely dependent on traditional agriculture. Across all affected villages, the predominance of traditional agricultural activities generates a pattern of economic vulnerability, characterized by limited alternative income sources, low economic multiplier effects, and high sensitivity of household welfare to seasonal variability and external shocks.

#### 7.4.2 Overview of the Tolo Region, Jeneponto

Tolo is a sub-district in Jeneponto Regency, South Sulawesi. The area has experienced steady population growth, increasing from approximately 360,000 in 2018 to around 420,000 in 2024, which indicates an expanding demographic base and strengthening social capacity. A relatively balanced gender ratio reflects social stability, while an age structure dominated by younger cohorts, particularly those aged 5 - 29 years, provides a substantial potential workforce to support both routine economic activities and the development of the Tolo wind power plant.

**Table 7.4-1. Demographic and Socioeconomic Conditions of Jeneponto Regency, 2024**

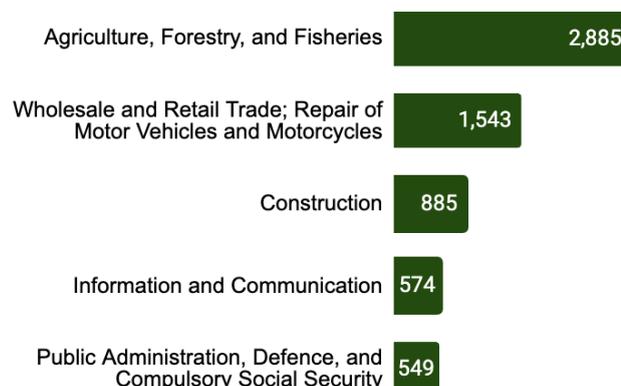
No	Komponen	Nilai
<b>1.</b>	<b>Total population</b>	423.005
1.1.	Male	208.893
1.2.	Female	214.112
<b>2.</b>	<b>Dependency ratio</b>	49,86
1.1.	Working-age population	282.271
1.2.	Non-working-age population	140.734
<b>3.</b>	<b>Education</b>	
3.1.	Primary school	101.076 (48%)
3.2.	Junior secondary school	31.845 (15%)
3.3.	Senior secondary school	52.575 (25%)
3.4.	Higher education	25.851 (12%)
<b>4.</b>	<b>Vulnerable groups</b>	
4.1.	Physical disability	371

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No	Komponen	Nilai
4.2.	Mental disorder	95
5.	<b>Human development index</b>	66,38
6.	<b>Poverty</b>	
6.1.	Number	±43,9 ribu
6.2.	Proportion	11,82%

Source: Jeneponto's Statistics Bureau (2025)

Economically, the structure of Jeneponto's Gross Regional Domestic Product (GRDP) remains vulnerable due to its heavy reliance on traditionally managed agriculture, forestry, and fisheries, which contributed IDR 2.885 billion in 2024 (Figure 7.2-4). The trade and motor vehicle repair sector represents the second-largest contributor, followed by the construction sector, while information and communication services also play a notable role, contributing IDR 547 billion. Overall, the continued dominance of primary sectors highlights the need for more targeted and sustainable strategies to promote economic diversification and structural transformation.



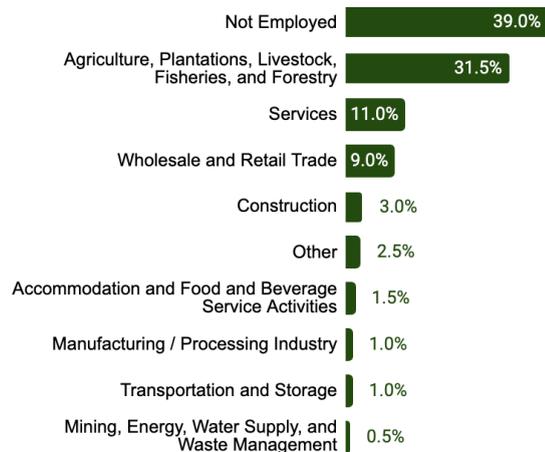
Source: Statistics Indonesia (2025), processed

**Figure 7.4-2 Jeneponto GRDP by Economic Sector (IDR billion)**

Primary survey data further reinforce this vulnerability profile. As illustrated in Figure 7.2-5, 39% of respondents were unemployed, while 31.5% worked in agriculture, forestry, and fisheries—sectors that are highly sensitive to weather conditions in Tolo, an area characterized by frequent drought. Among the 61% of respondents who were employed, 27% were self-employed<sup>12</sup>, predominantly in agriculture and retail trade, and 12.5% worked as casual agricultural workers (see Figure 7.2-6). Consequently, the majority of respondents remain outside the formal employment system that provides adequate income protection. This employment structure reflects reliance on traditional work that exposes labor vulnerable

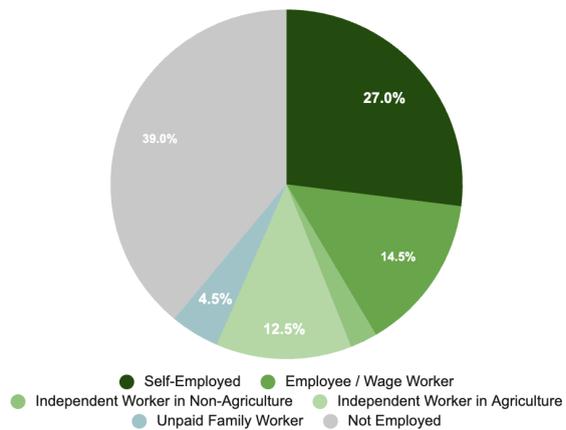
<sup>12</sup> Employment Status according to BPS: (1) Self-employed: Individuals who operate their own business at their own risk without employing others; (2) Self-employed assisted by unpaid or temporary workers: Individuals who operate their own business at their own risk and are assisted by daily workers or family members without fixed wages; (3) Self-employed assisted by permanent or paid workers: Individuals who operate their own business at their own risk and employ permanent workers who receive regular wages; and (4) Wage workers/employees: Individuals who work for others or institutions on a permanent basis and receive wages or salaries.

to shocks such as commodity price fluctuations, climate variability, and pandemics or public health crises.



Source: Household survey (2025), processed

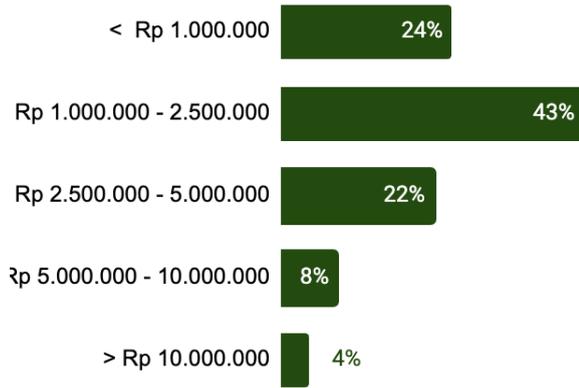
**Figure 7.4-3 Respondents' Occupation by Economic Sector**



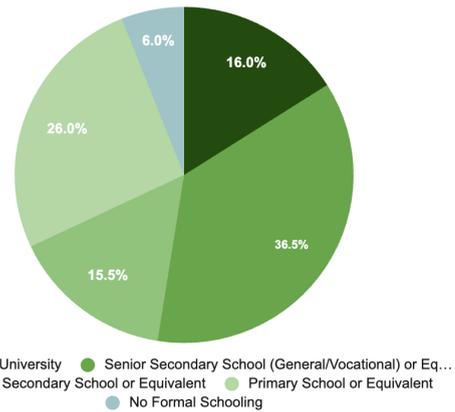
**Figure 7.4-4 Respondents' Employment Status**

These demographic characteristics are closely associated with persistent challenges in human resource quality, particularly as educational attainment remains concentrated at the elementary and junior secondary levels. Nearly half of the population has completed only basic education, while individuals with tertiary qualifications account for merely 12% of the total population (Table 7.4-1). Household survey results presented in Figure 7.4-6 further reinforce this pattern, with 47.5% of respondents reporting junior secondary education or lower. This profile indicates that upgrading the local workforce to assume more strategic and technical roles will require systematic vocational education, skills training, and capacity-building programs, particularly to meet operational demands in areas such as maintenance, digital monitoring, and related support services.

Improvements in living standards are reflected in Jenepono Regency's Human Development Index (HDI), which increased from 61.81 in 2016 to 66.38 in 2024. Although this progress has been gradual, it indicates positive trends in health, education, and income, thereby strengthening the community's socioeconomic readiness for the energy transition project. However, poverty remains a significant challenge, with a rate of 11.82%. As shown in Figure 7.4-5, 66.5% of respondents report monthly incomes below IDR 2.5 million, while only 10% earn more than IDR 5 million. These conditions highlight the potential role of the wind farm in supporting more inclusive economic development, particularly through the strengthening income-generating sectors beyond its direct operational activities.



Source: Household survey (2025), processed



**Figure 7.4-5 Average Monthly Household Income**      **Figure 7.4-6 Respondents' Last Education Attained**

Additionally, data on vulnerable groups shows fluctuating trends over time. During the 2021-2024 period, recorded cases of physical disabilities declined from 392 to 371, while reported mental health decreased markedly from 413 to 95, likely reflecting improvements in data collection systems and access to healthcare services. These trends underscore the importance of systematically integrating inclusivity across all stages of the project, from facility planning to recruitment strategies and community empowerment initiatives.

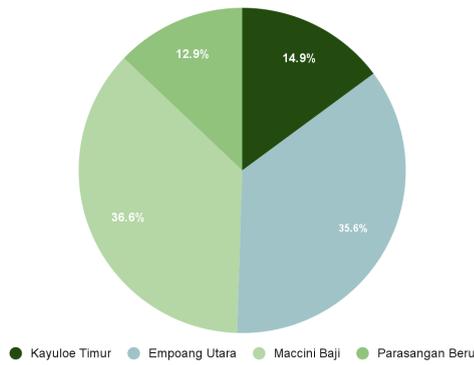
Overall, the Tolo area and Jeneponto Regency exhibit considerable labor potential and opportunities for economic growth that could be further leveraged through the development of the wind farm project. At the same time, persistent challenges related to educational attainment, social inclusivity, and poverty necessitate targeted and well-coordinated interventions. Addressing these constraints is essential to ensure that the benefits of development are distributed equitably and sustained over the long term within local communities.

### 7.4.3 Demographics of Jeneponto's Respondents

To implement this methodology, the research framework integrates a household survey, semi-structured interviews, and multilevel analysis to generate comprehensive and evidence-based findings. A household survey was administered to 200 respondents across four directly affected villages, North Empoang, East Kayuloe, Maccini Baji, and Pa'rasangan Beru, and was complemented by 23 interview sessions involving 46 informants representing government institutions, the project developer, local communities, academia, and civil society organizations, as well as one FGD attended by 59 participants from 24 institutions. All empirical findings were subsequently triangulated and validated against Environmental and Social Impact Assessment (ESIA) documents, regional development planning instruments, and official statistical data.

Figure 7.4-7 illustrates the spatial distribution of respondents across the study area. Of the total respondents, 37% of respondents were from Maccini Baji, 36% from North Empoang, 15% from East Kayuloe, and 13% from Pa'rasangan Beru. These proportions were determined according to village population size to ensure adequate territorial representation. Figure 7.4-8 depicts the distance between respondents' residences and the wind power plant. Approximately 47% of respondents reside within a 2 km radius, 48% live between 2

and 5 km, and 6% are located more than 5 km away. This distribution reflects prevailing settlement patterns and the spatial relationship between communities and the project area.



Source: Household survey (2025), processed

**Figure 7.4-7 Respondents by Village**      **Figure 7.4-8 Distance of Residence from the Wind Farm**

#### 7.4.4 Review of the JT Framework Standards 1-8 at Tolo I Wind Farm

The review of JT Framework Standards 1-8 at the Tolo I Wind Farm indicates a high level of compliance with the Asian Development Bank (ADB) requirements. This performance reflects the effective application of environmental and social safeguard standards, as well as adherence to core just transition principles. The project conducts regular biannual monitoring of biodiversity, environmental, and social indicators and ensures transparency through the public disclosure of monitoring results.

This commitment is formally documented in the Environmental and Social Impact Assessment (ESIA) and its associated management plans, including the grievance redress mechanism, stakeholder engagement strategy, socioeconomic assessments, community development programs, and codes of conduct. Project operations are further aligned with the IFC Performance Standards, reinforcing adherence to internationally recognized environmental and social safeguards. Risks to cultural heritage are assessed as minimal, as evidenced by the absence of identified tangible heritage findings, the continued protection and community access to sacred wells, and the implementation of a Chance Find Procedure.

Land acquisition was implemented through a voluntary willing-buyer and willing-seller approach, resulting in the absence of both physical and economic displacement. The project further provides livelihood restoration support targeting vulnerable farmers and women entrepreneurs. No indigenous peoples were affected by the project, and consultation processes ensured inclusive participation. Labor practices comply with national and international standards, with 92% of the workforce recruited locally and supported by effective occupational health and safety systems.

Biodiversity risks associated with the project are assessed as low, given that the site is located on previously modified agricultural land and does not overlap with critical habitats or wildlife migration corridors. Ongoing monitoring of bird and bat mortality, complemented by reforestation initiatives, contributes to the strengthening of ecosystem protection and

biodiversity management. Climate risk assessments identify earthquakes and flooding as primary hazards, along with heightened heat stress and fire risks under the RCP 8.5 scenario. These findings necessitate adaptive measures such as strict compliance with seismic design standards, improved drainage infrastructure, and enhanced fire prevention and management systems.

The Tolo I Wind Farm contributes to climate change mitigation through the provision of clean energy and the reduction of greenhouse gas emissions. However, baseline assessments and the articulation of clear emission reduction targets would benefit from further clarification to strengthen monitoring and reporting frameworks. Community health and safety risks, including noise and shadow flicker, have been addressed through appropriate mitigation measures and emergency preparedness plans. Waste management practices comply with national regulations, although the adoption of more advanced circular economy approaches could further enhance environmental performance.

Overall, the operationalization of the Tolo I Wind Farm is largely aligned with JTF Standards 1 - 8 and demonstrates a robust environmental and social protection system. Nonetheless, strategic improvements remain necessary. In particular, greater transparency of greenhouse gas emissions and ensuring continuous updates to the Biodiversity Management Plan to maintain effective mitigation for birds and bats in line with international standards.

#### **7.4.5 Assessment of the Area Surrounding the Tolo Wind Power Plant, Jeneponto**

The current condition assessment is designed to establish a baseline overview of the Tolo area prior to the implementation of the EDT initiatives. This approach comprehensively examines infrastructure conditions, natural resource quality, human resource capacity, technological readiness, and policy support. The resulting analysis identifies local competitive advantages, key challenges, and potential constraints that may affect the feasibility and effective implementation of the EDT strategy. The assessment was conducted using primary data collected through surveys, interviews, and FGDs.

##### **7.4.5.1 Local Economic Development**

###### **7.4.5.1.1 Wind Power Plant as a New Tourism Icon for Jeneponto**

The presence of the Tolo Wind Power Plant (WPP) has begun to create a new tourist attraction in Jeneponto Regency by turning its renewable energy infrastructure into an emerging tourist attraction. Based on interviews and focus group discussions, the WPP area has organically attracted visitor flows, particularly during weekends. This phenomenon creates substantial opportunities for the expansion of derivative economic activities, including local culinary businesses, regional handicrafts, and various supporting tourism services. One FGD participant emphasized that this potential could be further optimized through integration with existing tourist destinations, such as Tamarunang Beach, positioning Jeneponto Regency as a strategic transit node along the tourism corridor to Bulukumba.

Collaborative efforts between the WPP developer and local government have been initiated through the signing of a memorandum of understanding to develop an integrated tourism master plan. Interview findings indicate that the developer plans to construct a visitor center which will function as an ecotourism hub for energy transition initiatives, as well as a marketing gallery for local micro, small, and medium enterprise (MSME) products. The

facility is intended to be integrated with Tourism Awareness Groups (Pokdarwis) to be established in surrounding villages. Additionally, discussion stakeholders noted that the development of this energy-based tourism sector is consistent with the regional development vision that emphasizes prioritizing green and blue economy principles.

Nevertheless, the interview findings indicate that the primary constraint on tourism development lies in the absence of a clear policy direction or a comprehensive master plan (grand design) formulated by the local government. Such a planning document is essential as a strategic foundation to guide developers' support for infrastructure provision and the implementation of targeted tourism development programs. Focus group discussions further revealed that limited local fiscal capacity and human resource constraints constitute additional challenges, underscoring the need for more intensive and sustained multi-stakeholder collaboration.

#### **7.4.5.1.2 Local Employment Absorption**

The Tolo Wind Power Project demonstrates a strong commitment to promoting local employment during its operational phase. Interviews with project developers indicate that, of 82 total workers employed, 97% were from South Sulawesi, 76% were residents of Jeneponto Regency, and 64% came from Ring 1 villages directly affected by the project. This composition reflects the developers' priority in maximizing direct economic benefits for surrounding communities. This achievement is particularly noteworthy given the technology-intensive nature of the renewable energy sector, which inherently limits labor absorption. Participants in the FGD session, comprising academics and representatives from civil society organizations, expressed appreciation for these achievements. However, they also emphasized the need to strengthen local human resource capacity to enable community members to access technical and specialized positions that are currently dominated by professionals from outside the region.

The recruitment strategy for security personnel was identified as one of the best practices in this study. Interview findings indicate that 29 security staff members were specifically recruited from eight surrounding villages through a structured approach encompassing selection processes, intensive training, and professional certification. This approach not only generated direct employment opportunities but also strengthened local workforce capacity by providing transferable skills for future employment. Furthermore, these security personnel performed a dual role as communication bridges between the project developer and village communities, which in turn contributed to the establishment of harmonious social relations and the informal resolution of grievances.

In terms of gender equality, the project has implemented internal policies that demonstrate the developer's recognition of the importance of gender inclusion in the operational dimensions of the energy transition (ET) project, although these policies have not yet been formally codified into written policies. Interview findings indicate that these policies encourage women's participation by prioritizing the recruitment of female workers for administrative positions, with a target of achieving up to 20% female representation in the total workforce, particularly in roles that do not require night shifts, while maintaining occupational safety and workplace comfort. Additionally, female workers are provided with specific facilities and protections, including menstrual and maternity leave, as measures to

protect workers' rights. A key challenge moving forward is to expand women's access to technical roles through affirmative policies, specifically targeted vocational training in renewable energy.

#### **7.4.5.1.3 Empowerment of MSMEs and Vulnerable Groups**

The operator of the WPP has implemented a Community Development Program (CDP) designed to enhance the economic and social resilience of vulnerable groups, particularly small landowners, tenant farmers, and women. Interview findings indicate that the program has reached 123 landowners and 35 tenant farmers, who are prioritized as direct beneficiaries. This targeted approach reflects an effort to ensure that project-related benefits are distributed in a more inclusive and equitable manner among affected communities.

The two primary components of the program include capacity building in the agricultural sector and the enhancement of entrepreneurial skills. In the agricultural sector, interventions emphasize productivity improvement through pilot testing of crop varieties adapted to Jeneponto's dry climatic conditions, the provision of seeds and fertilizers, and technical training in improved cultivation practices. Complementary initiatives include the processing of straw into compost, which reduces the practice of burning crop residues while simultaneously supporting environmental sustainability and safer operational conditions for wind turbines.

Within the entrepreneurial component, the Community Development Program (PPM) delivers training in business management, introduces digital marketing technologies, and provides assistance with basic legal and administrative requirements to support the formalization of small enterprises. The women's empowerment initiative, implemented through the Family Welfare and Empowerment Groups (PKK) in three villages, constitutes a notable programmatic achievement. Based on interview data and focused group discussions, women's participation reached approximately 70%, leading to the establishment of 18 new business units that received technical training and production equipment support.

#### **7.4.5.1.4 Infrastructure Development**

The construction of a 14 km access road network dedicated to turbine operations has generated positive impacts that extend beyond its primary function. Interview findings indicate that local farmers now widely utilize this road infrastructure to access agricultural land and transport harvests using automotive vehicles. This represents a substantial improvement compared to conditions prior to the establishment of the wind power plant (PLTB), when community members were forced to carry rice crops and farming equipment manually. This transformation in accessibility has significantly enhanced agricultural logistics efficiency, reduced the burden of manual labor, and accelerated the distribution of harvests to markets.

The project's contributions to social infrastructure development are evident in its support for community health and education facilities. Interview data indicate that the developer has provided assistance to five integrated health service posts (Posyandu) within the project area, thereby strengthening basic healthcare services for mothers and children. In the context of nonformal education, the project supports the Al-Qur'an Reading Center in Kayuloe Timur Village, serving approximately 60 students through the provision of physical infrastructure, learning materials, and ongoing operational support. Participants in focused

group discussions acknowledged these contributions as a tangible expression of corporate social responsibility that addresses fundamental community needs, while noting that the program's reach should be expanded to benefit a larger population.

The establishment of the Jeneponto Future Foundation Early Childhood Education (PAUD) program further illustrates a long-term commitment to human resource development. Interview findings indicate that the institution operates entirely free of charge for 64 active students from low-income families in Ring 1 villages, providing comprehensive support that includes uniforms, books, school bags, and all essential learning necessities. A distinctive feature of the program is its integration of renewable energy concepts into the curriculum through interactive learning media, educational comic books, and project-based activities such as waste sorting. Additionally, teaching staff have benefited from capacity building via training in green skills and comprehensive curriculum enhancement organized by the Indonesia Heritage Foundation (IHF). IHF serves as a technical partner to the WPP developer in the implementation of character education initiatives and human resource capacity-building programs in areas surrounding the project.

#### **7.4.5.2 Current Socio-Economic Challenges**

##### **7.4.5.2.1 Limitations in Structural Economic Transformation**

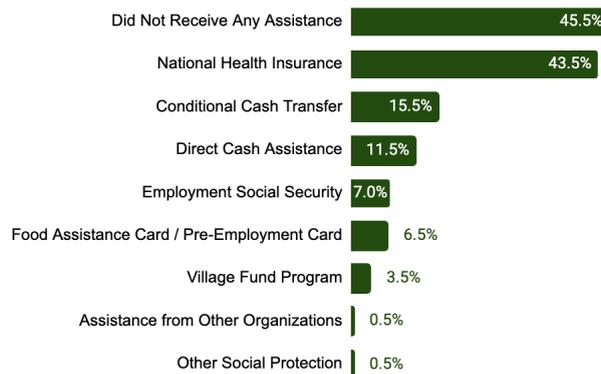
Following a pronounced economic surge during the construction phase, the project has now entered the operational phase, which provides more stable and sustainable economic contributions. Interview findings indicate that economic growth in Jeneponto Regency increased to approximately 9% during the period coinciding with the construction phase of the wind power plant and subsequently returned to the 5–6% range during the operational phase, in line with the completion of large-scale construction activities. This phenomenon underscores the capital- and technology-intensive nature of the renewable energy industry, which contrasts with manufacturing or processing sectors that can absorb larger labor forces. FGD participants highlighted that the economic benefits of the WPP are primarily indirect, notably through land and building tax revenues. Although a specific national revenue-sharing mechanism for the wind energy sector has yet to be established, the WPP operator actively generates added value through CSR programs and community empowerment initiatives that directly impact local residents' economies.

Chronic challenges concerning water availability and irrigation infrastructure continue to constrain agricultural economic development in Jeneponto Regency. Interview data reveal that, of the total 25,000 hectares of paddy fields, approximately 12,000 hectares are rain-fed and dependent on a single annual planting cycle, while an additional 5,000 hectares experience similar limitations due to inadequate irrigation. These constraints are further intensified by extreme climatic conditions, frequently manifesting as prolonged dry periods.

FGD findings further highlighted potential synergies between the presence of the WPP and initiatives to address water-related challenges in the surrounding area. Several participants proposed that local governments could collaborate with the WPP to leverage resource access for operating groundwater pumps to support community agricultural irrigation. This collaboration could be operationalized through the coordinating and policy-guiding role of local authorities, particularly the Agriculture Agency, with implementation support provided by the project developer and local farmer groups.

#### 7.4.5.2.2 Social Protection

Household survey results indicate limited social protection coverage among communities surrounding the project area. As illustrated in Figure 7.4-9, 45.5% of respondents reported having no access to any social protection programs. Among those covered, BPJS Kesehatan accounted for the highest participation at 43.5%, followed by the Conditional Cash Transfer (Program Keluarga Harapan/PKH) at 15.5% and Cash Transfer Assistance (Bantuan Langsung Tunai/BLT) at 11.5%. For this question, respondents were allowed to select multiple social protection programs, which explains why the total exceeds 100%.



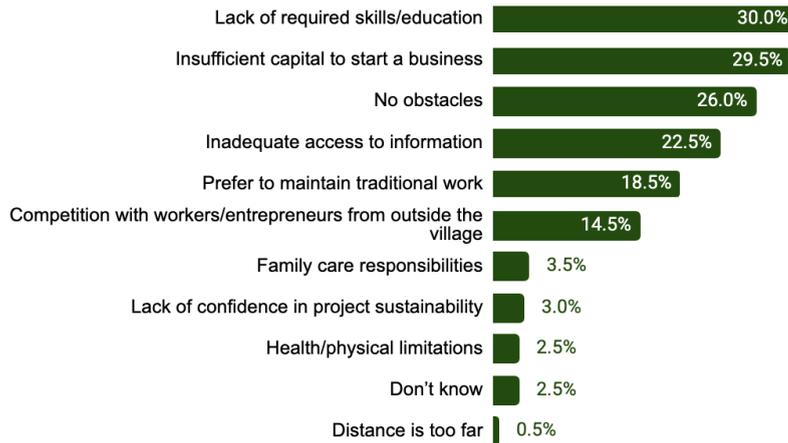
Source: Household survey (2025), processed

**Figure 7.4-9 Types of Social Protection Received by Respondents**

The survey findings indicate a high level of social vulnerability within the Jeneponto community. By comparison, only 14.1% of the population in advanced economies lacks social protection coverage (ILO, 2024). Inadequate social protection increases community susceptibility to economic and climate-related shocks, heightening the risk of persistent poverty (Correa et al., 2023; Kangasniemi et al., 2025; Kim et al., 2025). Under Standard 9, social protection is recognized as a critical component of EDT, as it safeguards vulnerable groups and promotes active community participation. Although the WPP project has not caused significant adverse impacts, the low baseline resilience of the community constrains its capacity to seize new economic opportunities. In the absence of robust social protection assurances, community members tend to adopt risk-averse behavior, persisting with established livelihood patterns, such as traditional agriculture, that yield limited value addition and modest multiplier effects.

#### 7.4.5.2.3 Education and Skills Levels

Household survey results indicate that 30% of respondents perceive limited skills and educational attainment as the primary challenge to accessing employment opportunities in the renewable energy sector (see Figure 7.4-10). This finding highlights a structural mismatch between local workforce competencies and the technical requirements of the renewable energy industry, which is relatively new and operates under specialized standards. Consequently, these requirements are not yet adequately incorporated into existing vocational education and training curricula.



Source: Household survey (2025), processed

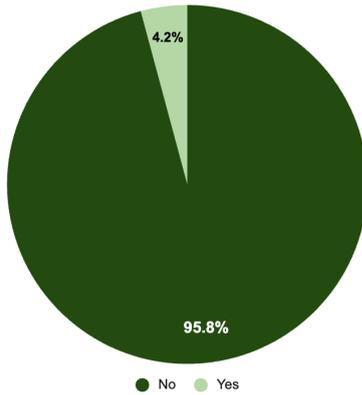
### Figure 7.4-10 Challenges in Accessing Economic Opportunities from the Wind Farm

Within the framework of EDT, this condition poses a risk of limiting meaningful local participation in the renewable energy value chain. In the absence of targeted interventions, local employment absorption is likely to remain concentrated in operational support roles, while strategic technical positions continue to be filled predominantly by workers from outside the region. Such disparities in access to higher-value employment opportunities may ultimately diminish the transformative potential of EDT for the local economy.

Aligning vocational education curricula and vocational training centers with the evolving needs of the renewable energy industry therefore constitutes a strategic priority. In this regard, the project developer has initiated continuous knowledge transfer programs as part of efforts to prepare local talent for technical and specialized roles. Enhanced collaboration among project operators, local governments, and vocational education and training institutions could further strengthen and scale up these initiatives while creating more diverse, sustainable, and upward career pathways for the local workforce within the renewable energy economic ecosystem.

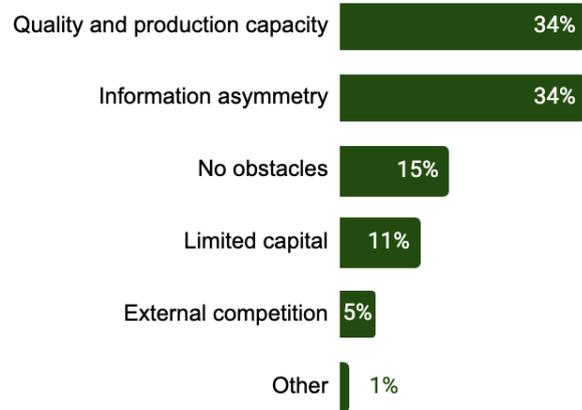
#### 7.4.5.2.4 Challenges in MSMEs Integration

The integration of local micro, small, and medium enterprises (MSMEs) into the Tolo WPP supply chain remains limited. Household survey results show that only 4% of the 72 business respondents have ever supplied goods or participated directly in project-related activities (Figure 7.4-11). This finding suggests that the potential for stronger local economic linkages remains substantial and requires a more robust supporting ecosystem. The principal constraints identified include limited production capacity and quality (34%), information asymmetry regarding procurement opportunities (34%), and restricted access to business capital (11%) (Figure 7.4-12). These patterns indicate the need for structured and multi-dimensional interventions to enhance MSME participation.



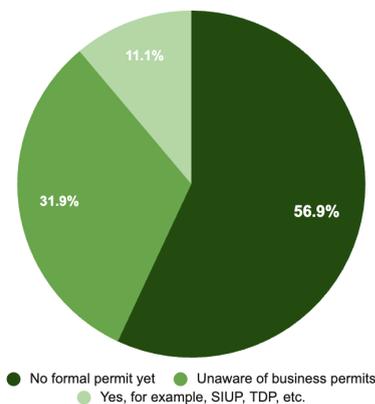
Source: Household survey (2025), processed

**Figure 7.4-11 MSMEs Previously Integrated to the Project**



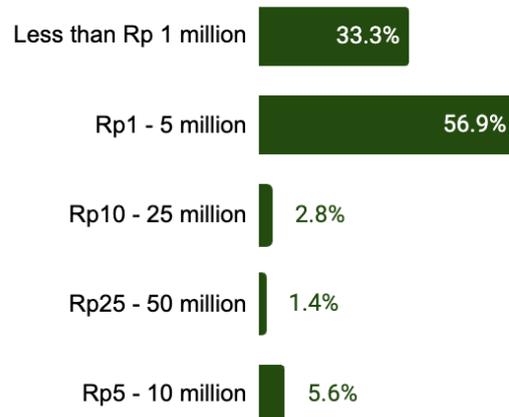
**Figure 7.4-12 MSMEs' Challenges to Integrating into the Project**

The project developer applies stringent procurement standards to ensure safety and quality compliance. Nevertheless, the developer has proactively created mentoring for local MSMEs to support their ability to meet these standards and participate in the project's supply chain. Interview findings indicate that key vendor eligibility criteria include possession of a Business Identification Number (NIB), consistent product quality, and the ability to meet required volumes and delivery schedules. However, household survey data show that only 11.1% of MSMEs hold formal business licenses, while 56.9% operate without formal registration and 31.9% lack awareness of business licensing procedures (Figure 7.4-13). This challenge is compounded by the structural characteristics of local MSMEs, most of which fall into the micro or ultra-micro category with low turnover levels (Figure 7.4-14). Among the 72 MSME respondents, 56.9% reported monthly revenues of IDR 1–5 million, while 33.3% earned less than IDR 1 million per month.



Source: Household survey (2025), processed

**Figure 7.4-13 MSMEs have Permissions**



**Figure 7.4-14 MSMEs' Monthly Average Revenue**

Despite these constraints, several business actors reported having the technical capacity to supply relevant goods and services but remain excluded due to the absence of formal vendor registration. This misalignment between technical capability and administrative

readiness creates an access gap that limits MSME participation in procurement opportunities and weakens potential local economic multiplier effects. Addressing this gap requires coordinated and multi-stakeholder integration efforts. The Cooperative and MSME Office can facilitate accelerated business formalization and licensing access, civil society organizations can support capacity building in product quality standardization, and the project developer ensures transparent and accessible procurement information channels. A structured ecosystem model of this kind has the potential to gradually and measurably transform local MSMEs into strategic partners within the Tolo Wind Power Plant supply chain.

#### **7.4.5.2.5 Governance and Policy Challenges**

In the Tolo I Wind Power Project, CSR funds constitute the principal mechanism through which the project developer contributes directly to local development beyond mandatory fiscal obligations, such as land and building taxes and public lighting taxes. The effectiveness of CSR deployment is strongly influenced by the quality of governance, particularly the level of coordination among local government authorities, the project developer, and beneficiary communities. Strengthened institutional coordination is therefore essential to ensure that CSR resources are allocated strategically, transparently, and in alignment with local development priorities.

At present, coordination between the local government and the project developer occurs through regular reporting mechanisms and periodic communication, indicating a basic level of information transparency. However, this coordination has not yet been formally institutionalized within the regional development planning framework. Consequently, CSR programs remain vulnerable to misalignment with local development priorities, program overlap, and inefficient allocation of resources.

Strengthening CSR governance therefore requires clear role delineation and systematic integration into regional development planning processes. Local governments, particularly the Regional Development Planning Agency (Bappeda), should incorporate CSR programs into formal planning instruments, such as the Regional Medium-Term Development Plan (RPJMD) and sectoral agency work plans, to ensure alignment with development priorities. At the same time, project developers should engage actively in joint planning and transparent reporting, while subdistrict and village governments function as intermediaries that articulate community needs and translate them into coherent program designs.

In addition, the establishment of transparent monitoring and evaluation systems based on measurable and verifiable indicators is essential to ensure that socio-economic impacts are both tangible and accountable. Such systems enable evidence-based assessment of outcomes and support continuous improvement in program design and implementation. Overall, integrated and performance-based CSR governance will be a key determinant of the extent to which CSR funds can function as a strategic instrument to promote inclusive and sustainable local economic transformation.

#### **7.4.6 Assessment of Gender Equality and Social Inclusion (GESI)**

The Gender Equality and Social Inclusion (GESI) assessment indicates that the wind power project is located in an area characterized by relatively high socioeconomic vulnerability, underscoring the strategic importance of integrating gender equality and social inclusion

principles throughout project implementation. According to Asian Development Bank (ADB) assessment documents, groups requiring particular attention include landowners and tenant farmers, women, and persons with disabilities. The Tolo I Wind Farm is classified as having no impacts on indigenous peoples. Although women constitute approximately 20% of the workforce and benefit from protection policies and workplace violence prevention training, further strengthening of women's empowerment is needed, particularly by expanding women's participation in non-administrative roles and improving access to employment opportunities with greater economic returns.

FGD results indicate that company initiatives—such as digital skills training, support for business legal certification, and assistance for artisans with disabilities—have established an initial foundation for strengthening social inclusion at the community level. The provision of free early childhood education services for vulnerable families further contributes to long-term improvements in welfare and human capital development. However, to deepen and scale these impacts, GESI principles need to be more systematically mainstreamed into job design, benefit-targeting mechanisms, and empowerment strategies at both individual and household levels. This approach is expected to ensure a more equitable distribution of project benefits while enhancing the long-term economic and social sustainability of communities surrounding the wind farm.

#### **7.4.7 Assessment of EDT Potential in the Tolo, Jeneponto**

The EDT potential assessment findings were developed through household surveys and consultations, including in-depth interviews and FGDs with stakeholders, complemented by qualitative analysis to identify strategic opportunities. The approach focuses on practical opportunities that are relevant to local conditions. The review covers sectors with growth potential, maps pathways to regional competitive advantage, identifies scope for deploying technology and innovation, and gauges the human capital on hand. By integrating local strengths, development aspirations, and future prospects, the assessment provides a contextual, forward-looking, and actionable roadmap for EDT development in Tolo, Jeneponto.

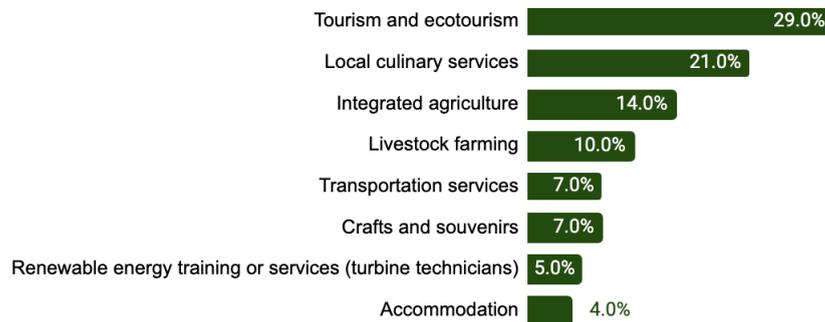
##### **7.4.7.1 Potential for Integrated Tourism Development**

Renewable-energy-based tourism represents a promising pathway for advancing EDT in Jeneponto Regency. This opportunity builds on the Tolo Wind Power Plant as a dual-function asset that serves not only as energy infrastructure but also as a tourism destination with recreational, educational, and economic value. The integration of tourism with natural assets, local culture, and renewable energy landscapes positions this sector as a strong EDT candidate, supporting the transition toward a more service-oriented and innovation-driven local economy.

The Tolo Wind Farm has emerged as a prominent tourism icon in Jeneponto Regency, attracting a substantial number of visitors, particularly on weekends. The ADB's 2021 Environment and Social Monitoring Report (ESMR) highlights this trend, noting consistently high tourist numbers despite the absence of formal commercial management. In response to growing public interest, the project developer has built a public park adjacent to one turbine, serving as a recreational and educational facility for local residents, schools, and general visitors. Meanwhile, the Jeneponto Tourism and Culture Office has initiated plans to formally

integrate the wind farm into the district’s tourism master plan, linking it with nearby natural attractions such as Boro Waterfall and Je’ne Ariba, as well as cultural and sporting events, including the Dandim Cup horse race and the Jeneponto Run, which have utilized wind farm access roads to promote renewable energy-based edutourism.

Institutional readiness and the distinctive landscape of the wind farm further strengthen the prospects for renewable energy-based edutourism. Planned initiatives to open one turbine as a visitor center demonstrate a clear commitment to experiential renewable energy education. From elevated vantage points, rows of turbines set against agricultural land create a signature visual identity that delivers a tourism experience unavailable elsewhere. Household survey results (Figure 7.4-15) also identify tourism—including ecotourism and edutourism—as the most frequently proposed development sector by local communities, reflecting strong demand for landscape-based tourism development.



Source: Household survey (2025), processed

**Figure 7.4-15 Perceptions of Potential Business Sectors Around the Project**

Beyond its recreational and educational functions, tourism development surrounding the wind farm creates opportunities for a tourism service value chain with direct economic spillovers for local actors, particularly MSMEs. Household survey results identify local cuisine as the second most promising development sector (21%), indicating strong potential for culinary businesses to grow alongside renewable-energy-based educational tourism. This opportunity aligns with the Cooperative and MSME Agency’s plan to establish MSME galleries as centers for local souvenirs and products. These sectors resonate with Jeneponto’s EDT potential assessment, which highlights integrated ecotourism development as a strategic pathway for regional economic transformation.

The project developer’s existing MSME programs—ranging from training in traditional food production to support for disability groups engaged in crafting wind turbine miniatures—have yielded distinctive products with high potential as green-energy-themed souvenirs. Beyond the wind farms themselves, Hasanuddin University academics also recommend experience-based tourism leveraging local assets, including Jeneponto’s culinary specialties, activities linked to horse breeding, and fishing-based attractions. A comprehensive approach to tourism development of this kind can deepen community participation while stimulating the growth of complementary services, such as homestay accommodations and other visitor-oriented enterprises.

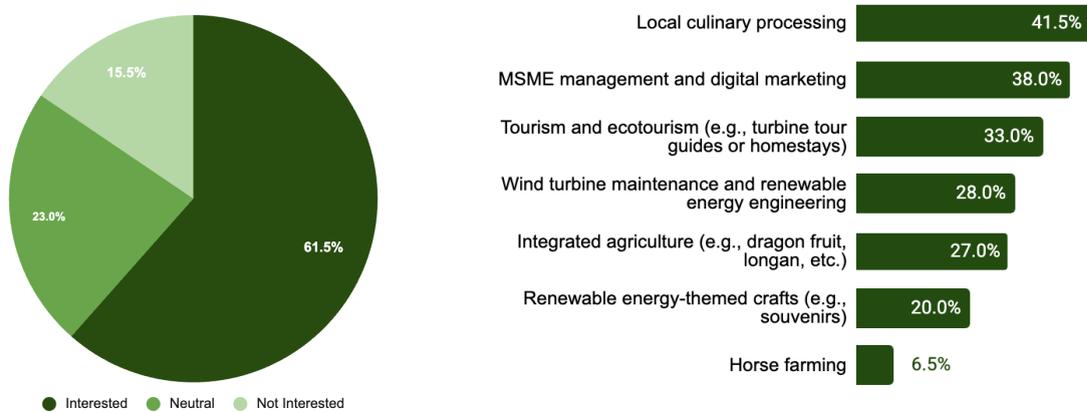
Thus, the convergence of the Tolo Wind Farm’s iconic regional appeal, empirically demonstrated tourism demand, stakeholder readiness, and opportunities for local value creation positions renewable energy-based edutourism as one of the most strategic EDT

development sectors in Jeneponto. This pathway enables the way for a service-based economic transformation driven by innovation and community empowerment while maximizing the socioeconomic benefits of existing renewable energy infrastructure.

### 7.4.7.2 Human Resources Development

#### 7.4.7.2.1 MSMEs Capacity Building

Leveraging EDT through MSME empowerment and agricultural modernization presents a strategic development pathway for Jeneponto Regency. This approach emphasizes value addition within existing economic sectors while simultaneously fostering new sources of growth to enhance household economic resilience. Such a strategy is particularly critical given the region’s strong dependence on rain-fed agriculture, which remains highly susceptible to climate variability and income volatility.



Source: Household survey (2025), processed

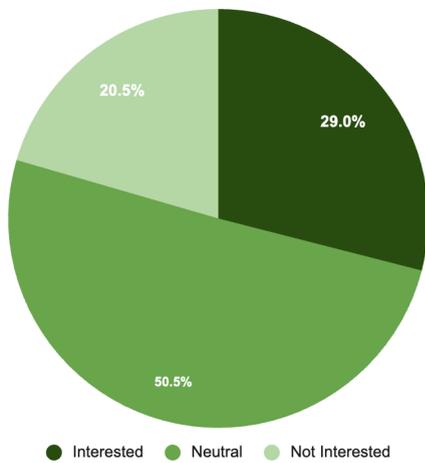
**Figure 7.4-16 Interest in Joining Capacity Building Program**

**Figure 7.4-17 Most Preferred Types of Training Among Respondents**

Household survey results indicate strong interest among respondents in skills and capacity-building programs (Figure 7.4-16), with the highest demand concentrated on local culinary processing as well as MSME management and digital marketing training (Figure 7.4-17). This preference pattern indicates that Tolo residents possess a pragmatic awareness of feasible multiplier economic opportunities arising from the wind farm’s presence, particularly in sectors that can expand alongside increasing visitor flows to the renewable energy tourism area. Overall, these findings confirm the existence of social capital—in the form of community awareness, motivation, and readiness—that provides a solid foundation for the implementation of more structured and targeted skills development programs.

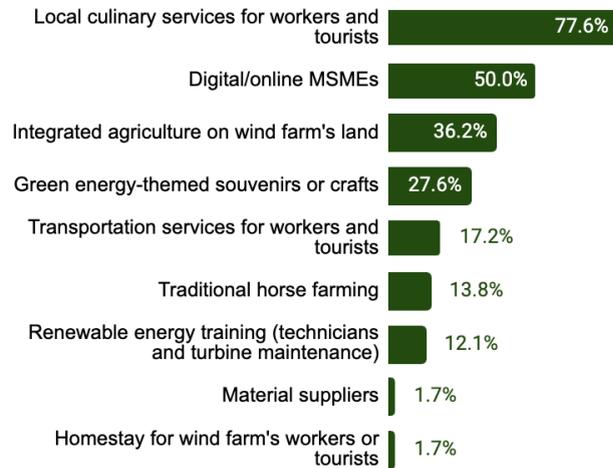
To translate community enthusiasm into productive economic activity, project developers need to collaborate intensively with local governments in implementing targeted MSME empowerment initiatives. Existing programs such as entrepreneurship training, business legality mentoring, and introductory digital marketing support should be expanded in partnership with the Cooperative and MSME Office to reach direct beneficiaries and potential MSMEs in surrounding areas. Institutional strengthening is critical, as the primary

challenges to MSME integration into the wind power plant supply chain extend beyond skill gaps to include low levels of business formalization and information asymmetry regarding procurement opportunities. Overall, consolidating empowerment programs within a multi-stakeholder coordination framework will accelerate local MSMEs' readiness to participate in Jenepono's growing renewable energy tourism value chain.



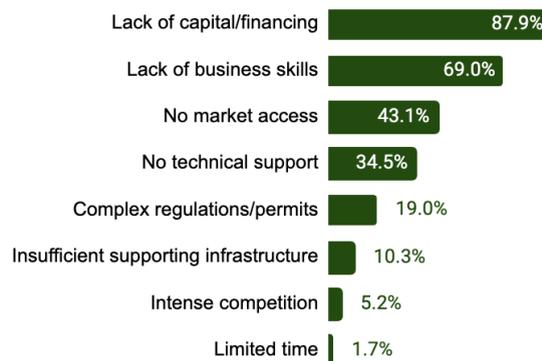
Source: Household survey (2025), processed

**Figure 7.4-18 Interest in Developing Businesses**



**Figure 7.4-19 Types of Businesses Most Preferred by Respondents**

The consistent public preference for the local culinary sector, both as a training choice and as a business type to develop (Figure 7.4-18), confirms this sector has the most realistic growth potential in the short term. Local cuisine faces relatively low implementation barriers, leverages existing domestic skills within communities, and benefits from an emerging market as weekend visitor traffic to the wind farm area increases. The operational plan for a visitor center featuring an MSME product exhibition space further strengthens this prospect by providing direct distribution channels for local food and craft businesses. Thus, developing an integrated culinary business cluster connected to the wind farm's edu-tourism destination could catalyze faster economic circulation in Tolo and surrounding areas.



Source: Household survey (2025), processed

**Figure 7.4-20 Obstacles in Business Development**

However, the translation of expressed interest into actual business activity remains constrained by interconnected structural challenges (Figure 7.4-20). Capital

Disclaimer: This document forms part of the Indonesia Just Energy Transition Partnership (JETP) thematic reporting. It does not constitute a legally binding document. It is a strategy document that the Government of Indonesia may use as a basis for power sector planning and policymaking as part of the JETP process. For more information about JETP Indonesia, please refer to the [2023 Comprehensive Investment and Policy Plan](#) (CIPP) and [2025 Progress Report](#). The CIPP is a document for the implementation of the [Joint Statement](#) agreed in November 2022.

constraints—identified as the most prevalent challenge—are closely associated with low levels of business formalization, as only around one in ten MSMEs hold formal permits. This limits access to bank financing and government microcredit schemes. Concurrently, weak managerial capacity reduces entrepreneurs' ability to prepare viable business proposals and meet administrative requirements to become project suppliers. These mutually reinforcing constraints mean that partial interventions, such as providing capital without mentoring or training without assured market access, are unlikely to be effective. Integrated strategies that combine capacity building, formalization support, and market access are therefore essential to transform local entrepreneurial potential into sustainable economic activity.

#### **7.4.7.2.2 Human Resource and Workforce Capacity Building**

Strengthening local human resource capacity through education–industry partnerships represents a strategic pathway to advance economic diversification and transformation in Jenepono Regency. Sustainable transformation is contingent upon the ability of the local workforce to assume productive and skilled roles within the expanding renewable energy sector, which continues to face shortages of qualified labor. Accordingly, human resource development serves a dual function by addressing immediate industry needs while building long-term local competitiveness and resilience.

Ongoing internship and training programs provide a solid foundation for strengthening local capacity development. However, consultations with government stakeholders indicate the need for more formalized collaboration with project developers to design industry-relevant technical and non-technical training and to better align curricula with actual labor market demands. Over the longer term, the establishment of energy-focused vocational institutions and the expansion of access to higher education will be critical for cultivating advanced skills and sustaining workforce competitiveness in the renewable energy sector.

Labor mobility within renewable energy projects also requires targeted and systematic intervention. At present, most local workers remain concentrated in low-skilled positions, which constrains both productivity and income prospects. Stakeholders emphasize the importance of professional training and technical certification to enable progression into supervisory and managerial positions. Existing programs, such as training in medium-voltage systems, substation operations, and occupational safety, represent important initial steps but remain limited in scale and coverage.

Taken together, current workforce development initiatives demonstrate that Jenepono has a viable social foundation to support EDT. Strengthening linkages among educational institutions, local government, and industry actors can foster a more adaptive, skilled, and competitive labor ecosystem. Such an integrated approach is essential to ensure that local communities are not only participants in the future growth in the renewable energy economy but also its primary beneficiaries.

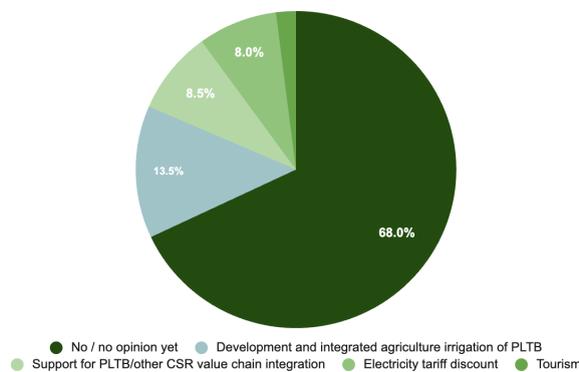
#### **7.4.7.3 Technology Innovation and Integration**

##### **7.4.7.3.1 Modern Agricultural Development**

Interviews and FGDs identify agricultural modernization as a core strategy for strengthening Jenepono's economy under arid climatic conditions. The integration of wind energy with

modern irrigation systems is viewed as critical for enhancing water resilience, particularly through the use of renewable-powered pumps, automated monitoring technologies, and improved water storage infrastructure. These interventions enable more efficient water distribution, reduce reliance on rainfall, and support the transition toward higher-value and more climate-resilient cropping systems.

The demonstration plot program illustrates the potential for land located between wind turbines to function as living laboratories for agricultural innovation and farmer learning. Stakeholder discussions also highlight complementary initiatives, such as the conversion of agricultural residues into compost, which improve soil fertility while reducing operational risks associated with open burning in proximity to wind farm infrastructure. This integrated and circular approach improves land-use efficiency and offers a scalable model for sustainable agriculture that aligns traditional practices with the benefits of renewable energy development.



Source: Household survey (2025), processed

### Figure 7.4-21 Perceptions of Business Opportunities Supported by or Related to Renewable Energy

In this regard, public perception and community interest are well aligned. According to the household survey, 13.5% of all respondents expressed interest in developing irrigation systems integrated with wind power (Figure 7.4-21). Project developers further assess that this need for agricultural electrification could be effectively addressed through the deployment of portable solar power systems, particularly to support water pumping for irrigation purposes.

The urgency of modernizing Jenepono's agricultural sector is underscored by the convergence of three key findings from the FGDs. First, the continued reliance on rain-fed farming constrains productivity. FGD participants emphasized that rainfall typically occurs for only around three months per year, making access to reliable water the most limiting factor, especially for farmers without water storage systems or electric pumps. Second, the community's economic capacity remains weak, with most households reporting monthly incomes of approximately IDR 1–2 million and local businesses dominated by micro-scale units. Third, the presence of Tolo 1 Wind Farm has yet to be linked to residents' economic needs. Discussions with academics and local officials also revealed opportunities to harness the wind farm's energy for subsidized electric water pumps and for constructing village-level

groundwater reservoirs near the project as practical interventions to address prevailing irrigation problems.

Based on these findings, agricultural modernization in Jeneponto should be pursued through three integrated and mutually reinforcing agendas. First, productivity improvements can be achieved through the testing of dryland-adaptive crop varieties and the adoption of renewable-energy-based irrigation systems, which can generate spillover effects across the agricultural value chain. Second, diversification into higher-value horticultural commodities such as dragon fruit and longan is considered well suited to local soil conditions and holds significant potential to increase farm incomes. Third, value addition should be strengthened through targeted MSME training in product processing and business management, in response to strong community demand. Linking these processed products to the wind farm visitor center would establish a direct and visible economic connection between renewable energy development and local livelihoods.

#### **7.4.7.4 Governance and Policy**

Interview and FGD findings indicate that centralized governance of the wind farm constitutes a significant constraint on maximizing economic benefits for surrounding communities. Within Indonesia's national electricity system, PLN retains exclusive authority over transmission, distribution, and electricity sales, while the Tolo 1 Wind Farm, as an Independent Power Producer, is contractually limited to selling electricity to PLN under a power purchase agreement. Consequently, the project developers have no mandate to influence local electricity distribution, despite strong demand from communities and local governments for reliable power to support productive activities such as crop processing, storage, and irrigation.

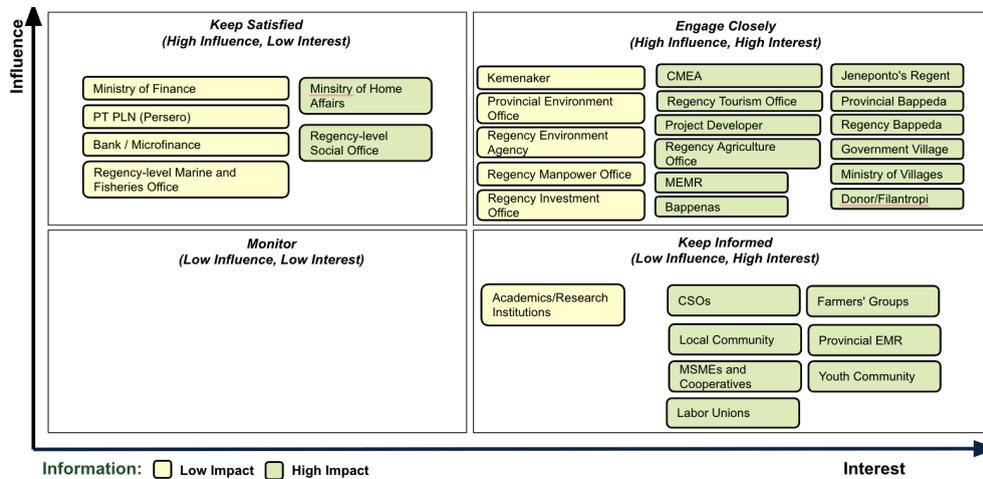
To address this gap, a targeted regulatory initiative involving authorized institutions—particularly PLN and the Ministry of Energy and Mineral Resources—is required to improve electricity access for communities in the renewable energy development areas. Within this framework, the wind farm developer would not incur additional costs and would serve primarily in a facilitative and informational role. This role could include supporting the identification of households located within the turbine development corridor (Ring 1) to inform policy implementation and service delivery.

Reliable access to electricity for cold storage and irrigation pumps is widely regarded as critical for addressing water scarcity and persistent productivity constraints, particularly in the context of Jeneponto's prolonged dry season. Interview results confirm that improved power access could significantly reduce production costs, enhance economic resilience, and mitigate the risk of crop failure. Consequently, strengthening power availability is expected to amplify the local economic benefits of renewable energy development.

#### **7.4.8 Stakeholder Mapping**

An assessment of the interest, influence, and impact (3i) of stakeholders in the implementation of EDT for the Tolo I Wind-Power Project is presented in Figure 7.4-22. Stakeholder mapping constitutes a strategic foundation for effective collaboration, efficient resource allocation, and the long-term sustainability of EDT outcomes. Evidence derived from document reviews, interviews, and FGDs with village and sub-district officials, district authorities, and wind-farm developer representatives indicates that relevant actors can be

systematically classified into six distinct stakeholder groups. Each group exhibits varying levels of interest, influence, and exposure to project impacts, thereby necessitating differentiated and context-specific engagement approaches.



Source: FGD and in-depth interview results (2025), processed

**Figure 7.4-22 Stakeholder Mapping for EDT in Jeneponto Area**

The first group, **Interested, Influential, and Impacted**, consists of actors with high levels of interest, influence, and exposure to EDT outcomes at the Tolo I Wind Farm. This group constitutes the core of project governance, as its members possess decision-making authority, exert substantial influence over implementation processes, and are institutionally affected by EDT-related decisions. Consequently, their active engagement is essential for setting strategic direction and ensuring the effective realization of EDT objectives.

At the national level, the Coordinating Ministry for Economic Affairs provides overarching macro-policy direction for the green economic transition and ensures cross-ministerial coordination<sup>13</sup>. The Ministry of Energy and Mineral Resources is expected for establishing technical standards for wind power development, regulating tariffs and incentives, and enforcing compliance with sectoral regulations<sup>14</sup>. Lessons learned from the Economic Development Transformation (EDT) of the Tolo I WPP can serve as valuable references for the National Development Planning Agency in formulating the national development agenda, including the development of policy frameworks, cross-sectoral coordination, and the monitoring of renewable energy projects' contributions to development indicators. The Ministry of Villages and Development of Disadvantaged Regions supports village-based economic initiatives, including village-owned enterprises and tourism models linked to wind farm infrastructure<sup>15</sup>.

At the provincial and district levels, the Regent of Jeneponto holds political and administrative authority to direct regional budget allocations toward MSME development,

<sup>13</sup> Coordinating Minister for Economic Affairs Decree No. 141 of 2025 on the Energy Transition and Green Economy Task Force, Presidential Regulation No. 143 of 2024 on the Coordinating Ministry for Economic Affairs

<sup>14</sup> Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply, Minister of Energy and Mineral Resources Regulation No. 10 of 2025 on the Energy Transition Roadmap

<sup>15</sup> Law No. 3 of 2024 on Villages, Minister of Villages, Development of Disadvantaged Regions, and Transmigration Regulation No. 7 of 2023 on Priorities for the Use of Village Funds

supporting infrastructure, and social stability in the project area<sup>16</sup>. Provincial and district development planning agencies align spatial planning (RTRW) with green economy objectives, managing land-use risks, and mainstreaming EDT targets into formal planning documents that shape bureaucratic performance and accountability<sup>17</sup>. Meanwhile, the Tourism and Culture Department can expand local economic opportunities through educational tourism initiatives, while the Agriculture Department can promote high-value commodity diversification and integrated farming systems to improve productivity.

At the village level, village governments play a central role in coordinating EDT implementation and acting as intermediaries between local communities, regional authorities, and project developers. Their responsibilities include facilitating village-level deliberations on benefit-sharing arrangements, local labor recruitment, and the management of community expectations related to project outcomes. Wind-farm developers are also integral members of this core group, given their operational licenses, financial and technical exposure, and influence derived from control over capital and technology. Donor agencies and philanthropic organizations complement these actors by providing technical assistance, grant financing, and programmatic guidance aligned with international best-practice standards.

The second group, **Interested Influencers**, consists of actors with high levels of interest and influence but limited authority over core institutional decision-making. These actors typically hold sector-specific mandates related to labor regulation, business licensing, or environmental oversight. Key actors include the Ministry of Manpower<sup>18</sup> and the District Manpower and Transmigration Office, which play central roles in employment generation, labor protection, and occupational safety standards, alongside provincial and district environmental agencies expected to mitigate ecological risks from new economic activities, as well as the Investment Office and One-Stop Integrated Service, which regulate licensing processes and facilitate investment flows that support local economic growth.

The third group, **Uninterested, Influential, and Impacted**, includes actors with substantial influence and exposure to EDT outcomes but limited interest in the renewable-energy transformation context. Their involvement is largely structural and reactive, shaped by broader institutional mandates rather than sector-specific priorities. The Ministry of Home Affairs, for example, exerts influence through regulatory oversight and local government performance frameworks<sup>19</sup> and is indirectly affected by shifts in regional development indicators associated with EDT outcomes, while the District Social Affairs Office plays a critical role through social protection programs for vulnerable groups affected by unequal access to emerging economic opportunities, even though its primary mandate centers on general poverty alleviation rather than EDT-specific objectives.

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<sup>16</sup> Law No. 23 of 2014 on Local Government

<sup>17</sup> Minister of Home Affairs Regulation No. 86 of 2017 on Procedures for Regional Development Planning, Control, and Evaluation

<sup>18</sup> Law No. 6 of 2023, Presidential Regulation No. 68 of 2022 on the Revitalization of Vocational Education and Training, Government Regulation No. 31 of 2006 on the National Job Training System

<sup>19</sup> Government Regulation No. 12 of 2017 on the Guidance and Supervision of Local Government Administration, Minister of Home Affairs Regulation No. 19 of 2023 on Planning for the Guidance and Supervision of Local Government Administration

The fourth group, **Uninterested Influencers**, consists of stakeholders that exert substantial influence over economic transformation initiatives surrounding the wind-power plant but display relatively low levels of interest and direct exposure to EDT outcomes. This group includes the Ministry of Finance, whose authority over fiscal policy and budget allocation significantly affects the long-term financing environment for EDT initiatives<sup>20</sup>, despite its limited engagement at the project level. The District Office of Marine Affairs and Fisheries also holds influence through spatial planning and coastal area utilization near the project site, although its interest remains limited due to minimal direct impacts on the marine and fisheries sector. PT PLN is another key actor, given its control over the national electricity grid and the integration of wind power into the energy system, although its engagement in local economic development programs remains relatively low<sup>21</sup>. Banks and microfinance institutions likewise fall within this group, as they influence EDT through financing, credit provision, and business development support for MSMEs, despite their indirect engagement with the project area.

The fifth group, categorized as **Interested and Impacted**, comprises actors with high levels of interest and direct exposure to the outcomes of economic transformation and diversification around the Tolo I WPP, but with limited political and institutional influence. This group includes civil society organizations, local communities, MSMEs and cooperatives, farmers' groups, and youth organizations, all of which have strong stakes in EDT initiatives due to their potential to generate new income sources, expand business opportunities, and improve welfare, while also carrying risks such as land-use change and heightened economic competition. The Provincial Energy and Mineral Resources Office is also included in this group, given its interest in energy resource utilization and local value creation from the PLTB project, although its ability to shape cross-sectoral economic programs remains relatively constrained.

The final group, **Only Interested**, comprises actors who demonstrate a high level of interest but possess limited influence and experience minimal direct impact from the implementation of the EDT agenda in the PLTB area. This group primarily includes academics and researchers whose engagement centers on data quality, policy analysis, and research opportunities associated with the energy transition. Although their contributions are valuable for evidence-based learning, policy refinement, and long-term knowledge development, their role remains primarily epistemic and has limited direct effect on program implementation or strategic decision-making within existing institutional and governance frameworks.

#### 7.4.9 Summary of the Findings

1. A review of Just Transition Framework (JTF) Standards 1-8 indicates that the Tolo I Wind Farm largely adheres to just transition principles, as reflected in its strong alignment with ADB and IFC environmental and social safeguards, supported by regular monitoring and public disclosure practices. Social, cultural, and biodiversity risks are assessed as low, given the application of voluntary land acquisition, the absence of impacts on indigenous peoples, the protection of cultural heritage, and the

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<sup>20</sup> Minister of Finance Regulation No. 103 of 2023 on the Provision of Fiscal Support through Financing and Funding Frameworks to Accelerate Energy Transition in the Power Sector

<sup>21</sup> Law No. 30 of 2009 on Electricity, Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply

project's location within a previously modified landscape. Nonetheless, further improvements are still required, particularly in strengthening baseline assessments, clarifying greenhouse gas (GHG) emission reduction targets, and enhancing the rigor and adaptability of biodiversity management planning.

2. Most residents in the Tolo I project area rely on low-productivity agricultural activities, which positions the wind farm as a potential catalyst for expanding local economic opportunities. Through its operational requirements, the project can stimulate increases in regional value added by generating demand for services and strengthening supporting supply chains. These dynamics create scope to align just transition programs with Jenepono Regency's strategy for enhancing Gross Regional Domestic Product (GRDP) and promoting more diversified and resilient economic growth.
3. Given that most technical positions at the wind farm require specialized certification in accordance with turbine safety standards, workforce capacity development remains a critical priority. Integrating vocational education with green-skills training, including operation and maintenance support, sustainable MSME practices, and environmentally responsible agricultural techniques, can enable local workers to access higher-quality employment. Within this context, the JT Framework provides a structured approach for competency mapping and the establishment of formalized certification pathways.
4. The Tolo area continues to experience constraints in electricity access, as the IPP scheme mandates that all wind farm output be delivered to PLN's grid. This situation highlights the need to review existing policies to facilitate productive electricity use by surrounding communities. Addressing this gap aligns with just transition principles, which emphasize the equitable distribution of the benefits of clean energy.
5. Local SMEs surrounding the wind farm show potential for integration into project-related supply chains; however, their participation is constrained by limited access to capital, inconsistent product quality, and insufficient compliance with vendor standards. Targeted business development support, including capacity building, formalization assistance, and quality enhancement can strengthen SME participation in service provision linked to wind farm operations, contributing to sustainable and inclusive regional economic growth.
6. Community members demonstrate strong interest in diverse training programs, including culinary skills, MSME development, and technical competencies relevant to the renewable energy sector. This enthusiasm constitutes a form of social capital that can support expanded economic participation, provided that training initiatives are carefully designed and aligned with opportunities created by the wind farm. Adopting a just transition-oriented approach ensures that community aspirations are matched with emerging labor demand, thereby promoting a more equitable distribution of social and economic benefits.
7. The wind farm area also presents considerable potential for landscape-based wind tourism as an alternative source of local income. Realizing this potential necessitates a sustainable tourism master plan that integrates destination development with existing spatial planning frameworks. Coordinated action between local government and the

project developer can accelerate the structured development of wind tourism and maximize its associated economic benefits.

#### 7.4.10 Proposed EDT Action Plan for Tolo, Jeneponto

Note: The figures presented in the proposed project or program targets are for illustrative purposes only and can be adjusted according to the capacity and preferences of stakeholders.

No.	Proposed Action Plans	Related Stakeholders	Proposed Indicator		Proposed Program/Project Level Target		
			Program/Project Level	National Level	Short-Term	Midterm	Long-term
<b>I. Core Area 1: Economic and Financial Policies</b>							
1	<b>Development of an integrated master plan for renewable energy and tourism, covering infrastructure, community-based tourism principles, revenue-sharing schemes, and marketing strategies.</b>	Jeneponto Local Government (Tourism Office), Project Developer, Community Groups, Local MSMEs, CSOs	Existence of a tourism development master plan  Number of MSMEs integrated into the tourism value chain	Entrepreneurship ratio (%)	Formulation of a regional tourism development master plan	Increase in the number of MSMEs integrated into the tourism value chain from short-term implementation (minimum 5 MSMEs)	Increase in the number of MSMEs integrated into the tourism value chain from medium-term implementation (minimum 10 MSMEs)
2	<b>Establishment of an MSME readiness program to address key obstacles, including information (clear procurement guidelines), capacity (quality training/certification), and capital (financial literacy).</b>	Regency Office of Cooperatives and MSMEs, Project Developer, Local MSMEs and Cooperatives, Commercial Banks/Microfinance Institutions	Percentage of supported MSMEs that have participated in training and obtained business legal documentation	Formulation of a regional tourism development master plan	10% of supported MSMEs have participated in training and obtained business legal documentation	15% of supported MSMEs have participated in training and obtained business legal documentation	20% of supported MSMEs have participated in training and obtained business legal documentation
3	<b>Proposal of regulations from the Ministry of Energy and Mineral Resources/PLN to ensure that communities in renewable energy development areas have access to reliable</b>	Ministry of Energy and Mineral Resources, Project Developer, PLN, Jeneponto Regency Government, Village	Number of MSMEs integrated into the tourism value chain	<ul style="list-style-type: none"> <li>National electrification ratio (%)</li> <li>Percentage of poor and vulnerable households receiving social</li> </ul>	<ul style="list-style-type: none"> <li>Completion of technical study</li> <li>Establishment of regulations governing reliable electricity access for</li> </ul>	Partial fulfillment of total community electricity needs in renewable energy development areas	Fulfillment of community electricity needs in renewable energy development areas

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No.	Proposed Action Plans	Related Stakeholders	Proposed Indicator		Proposed Program/Project Level Target		
			Program/Project Level	National Level	Short-Term	Midterm	Long-term
	electricity.	Governments, Local Communities		assistance (%)	communities in renewable energy development areas		
<b>II. Core Area 2: Human Capital Development</b>							
4	<b>Develop a systematic and gender-responsive talent pool program with industry-standard green job pathways.</b>	Project Developer, Regency Labor Office, Vocational Training Center	Number of local workers trained and certified in wind or green energy jobs	Number of workers whose green competencies are developed (persons)	At least 30 workers trained	At least 50 workers trained	At least 75 workers trained
5	<b>Aligning vocational curricula with renewable energy needs, particularly wind power, through partnerships between WPP, vocational schools, and industry certification bodies.</b>	Regency Labor Office, Vocational Schools, Project Developer, Universities, Women & Youth Groups	Level of achievement and expansion of green education programs with curricula aligned to the needs of the wind power sector and the Indonesian National Work Competency Standards for green jobs	Number of collaborations between associations and business/industry sectors in developing green jobs (partnerships)	Preparation of one draft standardized green jobs curriculum aligned with the needs of the wind power sector and other renewable energy sectors, and the initiation of a pilot implementation at one vocational school or training center	Implementation of regular monitoring and evaluation activities on the application of a standardized green jobs vocational curriculum aligned with the needs of the wind power sector and other renewable energy sectors in order to assess curriculum effectiveness and learners' competency outcomes and to identify areas for improvement for	Achievement of replication and broader adoption of a standardized green jobs vocational curriculum, adapted to the needs of the wind power sector and other renewable energy sectors, across more than one education or training institution, taking into account lessons learned from the initial institution

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No.	Proposed Action Plans	Related Stakeholders	Proposed Indicator		Proposed Program/Project Level Target		
			Program/Project Level	National Level	Short-Term	Midterm	Long-term
						curriculum refinement.	
<b>III. Core Area 3: Innovation and Technology</b>							
6	Implement and expand small-scale renewable energy solutions for community rice field irrigation to address water shortages	Project Developer, Local Government, Academics, Farmer Groups	Scale of implemented irrigation facilities provided	Number of strategic science, technology, and innovation products used by government and communities in priority areas (products)	<ul style="list-style-type: none"> <li>• Publication of the feasibility study</li> <li>• Implementation of irrigation facility innovation trials</li> </ul>	Increased coverage of innovation implementation for community irrigation facilities	Replication and scaling-up of innovation implementation for community irrigation facilities
7	Conduct research collaborations related to the development and implementation of renewable energy and technology programs	Project Developer, Universities/Academics, Research Institutions, Local Government	Number of active research collaborations with published/implemented results	Expenditure on science, technology, and innovation as a percentage of GDP (%)	<ul style="list-style-type: none"> <li>• Publication of at least 1 collaboration agreement</li> <li>• Initiation of research projects</li> </ul>	Implementation of research results at small or pilot scale	Scaling-up implementation in commercial and policy contexts
8	Organize multi-stakeholder coordination forums with clear TOR, defined membership, and public accountability; and implement proactive, multilingual communication strategies to reach all groups	Local Government, Project Developer, Civil Society, Academic & FIs, Central Government	Number of forum meetings held per year	Green economy index	<ul style="list-style-type: none"> <li>• Establishment of a multistakeholder forum with clear TOR</li> <li>• At least 1 meeting held per year</li> </ul>	At least 1 meeting held per year	<ul style="list-style-type: none"> <li>• At least 2 meetings held per year</li> <li>• Full integration of the forum with accountability in regency regulations</li> </ul>

### 7.4.11 Proposed EDT Monitoring & Evaluation for Tolo District, Jeneponto

*Note: The figures presented in the proposed project or program targets are for illustrative purposes only and can be adjusted according to the capacity and preferences of stakeholder.*

No.	Proposed Indicator	Baseline	Proposed Target			Proposed Collection Method	Frequency	Proposed PIC	Relevant Stakeholders
			Short-term	Midterm	Long-term				
<b>1. Core Area 1: Economic and Financial Policies</b>									
1.	<b>Existence of a tourism development master plan</b>	No tourism development master plan	Master plan for tourism development formulated	Master plan for tourism development implemented	Master plan for tourism development fully implemented	Review of master plan documents, Regent regulations, contracts with MSMEs	Annually	Regency Tourism and Culture Office	Jeneponto Local Government (Tourism Office), Project Developer, Community Groups, Local MSMEs, CSOs
2.	<b>Number of MSMEs integrated into the tourism value chain</b>	No MSME integration in formally managed tourism destinations	MSMEs integrated into tourism value chain from short-term implementation (minimum 1 MSME)	Increase in MSMEs integrated from short-term implementation (minimum 5 MSMEs)	Increase in MSMEs integrated from medium-term implementation (minimum 10 MSMEs)	Data collection of MSMEs integrated with destination areas managed by Local Government	Annually	Regency Tourism and Culture Office	Jeneponto Local Government (Tourism Office), Project Developer, Community Groups, Local MSMEs, CSOs
3.	<b>Percentage of supported MSMEs that have participated in training and obtained business legal documentation</b>	Most MSME respondents have low monthly turnover and do not yet possess formal business legal status	10% of supported MSMEs have participated in training and obtained business legal documentation	15% of supported MSMEs have participated in training and obtained business legal documentation	20% of supported MSMEs have participated in training and obtained business legal documentation	Data collection on income increases among supported MSMEs that have participated in training and obtained business legal documentation	Quarterly	Regency Cooperative and MSME Office	Regency Cooperative and MSME Office, Project Developer, Local MSMEs and Cooperatives, Commercial Bank / Local Microfinance Institution

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No.	Proposed Indicator	Baseline	Proposed Target			Proposed Collection Method	Frequency	Proposed PIC	Relevant Stakeholders
			Short-term	Midterm	Long-term				
4.	<b>Fulfillment of electricity access for communities in renewable energy development areas</b>	No mechanism for prioritizing electricity allocation for communities in renewable energy development areas	Completion of technical study and establishment of regulation governing reliable electricity access for communities in renewable energy development areas	Partial fulfillment of total community electricity needs in renewable energy development areas	Fulfillment of community electricity needs in renewable energy development areas	Preparation of regulations and data collection on reliability of electricity supply in Ring 1 villages	Annually	PT PLN (Persero) with Ministry of Energy and Mineral Resources	Ministry of Energy and Mineral Resources, Developer, PLN, Jeneponto Local Government, Village Government, Community
<b>2. Core Area 2: Human Capital Development</b>									
5.	<b>Number of local workforce trained and certified in green job topics</b>	No local green energy certification	At least 30 workers trained	At least 50 workers trained	At least 75 workers trained	Training & certification records, talent pool registry	Quarterly	Regency Labor Office	Project Developer, Regency Labor Office, Vocational Training Center
6.	<b>Level of achievement and expansion of green education programs with curricula aligned to the needs of the wind power sector and the Indonesian National Work Competency Standards for green jobs</b>	No renewable energy-based curriculum development in local vocational schools	Preparation of one draft standardized green jobs curriculum aligned with the needs of the wind power sector and other renewable energy sectors, and the initiation of a pilot implementation at one vocational school or training center	Implementation of regular monitoring and evaluation activities on the application of a standardized green jobs vocational curriculum aligned with the needs of the wind power sector and other renewable energy sectors in order to assess curriculum effectiveness and learners'	Achievement of replication and broader adoption of a standardized green jobs vocational curriculum, adapted to the needs of the wind power sector and other renewable energy sectors, across more than one education or	MoU / partnership agreements	Annually	Regency Labor Office	Regency Labor Office, Vocational Schools, Project Developer, Universities, Women & Youth Groups

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No.	Proposed Indicator	Baseline	Proposed Target			Proposed Collection Method	Frequency	Proposed PIC	Relevant Stakeholders
			Short-term	Midterm	Long-term				
				competency outcomes and to identify areas for improvement for curriculum refinement	training institution, taking into account lessons learned from the initial institution				
<b>3. Core Area 3: Innovation and Technology</b>									
7.	<b>Scale of irrigation facilities implemented through small-scale renewable energy</b>	Not available	Publication of feasibility study and implementation of irrigation facility innovation trials	Increased coverage of innovation implementation for community irrigation facilities	Replication and scaling-up of innovation implementation for community irrigation facilities	Records and documentation of small-scale renewable energy installations	Twice a year	Project Developer and Department of Agriculture	Project Developer, Local Government, Academics, Farmer Groups
8.	<b>Number of collaborative research projects with published or applied results</b>	Not available	Publication of collaboration agreement  Initiation of research projects	Completion of research projects with practical results	Implementation of research results in commercial and policy contexts	Research reports	Once a year	Bappeda and Universities	Project Developer, Universities/Academics, Research Institutions, Local Government
9.	<b>Number of multi-stakeholder coordination meetings held per year</b>	Coordination is still ad-hoc	Establishment of multi-stakeholder forum with clear TOR  At least 1 meeting per year	At least 1 meeting per year	Full integration of the forum with accountability in regency regulations	Meeting activity reports	Every semester	Regency Bappeda	Local Government, Project Developer, Civil Society, Academic & Financial Institutions, Central Government

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## Appendix

### Appendix 1. Sample of Keypoints, Indicators and Mitigations for Standard 1-8 of the JT Framework

Several keypoints outlined in the CIPP 2023 framework can serve as a reference in conducting a gap analysis. Below are the samples of Keypoints, Indicator and Mitigation action from each standard of the JT Framework. These could be used as reference in developing key performance indicators of project implementation.

Keypoints	Indicators	Mitigation Activities
<b>Standard 1: Cultural Heritage</b>		
Protection of tangible and intangible cultural heritage from damage, inappropriate alteration, disruption, removal or misuse	Presence of guidelines to protect and preserve the cultural heritage	Report to relevant authority when cultural heritage is found coincidentally during the project implementation (e.g. follow Chance Finds Procedure).
Preservation, safeguarding, and guarantee of access to cultural heritage		Conduct a Cultural Impact Assessment (CIA) to identify and mitigate any potential damage to cultural heritage.
Meaningful socialization and consultation regarding the utilization and management of cultural heritage	Number of engagement to impacted stakeholders including traditional authorities, custodians of cultural heritage, local communities, and customary community to ensure the preservation and protection of cultural heritage	Identify relevant impacted stakeholders
		Conduct consultations with stakeholders to understand their interests, concerns, and expectations on the use and protection of cultural heritage.
	Presence of benefit-sharing arrangements from the use of cultural heritage	Document consultation processes and agreements, and ensure they are accessible to involved communities.
		Develop and implement benefit-sharing models where appropriate (e.g., revenue-sharing, employment opportunities, co-management plans)
<b>Standard 2: Displacement and Resettlement</b>		
Prohibition of forced evictions and promotion of voluntary resettlement	Presence of Land Acquisition and Resettlement Plan (LARAP), including legal basis and livelihood restoration measures	Develop LARAP which includes livelihood restoration.
Adherence to appropriate law for the resettlement process		Ensure LARAP complies with national and international laws.
		Establish internal compliance checks.
Avoidance (and when avoidance is not possible, minimization) of social and economic impacts from land or resource acquisition or restrictions on land or resource use	Number of noncompliance and mitigation plans related to displacement and resettlement, including incidents affecting access to resources or livelihoods	Identify at-risk populations and conduct socio-economic impact assessments prior to land acquisition.
		Monitor and document cases of livelihood/resource access

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Keypoints	Indicators	Mitigation Activities
		disruption and apply corrective measures.
	Number of complaints handled through grievance mechanisms	Develop accessible and acceptable grievance mechanisms to address any complaints related to displacement and resettlement.
Enhancement and restoration of the livelihoods of all displaced persons, to pre-displacement levels or better	Number of communities that have been satisfied by the implementation of LARAP including the housing, services, and livelihoods restoration.	Conduct evaluation of communities that have been previously displaced and define ongoing obligations to ensure full livelihood restoration.
Improvement of the standards of living and overall socioeconomic status of displaced poor and other displaced groups		Ensure resettlement sites meet minimum standards for housing, infrastructure, and basic services.
Efforts to progressively realize the rights to adequate housing and adequate standards of living for displaced populations		
Planned resettlement activities that are implemented collaboratively with the meaningful and informed participation of those affected.	Presence of inclusive stakeholder engagement where impacted communities were involved in the process	Develop inclusive stakeholders engagement, such as an open and inclusive community dialogue to foster understanding and identify sustainable solutions agreed by the members of affected communities.
		Ensure free, prior, and informed consent (FPIC) where applicable.
<b>Standard 3: Local and Customary Communities</b>		
Recognize and foster respect for customary communities' human rights as recognized under Applicable Law, including but not limited to their rights to self-determination, their lands, resources and territories, traditional livelihoods and cultures	Presence of awareness and training programs to ensure the rights of local and customary communities are respected during energy projects	Develop and enforce awareness and training initiatives to protect the rights of customary communities, particularly on land tenure, cultural heritage, and resource use.
Promotion and protection of customary rights, through implementation of domestic laws, policies, and project activities consistent with the State's human rights obligations		Coordinate with human rights bodies and customary leaders to ensure rights-based approaches.
Involvement of customary communities participation and supervision over developments affecting them	Number of affected groups and customary people involved in meaningful participation and consultation processes	Implement and maintain transparent public consultation and engagement processes and document how inputs are integrated into project design.
	Number of grievances and concerns raised by local and customary communities that have been resolved through a fair and transparent grievance mechanism	Ensure accessible and culturally appropriate grievance redress mechanisms.
		Provide transparent updates to communities on common concerns raised and how quickly they are resolved.
Avoidance (and if not possible, mitigation) if adverse impacts on their rights, lands, territories, resources	Presence of impact assessment and mitigation plan specific to local and customary communities	Identify potential adverse impacts through participatory mapping and impact assessment.

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Keypoints	Indicators	Mitigation Activities
		Develop and implement culturally appropriate mitigation measures.
Provide just and equitable benefits and opportunities for local and customary communities in a culturally appropriate manner	Presence of on-the-job training, capacity-building, and educational programs for local and customaries.	Develop on-the-job training and capacity-building programs in consultation with local leaders.
	Number and percentage of employees from local and customary communities working in the project.	Create a database of labor from local and customary communities, conduct skill matching, and prioritize locals in recruitment.
	Number of positive perceptions and impacts on social equity (e.g., family income, education, housing, health, living environment)	Conduct surveys to monitor social equity impacts.
<b>Standard 4: Labour and Working Conditions</b>		
Promotion of fair treatment, nondiscrimination, and equal opportunity of workers	Number of workers receiving gender equality and anti-gender-based violence (GBV) training	Provide training to project staff on gender equality, GBV prevention, and inclusive hiring practices.
Establishment, maintenance, and improvement of the worker-management relationship	Number of engagements and consultations conducted through worker-management dialogue mechanisms	Establish and maintain inclusive and structured worker-management dialogue mechanisms that enable all workers to express concerns, give feedback, and take part in decisions affecting their working conditions.
Compliance with national employment and labor laws	Existence of a worker-centered compliance and grievance mechanism that ensures fair treatment, legal protection, and safe working conditions for all workers	Establish a worker grievance mechanism that is confidential, accessible, and inclusive of women, migrant workers, and persons with disabilities Regularly review labor law compliance through internal audits and include results in joint meetings between management and worker representatives.
	Number of workers informed of their rights and responsibilities	Conduct awareness sessions on labor rights, contracts, and entitlements.
Protection of workers, including vulnerable categories such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain	Number of complaints or reported incidents related to labor rights violations involving children, migrant workers, third-party workers, or supply chain workers	Regularly monitor and report labor conditions, including any grievances and incidents, across the project and its supply chain.
	Percentage of third-party contractors and suppliers assessed for compliance with labor standard	Conduct due diligence to assess labor practices across contractors and suppliers.
Promotion of safe and healthy working conditions, and the health of workers	Availability of Occupational Health & Safety (OHS) Standard Operating Procedures (SOP)	Develop and distribute OHS SOPs to all workers
	Number of safety audits conducted	Conduct periodic OHS audits
	Number and rate of workplace injuries, illnesses, and fatalities	Implement incident reporting and corrective action procedures

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Keypoints	Indicators	Mitigation Activities
	Number of workers trained in general and specific workplace hazards	Conduct regular safety briefings and training.
Avoidance of the use of forced labor	Presence of policies explicitly prohibiting forced labor in contracts and procurement standards	Integrate anti-forced labor clauses into all employment and supplier contracts.
	Number of audits or inspections identifying and addressing forced labor risks, including implementation of training programs to raise awareness and strengthen prevention among workers and management	Conduct periodic labor audits and spot checks focused on identifying forced labor practices. Provide training for employers and contractors on recognizing and preventing forced labor.
Protection of workers in disadvantaged and vulnerable situations (including a special focus, as appropriate, on women workers, young workers, migrant workers and person(s) with disability)	Presence of gender-responsive recruitment policies	Implement and enforce gender-responsive recruitment policies
	Increase in participation of women in low-carbon vocational training programs	Promote and support participation of women and marginalized groups in low-carbon technology training programs.
<b>Standard 5: Biodiversity Conservation and Sustainable Natural Resource Management</b>		
Protection and conservation of biodiversity and ecosystem services, including required remediation and rehabilitation	Existence of a biodiversity management or action plan for projects in or near critical habitats, protected areas, or conservation areas.	Develop, implement, and regularly update a biodiversity management plan aligned with international best practices (e.g. IFC PS6), including provisions for habitat remediation and rehabilitation.
	Number of biodiversity monitoring and reporting activities conducted during project implementation.	Conduct regular biodiversity monitoring throughout the project lifecycle.
Maintenance and enhancement of the benefits of ecosystem services	Assessment of ecosystem services prior to project development, including mapping and stakeholder input.	Integrate ecosystem services valuation into environmental and social impact assessments (ESIAs) and decision-making processes.
	Number of community consultations addressing impacts on ecosystem services.	Conduct participatory assessments to identify community dependence on ecosystem services and design measures to prevent or mitigate negative impacts
Promotion of sustainable management and use of living natural resources	Number of local or community-based initiatives supported for sustainable natural resource use.	Support capacity-building programs and partnerships with local groups to promote community-led natural resource management
Respect, preserve, maintain and encourage knowledge, innovations and practices of local/customary communities relevant for the conservation and sustainable use of biodiversity and their customary use of biological resources	Number of participatory engagements with local/customary communities on biodiversity knowledge,	Engage local/customary communities in documenting traditional ecological knowledge and integrate this into biodiversity planning, for example through joint biodiversity monitoring programs
<b>Standard 6: Climate Change and Disaster Risks</b>		
Ensure sensitivity and implement adaptive measures to reduce the severity of climate change and disaster risks	Number of disaster risk protocols in place (e.g., master plan, early warning systems, safety signage).	Develop and enhance disaster risk management protocols, including early warning systems and signage.

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Keypoints	Indicators	Mitigation Activities
Reduction of project-related GHG emissions and intensity	Total GHG Emissions	GHG Emission reduction program
<b>Standard 7: Community Health, Safety and Security</b>		
Anticipation of adverse impacts on the health and safety of affected communities from both routine and non-routine circumstances,	The monitoring result not above the threshold	Presence of monitoring of ESMP, including placement of equipment to reduce pollution, landscape barrier to minimize dispersion and Community Health and Safety Management Plan
Ensure quality and safety in the design and construction of infrastructure, preventing and minimizing potential safety risks and accidents	The SOP for safety including the Hazid and Hazop are provided and appropriate	Establish quality and safety guidelines in the design and construction of infrastructure, preventing and minimizing potential safety risks and accidents,
Avoidance or minimization community exposure to hazards, diseases and hazardous materials associated with their activities	Number of community incidents reported by the project; and the SOP provided	
Safeguarding of personnel and property to minimize risks to communities and is carried out in accordance with international human rights standards and principles,	Number of Security personnel incidents reported by community members related to the project (e.g., theft, vandalism, or other criminal activities).	Train the Security personnel in among others, Human Right, and local wisdom
Reduction of emergency conditions caused by human-made or natural hazards.	Number of disaster risk protocols which included the surrounding communities are in place (e.g., master plan, early warning systems, safety signage).	Develop and enhance disaster risk management protocols, including early warning systems and signage which involving community
<b>Standard 8: Pollution Prevention and Resource Efficiency</b>		
Avoidance or minimization adverse impacts on human health and the environment by avoiding or minimizing pollution to land, water, and air (including noise, vibration) from project activities	Quality of water, effluent, noise, emissions	Achieve compliance with land, water, air, and noise pollution management regulations
	Presence of safeguards to minimize pollution to land, water, and air (including noise, vibration) from project activities	Provide SOP for pollution prevention
Promotion of circular economy approach for more sustainable use of resources, including energy, land and water	Total energy, land, and water usage	Make a program in energy, land, and water usage efficiency
Avoidance or minimization emissions of short and long-lived climate pollutants and ozone-depleting substances	Number of program to reduce the usage of short and long-lived climate pollutants and ozone-depleting substances	Change equipments or reduce the usage of short and long-lived climate pollutants and ozone-depleting substances
Avoidance or minimization of hazardous, non-hazardous substances and wastes generation, as well as promotion of safe, effective, environmentally sound waste management	Total weight of waste generated in metric tons, and a breakdown of this total by composition of the waste.	Promote and adopt safe, effective, and environmentally sound waste management practices

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## Appendix 2 Standard 9 Operationalization Checklist and Templates

### Appendix 2.1 Assessment of EDT Potential Checklist

No.	Activity	Status	PIC	Start Date	Date of Completion	Remarks
1	Define scope of assessment	Ongoing	Ms. Putri	10/10/2025	10/11/2025	Pending approval from the Department Head
2	Assess current condition	...	...	...	...	...
3	EDT potential assessment	...	...	...	...	...
4	Stakeholder mapping	...	...	...	...	...
5	Stakeholder engagement plan	...	...	...	...	...
6	EDT actions prioritization	...	...	...	...	...
7	Stakeholder and community consultation*	...	...	...	...	...
7.1	Stakeholder and community consultation 1	...	...	...	...	...
7.2	Stakeholder and community consultation 2	...	...	...	...	...
7.3	Stakeholder and community consultation n	...	...	...	...	...
8	Stakeholder input integration for prioritization	...	...	...	...	...
9	Support from JT Enablers	...	...	...	...	...
10	Stakeholder engagement to strengthen JT Enablers	...	...	...	...	...
11	EDT draft action plan	...	...	...	...	...
12	Stakeholder consultation of draft action plan	...	...	...	...	...

\*) Users may add more rows as needed.

	Explanation
<b>Status</b>	Users may input "Planned" "Ongoing" "Completed" or "Delayed" based on the status of each step mentioned in the "Activity" column. If the status is delayed, concrete next steps can be determined to move the activity forward.
<b>PIC</b>	The name of the Person in Charge (PIC) of the completion of the activity.
<b>Start Date</b>	The planned start date of the activity. Use the format DD/MM/YYYY (e.g., 01/07/2025).
<b>Date of Completion</b>	The planned completion date of the activity can be provided. Users may consider a realistic timeframe for each activity. Use the format DD/MM/YYYY (e.g., 01/07/2025).
<b>Remarks</b>	Include details on the status of the activity. For example, if the activity is ongoing, specify the progress made and any remaining tasks to be completed before the status can be changed to "Completed."

## Appendix 2.2 Stakeholder Engagement Plan Template

No.	Stakeholder	Category	Stakeholder type*	Key Reason to engage	Key message	Frequency of communication	Timeline	Communication method	Contact Person
1	Head of the local cooperatives	Local Community	Interested and impacted	The local cooperatives are starting to sell local produce, which can be an alternative source of income for the community. Would require constant communication to understand changes in needs due to fluctuations in local demand and the need for knowledge transfer / capacity building	Understanding the needs of the local cooperatives to be able to scale-up their business and informing them of the potential benefits of diversifying their income source to move the community away from fossil fuel-related jobs in their area.	Weekly meetings	November 2025-December 2026	Face-to-face meetings	Mr. Budi as the Head of the Local Cooperative at (+628xxxxxx)
2	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...

\*) Refer to the 3i analytical framework and stakeholder typology to help develop engagement strategies.

	Description
<b>Stakeholder</b>	The name of the specific group of stakeholders involved. For example, the name of the provincial government, the specific name of the financial institution engaged with ('Bank XYZ'), or the name of the name of the worker union involved.
<b>Category</b>	The group the specific stakeholder belongs to. For example, if the user engages with a bank, the category to be written would be "financial institution".
<b>Stakeholder Type</b>	Categorize the stakeholder's typology based on the 3i Analytical Framework. Refer to Table 4-8 Stakeholder Typology based on the 3is as reference on how to engage with each stakeholder based on each stakeholder's influence, interest and impact.
<b>Key Reason to engage</b>	Provide the reason why this stakeholder was approached. This could include their relevance or proximity to the project/program to be conducted, or if the reason to engage with the stakeholder is based on a recommendation from someone else.
<b>Frequency of communication</b>	Specify the frequency of communication with this stakeholder. Ideally, regular communication may aim to be established with stakeholders directly impacted by the project to gain their input and perspectives on the assessment being conducted by the user. Users can indicate whether there are daily, weekly or bi-weekly meetings.
<b>Communication method</b>	Specify the communication method preferred by the stakeholder. Users may indicate whether email, newsletters, social media content, flyers and posters, press releases, surveys, report publications, phone calls, face-to-face meetings, text, or online messaging is preferred, as appropriate.
<b>Contact Person</b>	Provide the contact information of the PIC as a representative of the stakeholder.

### Appendix 2.3 Action Plan Development Checklist

No.	Activity	Status	PIC	Start Date	Date of Completion	Remarks
1	Final EDT action plan	Ongoing	Mr. Budi	15/06/2025	15/2/2025	Awaiting confirmation from Department Head
2	Establishment of partnerships for action plan	...	...	...	...	...
3	Stakeholder engagement on action plan	...	...	...	...	...
4	Financial closure for financing needs for action plan	...	...	...	...	...
5	Utilization of applicable incentives for action plan	...	...	...	...	...
6	Establishment of monitoring, evaluation and reporting mechanisms	...	...	...	...	...
7	Stakeholder engagement on monitoring, evaluation and reporting mechanisms	...	...	...	...	...
8	Development of governance framework for action plan accountability	...	...	...	...	...
9	Stakeholder engagement on governance framework	...	...	...	...	...
10	Development of grievance mechanism	...	...	...	...	...
11	Stakeholder engagement on grievance mechanism	...	...	...	...	...

	Description
<b>Status</b>	Current progress of the activity. Use terms such as "Planned" "Ongoing" "Completed," or "Delayed."
<b>PIC</b>	PIC (Person In Charge) is the individual or team responsible for executing the action. Users can write the name and role (e.g., "Mr. Xxx, as Project Manager")
<b>Start Date</b>	The date when the action is planned to begin. Use the format DD/MM/YYYY (e.g., 01/07/2025).
<b>Date of Completion</b>	The actual or expected date the action will be completed. Fill in once completed or estimated (e.g., 15/08/2025).
<b>Remarks</b>	Additional notes or comments. Add any relevant info (e.g., "Pending budget approval" or "Requires coordination with finance team").

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Appendix 2.4 Action Plan Template

No.	Planned Action	Related Stakeholders	Indicators			Project/Program Targets		
			Project/Program-specific	Contributes to which national-level indicator	Baseline	Short-term (1-2 years)	Medium-term (2-5 years)	Long-term (>5 years)
<b>Related to Core Area: Economic and Financial Policies</b>								
1	Provide funding and infrastructure for social enterprises that support affected communities.	Village cooperatives, domestic banks	Number of social enterprises with a focus on supporting affected regions.	Poverty rate (%)	No social enterprises exist in the region	5 social enterprises fully operating in the region	15 social enterprises fully operating in the region	30 social enterprises fully operating in the region
2	...		...	...		...	...	...
<b>Related to Core Area: Human Capital Development</b>								
3	...		...	...		...	...	...
4	...		...	...		...	...	...
<b>Related to Core Area: Innovation and Technology</b>								
5	...		...	...		...	...	...
6	...		...	...		...	...	...

No.	Description
<b>Planned Action</b>	Description of the activity or task the user plans to conduct based on the assessment of opportunities. Users may write a short, clear statement of the action (e.g., “Provide funding and infrastructure for social enterprises that support affected communities.”). For proposed actions that can be conducted by each stakeholder, users may refer to 8.5 Proposed Standard 9 Actions.
<b>Related Stakeholders</b>	Other parties involved or affected by the action. List names or groups (e.g., “Local Government, NGOs, local cooperatives”).
<b>Indicators (Project/Program-specific)</b>	Indicators are quantifiable metrics used to assess the effectiveness and success of a specific action or intervention. These indicators can be tailored to align with the objectives and requirements of the particular project or program being undertaken. Possible project/program indicators that users may utilize can be found in 8.5 Proposed Standard 9 Actions.
<b>Indicators (Contributes to which national-level indicator)</b>	Based on the project/program-specific indicator chosen, users may fill in the broader indicator that the project/program contributes to at the national level. For reference, users may refer to Table 4-11 National-Level Indicators relevant for EDT from RPJPN and RPJMN for the relevant national indicators that can be used for each core area.
<b>Baseline</b>	The baseline refers to the conditions identified during Stage 1: Assessment of Potential Opportunities (see Stage 1: Assessment of EDT Potential). It represents the current state of the relevant indicators, which will serve as the reference point for future comparisons.
<b>Project/Program Targets</b>	Realistic targets defined by the user based on the specified time period.
<b>Short-term</b>	Targets defined for the next 1-2 years.
<b>Medium-term</b>	Targets defined for the next 2-5 years.
<b>Long-term</b>	Targets defined for the next >5 years.

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Appendix 2.5 Performing Actions Checklist

No.	Action	PIC	Start Date	Status	Date of Completion	Related Stakeholders	Remarks
<b>Related to Core Area: Economic and Financial Policies</b>							
1	Implement fair labor policies and local hiring requirements	Recruitment team	11 May 2024	Completed	27 February 2025	NGO, local government	Requires coordination with Human Resources department
2	...	...	...	...	...	...	...
<b>Related to Core Area: Human Capital Development</b>							
3	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...
<b>Related to Core Area: Innovation and Technology</b>							
5	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...

No.	Explanation
<b>Action</b>	Brief description of the action to be implemented.
<b>PIC</b>	The individual or team responsible for executing the action. Write the name or role (e.g., "Project Manager," "Local Government Team").
<b>Start Date</b>	Planned or actual start date of the action
<b>Status</b>	Current progress of the action. Use terms like "Not Started," "In Progress," "Completed," or "Delayed."
<b>Date of Completion</b>	Actual or expected completion date. Fill in once completed or estimated
<b>Related Stakeholders</b>	Other parties involved or affected by the action. List names or groups (e.g., "Community Leaders, NGOs").
<b>Remarks</b>	Additional notes or comments. Add any relevant info (e.g., "Pending budget approval," "Requires coordination with finance team").

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## Appendix 2.6 Monitoring and Evaluation Framework Template

No.	Indicator	Baseline	Targets			Collection Method	Frequency	PIC	For External Reporting?	Related Stakeholders
			Short-term	Medium-term	Long-term					
<b>Related to Core Area: Economic and Financial Policies</b>										
1	Enhancement of green competencies for educators/trainers	4 trainings in 2023	10 Trainings in 2025	20 Trainings in 2025	25 Trainings in 2025	Attendance	Quarterly	Mr. Budi from Human Capital	Yes	NGO
2	...	...	...	...	...	...	...	...	...	...
<b>Related to Core Area: Human Capital Development</b>										
3	...	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...	...
<b>Related to Core Area: Innovation and Technology</b>										
5	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...

No.	Description
<b>Indicator</b>	Project or program-level indicator used to measure progress. Choose from the proposed indicators in the stakeholder actions
<b>Baseline</b>	Starting value of the indicator. Fill in the current value and the year it was measured (e.g., "4 trainings in 2023").
<b>Targets</b>	Expected values to be achieved. Fill in short-term, medium-term, and long-term target numbers. Users can also add the year each target is expected to be reached.
<b>Collection Method</b>	How the data will be collected. Describe the method (e.g., "survey," "internal report," "training attendance log").
<b>Frequency</b>	How often the indicator is monitored. Choose: monthly, quarterly, bi-annually, or annually.
<b>PIC (Person in Charge)</b>	The person or team responsible for monitoring this indicator. Write the name or role. If the user's institution splits responsibilities, specify by theme (e.g., "Human Capital Team," "Finance Unit").
<b>For External Reporting?</b>	Whether this indicator is used for external reporting. Fill in "Yes" or "No."
<b>Related Stakeholders</b>	Parties involved or affected by this indicator. List relevant stakeholders (e.g., "Local Government," "NGOs," "Community Groups").
<b>Progress</b>	Current progress toward the target. Fill in quantitatively (e.g., "4 trainings conducted") or qualitatively (e.g., "In progress," "Not yet started").

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## Appendix 2.7 Monitoring and Evaluation Template at Implementation Stage

Monitoring and Evaluation Period: *[Insert monitoring and evaluation period, e.g., June 2025]*

No.	PIC	Indicator	Baseline	Targets	Frequency	Progress	Issues	Resolution Measures	Next Steps
1	Human Capital Team	Enhancement of green competencies for educators	4 trainings in 2023	10 trainings by 2026	monthly	4 trainings conducted	Limited budget	Request additional funding	Engage with local NGOs to explore potential funding opportunities
2	...	...	...	...	...	....	....	....	....
3	...	...	...	...	...	....	....	....	....
4	...	...	...	...	...	....	....	....	....
5	...	...	...	...	...	....	....	....	....
6	...	...	...	...	...	....	....	....	....

No.	Description
<b>PIC (Person in Charge)</b>	The person or team responsible for monitoring this indicator. Write the name or role. If the user's institution splits responsibilities, specify by theme.
<b>Indicator</b>	Project or program-level indicator used to measure progress. Choose from the proposed indicators in the stakeholder actions from X
<b>Baseline</b>	Starting value of the indicator. Fill in the current value and the year it was measured (e.g., "4 trainings in 2023").
<b>Targets</b>	Expected value to be achieved. Fill in the target number and the year it is expected to be reached (e.g., "10 trainings by 2026").
<b>Frequency</b>	How often the indicator is monitored. Choose: monthly, quarterly, bi-annually, or annually.
<b>Progress</b>	Current progress toward the target. Fill in quantitatively (e.g., "4 trainings conducted") or qualitatively (e.g., "In progress," "Not yet started").
<b>Issues</b>	Challenges in reaching the target. Describe any problems (e.g., "Limited budget," "Low participation").
<b>Resolution Measures</b>	Actions taken or planned to resolve the issues. Provide practical solutions (e.g., "Partner with local institutions," "Request additional funding").
<b>Next Steps</b>	Planned follow-up actions. Fill in what comes next (e.g., "Continue training," "Design new program if target is reached").

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### Appendix 2.8 Reporting Checklist

No.	Activity	Status	PIC	Start Date	Date of Completion	Remarks
1	Collection of externally reported metrics	Completed	Monitoring Unit	3 June 2025	23 September 2025	Documentation on company SOP is still needed.
2	Stakeholder coordination and consultation	....	....	....	....	....
3	Report drafting	....	....	....	....	....
4	Report review	....	....	....	....	....
5	Report clearance	....	....	....	....	....
6	Report publication	....	....	....	....	....
7	Press release publication	....	....	....	....	....
8	Stakeholder engagement	....	....	....	....	....
9	Stakeholder feedback collection	....	....	....	....	....
10	Stakeholder feedback integration	....	....	....	....	....

	Description
<b>Activity</b>	The reporting-related tasks are listed and may be adjusted as needed
<b>Status</b>	Fill in with terms like “Not Started,” “In Progress,” “Completed,” or “Delayed.”
<b>PIC (Person in Charge)</b>	The person or team responsible for the activity. Write the name or role (e.g., “Communications Team,” “Monitoring Unit”).
<b>Start Date</b>	Planned or actual start date of the activity. Use format DD/MM/YYYY (e.g., 01/07/2025).
<b>Date of Completion</b>	Actual or expected completion date. Fill in once completed or estimated (e.g., 15/08/2025).
<b>Remarks</b>	Additional notes or comments. Add any relevant info (e.g., “Pending stakeholder input,” “Requires clearance from legal team”).

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## Appendix 3 Grievance Mechanism Steps

### 1. Grievance Submission

- **Submission by stakeholders:** Grievances may be submitted by a wide range of stakeholders, including energy users, workers, contractors, suppliers, community members, and organizations such as CSOs, NGOs, associations, think tanks, academics, intergovernmental organizations, and others.
- **Submission methods:** Grievances may be submitted verbally or in writing. The stakeholder responsible for receiving and managing these complaints depends on the channel the complaint was submitted to. A template for a grievance form for grievances submitted in writing is available in Appendix 3.1 Grievance Form. It is advised that those persons in charge (“PIC”) of receiving grievances, whether verbally or in writing, be properly trained in the appropriate behaviors for receiving and recording grievances. Consent from the complainant to disclose the information to authorized party shall be obtained at this stage, as accommodated in the grievance form template in Appendix 3.1.
- **Submission channels:** Grievances may be submitted directly to the project developer, or to other channels including state and non-state institutions, depending on the platform or channels accessible to the complainants.
- **Complainant confidentiality:** Grievances submitted by the complainants should be handled on a need-to-know basis, aiming to ensure protection against retaliation, especially during the submission of the complaint when personal data is collected. Therefore, a confidentiality statement should ideally be included in the grievance form.
- **Grievance management unit:** To enforce the grievance mechanism at the project-level, a dedicated grievance management unit within the project developers’ organization is formed and tasked with handling grievance submissions. The grievance management unit is also responsible for coordinating with the PICs of other channels with the aim of ensuring relevant complaints are registered, appropriately documented and addressed.
- It should be noted that regardless of where the grievance is initially submitted, the coordination mechanism of the grievance system, as seen in Figure 6.4-3, will direct the complaint to the most appropriate entity responsible for addressing it, whether this will be channeled through the project developer first or to other relevant stakeholders. This entity will then assess the complaint and respond accordingly.
- To illustrate the grievances that may be received, the following table provides example grievances.

Example Grievances
Inappropriate land acquisition or plant replacement processes have resulted in compensation not being received by the rightful parties
Purchase or use of customary land without the consent of the community and/or without respecting the customary traditions of the community.

### Example Grievances

Complaints about negative impacts on the environment from the local community, such as water pollution, air pollution, noise, or traffic disruptions allegedly caused by the nearby power plant project activities

Allegations of unfair labor practices, such as discrimination in hiring, unsafe working conditions, or lack of employment opportunities for local people in the nearby power plant project.

## 2. Grievance Receipt, Registration, Tracking

### ● Logging complaints

All grievances, regardless of the channel through which they are received, are logged by the grievance management unit within the project developers' organization for consistent tracking and management. A template for a general grievance log and an additional log specific to land acquisition is available in Appendix 3.2 and 3.3, respectively. Further details on grievances related to land acquisition are explored in Tabel 1.

**A. For grievances submitted to the project developer:** Upon receipt, all complaints and grievances are recorded in a logbook maintained by a dedicated grievance management unit. The dedicated team manages all grievances related to project activities, ensuring that each complaint is systematically tracked and handled efficiently.

**B. For grievances submitted to other channels:**

Logging grievances from other channels involve an additional layer of coordination. PICs of the national platforms are responsible for notifying the project developer when a grievance submitted at the national level pertains to a specific project. The project developer is responsible for establishing the necessary coordination to address the grievance effectively. These national platforms serve as intermediaries, directing relevant grievances to the appropriate entities for resolution. Additionally, complainants may use these national platforms to submit grievances in the case that the project's grievance mechanism is not yet established and socialized.

In these instances, grievances may first be received by national ministries or agencies, local government agencies, local authorities, community representatives and financial institutions, among others. Therefore, effective coordination and collaboration between stakeholders are crucial to ensure comprehensive coverage and resolution of grievances at both project and national levels.

Table A3-1 provides existing national and energy sector specific platforms that complainants could submit their grievances regarding the implementation of just transition actions. However, the use of these platforms to handle issues related to just transition still needs to be further discussed and agreed with respective ministries and institutions.

**Table A3-1 Existing National and Energy Sector Grievance Platforms**

Platforms	Type of Complaints Handled
<b>National Platforms</b>	
<b>National Public Service Complaint Management System – People’s Online Service for Aspirations and Complaints (“SP4N LAPOR”)</b>	Complaints related to public services managed by the Ministry of State Apparatus Utilization and Bureaucratic Reform.
<b>Ombudsman Online Complaint Platform</b>	Complaints related to public services, including administrative process errors by government agencies.
<b>Human Rights Complaint Information and Management System (“SIMASHAM”)</b>	Human rights violations including environmental and social issues, operated by the Ministry of Human Rights.
<b>National Commission on Violence against Women’s Complaints Receiving System</b>	Complaints related to violence against women.
<b>Judicial Commission’s Supervision Information System (“SIWAS”)</b>	Judicial misconduct, ethical violations and violations of the law.
<b>MoFr’s Public Complaint Center</b>	Environmental complaints and violations of environmental and forestry laws.
<b>Corruption Eradication Commission (“KPK”) JAGA</b>	Complaints related to corruption.
<b>Supreme Audit Agency (“BPK”) Complaint Monitoring Application (“SIPADU”)</b>	Complaints related to financial irregularities and other issues under BPK’s jurisdiction.
<b>Indonesian Police Labor Desk</b>	Labor disputes across the country, a strategic collaboration between the Indonesian National Police, Ministry of Manpower and the House of Representatives.
<b>Ministry of State-Owned Enterprises Whistleblowing System</b>	Reports on misconduct, corruption and other unethical behaviors within SoEs.
<b>Energy Sector Platforms</b>	
<b>PLN Whistleblowing System (“WBS”)</b>	Complaints encompassing a range of misconduct, including corruption-related issues like bribery, conflicts of interest, and illegal gratuities as outlined by anti-corruption laws. Additionally, misuse of assets or authority, such as theft or embezzlement, manipulation of financial or non-financial reports, and actions that breach laws, company regulations, or codes of conduct, are included. The system also covers unethical behavior, drug use, and involvement in prohibited community activities, as well as any actions that could damage PLN's reputation.
<b>PLN’s Employee Assistance Center (“EAC”)</b>	Complaints regarding cases of sexual harassment involving employees, outsourced workers, consumers, business partners, and consultants within PLN’s operational areas and activities.

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**MEMR Complaints Service**

Complaints from electricity consumers to the Directorate General of Electricity.

It is important to note that the table above does not include whistleblower and grievance mechanisms operated by private sector entities, SoEs, financial institutions, or specific local and regional governments. These mechanisms may need to be identified separately for complaints related to specific projects and/or programs. A detailed example on a national-level platform is illustrated in the box below.

An example of a national platform includes the National Public Service Complaint Management System, otherwise known as SP4N LAPOR, created by the Ministry of State Apparatus Utilization and Bureaucratic Reform.

SP4N LAPOR was developed to improve the effectiveness of managing public service complaints by providing an integrated national system. It operates under the “no wrong door” principle, ensuring that complaints of any type and from any location are directed to the appropriate public service authorities. The platform also protects the anonymity of reporters and maintains the confidentiality of complaints, offering the public confidence and security to use the system.

The system for receipt, registration and tracking of grievances is managed on a centralized platform, allowing submissions through multiple channels, including the official website [www.lapor.go.id](http://www.lapor.go.id), SMS 1708 (for providers Telkomsel, Indosat, Three), Twitter @lapor1708, and its mobile application available on both Android and iOS. To ease the management of the grievances received, the platform is connected to 34 ministries, 96 institutions, and 493 regional governments across Indonesia (SP4N LAPOR, 2025). This centralized approach with SP4N LAPOR facilitates the coordination to resolution of complaints and grievances in a timely manner.

- **Accessibility:** Detailed and individual grievance data is advised to be accessible only to those involved in addressing, handling and/or resolving grievances on a case-by-case basis.

However, to ensure transparency and accountability in grievance resolution, a summary of the grievance received may be accessible to both local and national government entities. To protect the complainant, individual complaints shall remain confidential and anonymous.

Project developers may also choose to publish high-level data such as the number of complaints, the categories of those complaints, their current processing status and the improvements made in project operations to address complaints received to external stakeholders, including CSOs, academics, NGOs, think tanks, and intergovernmental organizations. This arrangement allows for transparency in the effectiveness of the complaint handling mechanism while also protecting the anonymity and confidentiality of the complainant.

- **Supervision:** A senior-level authority, such as a community relations manager or a site manager, supervises the grievance management unit to ensure proper oversight.

- **Prioritisation:** Grievances are categorized by priority to determine the necessary actions. This categorization helps in efficiently addressing urgent issues.

The categorization is as proposed in the following table.

Category	Grievance Description	Grievance type	Management response
<b>Level 1</b>	Grievances with existing responses and management-approved answers cover all complaints that the complainant and the project developers can settle on their own.	Routine	<p>Inform the project manager of the relevant project and use management-approved responses by developing a frequently asked questions document to address the complaints of the stakeholders. The process of responding to the complaint will be communicated externally to the complainant and the government for transparency.</p> <p>Management will allocate tasks/responsibilities to the relevant stakeholders needed to respond to the issue.</p>
<b>Level 2</b>	Grievances that cannot be resolved directly by the project developer and the complainant require resolution with third-party supervision.	Not routine	<p>Create a response plan and create a draft response to be agreed on with the projects' management. Additionally, a third-party opinion could be sought for mediation, which could involve relevant local government bodies or local NGOs. The response process to the grievance will be communicated externally to the complainant and the government for transparency.</p> <p>Management will allocate tasks and responsibilities to the relevant stakeholders needed to respond to the issue.</p>
<b>Level 3</b>	Handling of grievances that are not resolved through the above methods and require judicial processes or escalation to official agencies for resolution.	Escalation to official agencies or judicial processes	<p>The grievance management unit will ensure that community members are informed on how to access the mechanisms for judicial procedures for resolution and are updated on all procedures regarding the process of the complaints. The project manager of the relevant project will also be involved and informed on the investigation and resolution, as necessary.</p> <p>Management will allocate tasks and responsibilities to the relevant stakeholders needed to respond to the issue.</p> <p>Separate from specific instances of grievance processing, the community will be given capacity-building workshops on how to access these judicial mechanisms and escalation processes.</p>

### 3. Grievance Handling

- **Internal handling:** The project developer refers to their existing procedures, guidelines or handbooks on how to respond to routine grievances and communicate

transparently with the complainant. However, non-routine issues are ideally discussed with internal management before responding appropriately (ideally within 14 working days since its processing).

- **Coordination with stakeholders:** The project developer, where necessary, coordinates with relevant stakeholders to manage resolution steps. These stakeholders may include the national or subnational government, sponsors, financial institutions, contractors, or suppliers. This collaborative approach aims to ensure that all parties involved are informed and can contribute to resolving the issue.
- **Response to complaints:** The process involves timely responses to complaints with a standardized period for resolutions set by the project developer's management. Grievances submitted through other channels may require separate resolution periods on a case-by-case basis or tailored to each platform, agreed with other stakeholders involved in coordination, and communicated effectively to the complainant(s). Establishing resolution periods helps to ensure that the concerns of the community and other stakeholders are addressed appropriately.

#### 4. Escalation of Grievance with Relevant Stakeholders

- **Appeal Process:** If the complainant is not satisfied with the actions made to resolve the grievance by the project developer in collaboration with relevant parties, they have the option to appeal to a higher authority within the project developer's management.
- **Escalation to Branches of the GoI:** Should the complainant remain unsatisfied with the provided resolution by the project developers' management, it is important to inform the complainant of their right to escalate their case to the GoI and provide guidance on initiating such proceedings. In Indonesia, branches include judicial, executive and legislative institutions, among others.
- **Timely response:** Once the complaint is escalated to the relevant stakeholders, the issue should ideally be resolved within 14 working days since its escalation.

#### 5. Grievance Resolution and Acceptance

- **Closure of grievance:** Once the complainant accepts the resolution, the grievance is formally closed, which requires the complainant's sign off on a satisfaction statement acknowledging the resolution and removing of the grievance from the grievance log.
- **External reporting and tracking:** Consistent communication is maintained through external reporting and tracking. This step aims to ensure that all parties are informed of the progress and resolution of grievances.
- **Continuous improvement:** The grievance mechanism is designed to facilitate continuous improvement in project operations by learning from the feedback received and implementing necessary changes. The grievance management unit analyzes the trends and statistics of the complaints and routinely monitors the effectiveness of the grievance mechanisms with senior management. From this routine evaluation, the grievance mechanism should be tracked and improved overtime.

Appendix 3.1 Grievance Form

Grievance Form	
<b>Date:</b>	
<b>Reference No.</b>	
<b>Full Name</b>	
<b>Contact Information</b>	Address:
	Telephone No.:
	Email Address:
<b>Description of Grievance</b> <ul style="list-style-type: none"> <li>• What happened?</li> <li>• When did it happen?</li> <li>• Where did it happen?</li> <li>• Who was involved?</li> </ul>	
<b>What would be your suggestion / recommendation to resolve the issue?</b>	
<b>Consent to disclose grievance-related information to third parties</b> <i>I understand that this grievance is submitted to [project developer], however, as it may refer to the action of third parties including contractors, I give my consent for the [project developer] to disclose the details of this grievance for the purpose of coordinating with third parties involved to efficiently and effectively resolve this grievance. I acknowledge that any disclosure will be made on a need-to-know basis, and that [project developer] will take all reasonable steps to protect my confidentiality and personal information, and to ensure that no retaliation or adverse consequences arise from this grievance submission.</i>	
<b>Signature</b>	
<b>For use of [project developer]</b>	
<b>Received by</b>	
<b>Signature</b>	
<b>Date</b>	

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### Appendix 3.2 General Grievance Log

Ref No.	Location / Facility	Date of Complaint	Details of Complainant					Details of Grievance			PIC	Mitigation Actions	Status	Due Date	Remarks	Date of Closure
			Name	Gender	Address	Phone No.	Email Address	Nature of Grievance	Description of Grievance	Prioritisation Category						
(e.g)	Desa X	12 June 2025	Putri	Female	Jalan Asem	+62812345678	putri@gmail.com	Land Acquisition	Dispute with project developers regarding land status	2	Pak X	Dialogue with Community	Completed	22 August 2025	Consultation Done	18 August 2025
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Ref No.		Description
Location / Facility		Specify the exact location or facility where the issue occurred.
Date of Complaint		Enter the date when the complaint was submitted.
Details of Complainant	Name	Full name of the complainant.
	Gender	Select or write the gender identity of the complainant.
	Address	Provide the full residential or mailing address.
	Phone No.	Enter a valid contact number for follow-up.
	Email Address	Provide an email address for communication.
Details of Grievance	Nature of Grievance	Briefly categorize the type of issue (e.g., environmental, social, safety).
	Description of Grievance	Provide a detailed explanation of the complaint. Include what happened, when, and who was involved.
	Prioritization Category	Indicate the urgency or severity (e.g. Level 1,2,3). Refer to Table 5-3 Grievance Prioritisation Category for reference on the classification of urgency.
PIC		Name or role of the person responsible for handling the grievance.

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<b>Ref No.</b>	<b>Description</b>
<b>Mitigation Actions</b>	Describe any actions taken or planned to resolve the issue.
<b>Status</b>	Current status of the complaint (e.g., open, in progress, resolved).
<b>Due Date</b>	Deadline for resolving the grievance.
<b>Remarks</b>	Any additional notes or comments.
<b>Date of Closure</b>	Date when the grievance was officially resolved and closed.

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### Appendix 3.3 Grievance Log for Land Acquisition

No.	Land Plot	Landowner	Land Area (m <sup>2</sup> )	Details of Grievance	Mitigation Actions	Prioritisation Category	PIC	Due Date	Status	Remarks	Date of Closure
<b>Subdistrict I</b>											
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
<b>Subdistrict II</b>											
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...

Item	Description
<b>Land Plot</b>	Specify the name of the land plot for ease of identification.
<b>Landowner</b>	Specify the name of the owner that the land belongs to.
<b>Land Area</b>	Specify the location of the land itself. This can be using coordinates or can be specified by subdistrict or town.
<b>Details of Grievance</b>	Provide a detailed explanation of the complaint. Include what happened, when, and who was involved.
<b>Mitigation Actions</b>	Specify the actions that may be taken to mitigate the grievance after thorough internal discussion/analysis.
<b>Prioritization Category</b>	Indicate the urgency or severity (e.g. Level 1,2,3). Refer to Table 5-3 Grievance Prioritisation Category for reference on the classification of urgency.
<b>PIC</b>	Name the person who will be responsible for managing this grievance.
<b>Due Date</b>	Specify the date the grievance should be resolved by. Users may use the format DD/MM/YY
<b>Status</b>	Users may mark this with “Ongoing”, “Planned”, “Completed”, or “Delayed”.
<b>Remarks</b>	Put any additional remarks if needed.
<b>Date of Closure</b>	Specify the date of the closure of the grievance. Users may use the format DD/MM/YY.

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## Appendix 4 Proposed Standard 9 Actions

### Appendix 4.1 Proposed Actions for Project Developers

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
<b>Economic and Financial Policies</b>				
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	<ul style="list-style-type: none"> <li>Implement fair labor policies and local hiring requirements to reduce poverty in affected regions.</li> <li>Create employment opportunities and reskilling programs for affected workers.</li> <li>Ensure projects do not decrease livelihoods of affected communities, that livelihoods are at least maintained or even increased, including in terms of energy access</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of local workforce employed in projects.</li> <li>Number of training courses held per year for workers in affected regions.</li> <li>Number of laid off workers employed in other projects/sectors.</li> <li>Change in average income levels of affected communities.</li> <li>Improvement in energy access for affected communities using ESMAP's multi-tier framework for energy access</li> </ul>
		Coverage of social insurance for employment (%)	Ensure all employees and subcontractors are enrolled in social security programs.	Enrollment rate of employees and subcontractors in social security.
		Percentage of climate-resilient villages (%)	Conduct CSR initiatives that strengthen village resilience to floods, heat, and drought.	Number of initiatives that improve the resilience of villages to handle floods, heat, and drought.
		Percentage of disadvantaged and severely disadvantaged regions or <i>desa</i> upgraded to developing and/or advanced status (%)	Prioritize projects in disadvantaged villages.	Number of projects planned and implemented in disadvantaged villages.
	Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of resource-efficient, green industries	Green economy index	Transition to cleaner supply chains and production processes.	Reduction in carbon emissions from supply chains.
		Value of exports of green category goods (billion USD)	Partner with banks to finance green technology adoption.	Number of green technology projects financed through partnerships.
		Number of policies issued to support the carbon economic value (policy)	Integrate carbon reduction commitments into business models. Reduce emissions and utilize carbon credit and trading markets.	<ul style="list-style-type: none"> <li>Number of businesses integrating carbon reduction commitments.</li> <li>Number of certified businesses for avoided carbon emissions.</li> <li>Revenue realized from carbon credit sales.</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
		Proportion of non-governmental/private research and development budget (%)	Expand investment in low-carbon business models and supply chain innovations.	Increase in investment in low-carbon business models.
<b>Human Capital Development</b>				
Increased number of high quality, local human capital	Creating employment and generating income in energy transition sectors	Proportion of green jobs (%)	<ul style="list-style-type: none"> <li>Prioritize recruiting from local communities to ensure that the transition to low-carbon technologies benefits all stakeholders, particularly marginalized groups.</li> <li>Develop upskilling workshops to prepare a green workforce based on targeted skill levels and job types</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of vulnerable stakeholders recruited as local workforce</li> <li>Number of upskilling workshops on the preparation of a green workforce</li> <li>Number of workshop participants who accessed green jobs</li> </ul>
		Number of collaborations involving DUDIKA in green job development (partnerships)	<ul style="list-style-type: none"> <li>Commit to retain, retrain and redeploy workers by collaborating with the subnational government</li> <li>Recognize and engage with labor unions and workers' rights organizations using social dialogue to implement fair labor practices during the transition.</li> </ul>	<ul style="list-style-type: none"> <li>Number of workers retained, retrained, and redeployed from at risk sectors to new green jobs</li> <li>Number of meetings/workshops held with labor unions and workers' rights organizations for discussions on fair labor practices</li> <li>Number of agreements reached with labour unions and workers' rights organizations, or number of suggestions adopted relevant with the Just Transition action plan</li> </ul>
		Open unemployment rate (%)	<ul style="list-style-type: none"> <li>Internal recruitment programs for displaced workers to move to low-carbon business units when companies transition</li> <li>Integrating labor safeguard mechanisms to company plans (e.g. transition plans, job retraining programs) particularly for subcontracted workers at risk of displacement</li> </ul>	<ul style="list-style-type: none"> <li>Number of workers allocated to new jobs in internal recruitment programs for displaced workers due to transition</li> <li>Number of subcontracted workers retained</li> </ul>
<b>Innovation &amp; Technology</b>				
	Increasing strategic innovations to enable a just transition	Number of collaborations utilizing science, technology, and strategic innovation with industry/business in priority areas (partnerships)	Participate in pilot projects on low carbon technologies for R&D as industry partners	Number of pilot projects engaged by BRIN on low-carbon technologies implemented in industrial settings

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Increased development and adoption of sustainable technologies at both national and local community levels

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
	Adopting sustainable, low-carbon technologies and its supply chain	Reduction in electricity generation emissions (Million-ton CO <sub>2</sub> )	<ul style="list-style-type: none"> <li>• Drive inclusivity when developing a responsible strategy for the conversion, retirement, or sale of polluting assets</li> <li>• Establish partnerships and long-term agreements with local suppliers to adopt low-carbon technologies.</li> <li>• Implement the early retirement roadmap</li> <li>• Implement training programs for local suppliers to enhance their ability to produce, provide and integrate low-carbon technologies and materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Development of a responsible strategy for the conversion, retirement, or sale of polluting assets within the company</li> <li>• Number of partnerships and long-term agreements with local suppliers to adopt low-carbon technologies</li> <li>• Number of developers publishing an early retirement roadmap</li> <li>• Number of training programs for local suppliers for the development of low-carbon technologies and materials</li> </ul>
		Percentage of electric vehicle production for four-wheelers compared to total four-wheel vehicle production (%)	<ul style="list-style-type: none"> <li>• Invest in renewable energy projects for community-level use, especially for remote locations</li> <li>• Implement projects in EV infrastructure and public transport electrification</li> </ul>	Number of investments channeled towards RE projects for community-level use, especially for remote locations
		Circular material input rate (%)	Adoption of circular economy principles during daily operations (e.g., reuse, reduce, recycle)	Number of company policies on circular economic principles during daily operations

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## Appendix 4.2 Proposed Actions for Financial Institutions

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
<b>Economic and Financial Policies</b>					
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of RE	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	<ul style="list-style-type: none"> <li>Support energy projects that prioritize job creation and local economic development.</li> <li>Establish standards which require borrowers' projects to at least maintain or increase affected communities' livelihoods, including in terms of energy access.</li> </ul>	<ul style="list-style-type: none"> <li>Number of jobs created through energy transition projects, segregated for gender and vulnerable groups.</li> <li>Change in average income levels of affected communities.</li> <li>Improvement in energy access for affected communities using ESMAP's multi-tier framework for energy access</li> </ul>	Any type of FI
		Percentage of poor and vulnerable families receiving social aid and social insurance (%)	<ul style="list-style-type: none"> <li>Provide grants to expand social assistance programs.</li> <li>Provide capacity building programs to enhance local governments' capabilities in tracking and implementing social assistance programs.</li> </ul>	<ul style="list-style-type: none"> <li>Amount of grants distributed.</li> <li>Number of programs expanded.</li> </ul>	MDB/DFI
		Percentage of poor and vulnerable families receiving social aid and social insurance (%)	Offer insurance mechanisms to protect vulnerable communities.	Number of insurance policies issued to vulnerable communities.	Any type of FI
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	Collaborate to innovate funding and financing models for social security	Number of new funding models implemented for social security programs.	Any type of FI
		Coverage of national health insurance participation (%)	Offer specialized health insurance products for affected workers.	Number of specialized insurance products developed and offered.	Any type of FI
		Coverage of national health insurance participation (%)	Provide funding for national health insurance expansion.	<ul style="list-style-type: none"> <li>Amount of funding allocated for health insurance expansion.</li> <li>Amount of funding disbursed for health insurance expansion.</li> </ul>	Any type of FI
		Coverage of social insurance for employment (%)	Provide technical assistance and funding to expand social security programs.	<ul style="list-style-type: none"> <li>Technical assistance and funding allocated for social security program expansion</li> <li>Technical assistance and funding disbursed for social security program expansion</li> </ul>	MDB/DFI

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of resource-efficient, green industries				<ul style="list-style-type: none"> <li>Number of social security programs expanded with technical assistance.</li> </ul>	
		Financial sector deepening/intermediation a. Banking assets/GDP (%) b. Pension fund assets/GDP (%) c. Insurance assets/GDP (%) d. Capital market capitalization/GDP (%) e. Total credit/GDP (%)	Provide guarantees for green investments to increase banking and pension fund participation.	<ul style="list-style-type: none"> <li>Guarantee financing allocated for green investments</li> <li>Guarantees closed for green investments</li> <li>Number of green investment projects receiving guarantees</li> </ul>	MDB/DFI
		Financial sector deepening/intermediation a. Banking assets/GDP (%) b. Pension fund assets/GDP (%) c. Insurance assets/GDP (%) d. Capital market capitalization/GDP (%) e. Total credit/GDP (%)	<ul style="list-style-type: none"> <li>Introduce financial products tailored to green industries and energy transition projects (e.g., green bonds, sustainability-linked loans).</li> <li>Introduce gender-balanced, sustainability-minded KPIs into financial products, and monitor &amp; evaluate project results.</li> </ul>	<ul style="list-style-type: none"> <li>Volume and value of green financial products issued.</li> <li>Volume and value of financial products with integrated gender and sustainability KPIs.</li> </ul>	Any type of FI
		Total third-party funds/GDP (%)	Establish pooled investment funds for energy transition projects.	<ul style="list-style-type: none"> <li>Total value of pooled investment funds established.</li> <li>Value of funds disbursed for energy transition projects from pooled investment funds.</li> </ul>	Any type of FI
		Financial inclusion (%)	Develop state-backed microfinance schemes to support small-scale renewable energy projects and green entrepreneurs.	<ul style="list-style-type: none"> <li>Reduction in the percentage of unbanked population.</li> <li>Total value or funding allocated for state-backed microfinance schemes.</li> </ul>	Any type of FI
		Financial inclusion (%)	Provide financial literacy programs for MSMEs, energy transition workers and affected communities.	<ul style="list-style-type: none"> <li>Number of participants completing financial literacy programs.</li> <li>Number of trainings or programs offered and held per year.</li> </ul>	MDB/DFI
		Financial inclusion (%)	Develop lending programs for MSMEs in practicing sustainable business models.	<ul style="list-style-type: none"> <li>Number of MSMEs receiving loans for sustainable practices.</li> <li>Volume and value of lending programs for MSMEs.</li> </ul>	Any type of FI
		Value of exports of green category goods (billion USD)	Provide support to export-oriented businesses to improve Environment, Social,	Number of businesses achieving ESG compliance.	Any type of FI

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
Human Capital Development			Government (“ESG”) compliance to meet international standards.		
		Value of exports of green category goods (billion USD)	Offer export credit facilities for green businesses	Volume of export credits issued to green businesses.	Any type of FI
		Number of policies issued to support the carbon economic value (policy)	Introduce financial products with KPIs on carbon emission reduction and other mechanisms.	Volume and value of financial products with carbon emission reduction KPIs.	Any type of FI
		Ratio of MSME credit to total bank credit (%)	Provide incentives to increase financial institutions' willingness to lend to MSMEs in green industries including guarantees.	Increase in lending to MSMEs in green industries.	Any type of FI
		Ratio of MSME credit to total bank credit (%)	Develop microfinance initiatives that support community-based projects and entrepreneurs focused on sustainability.	Volume and value of microfinance loans issued for community-based projects.	Any type of FI
		Percentage of investment realization in domestic investment (PMDN), including micro, small, and medium enterprises (MSME) (% of PMA/PMDN)	Offer low-cost financing for domestic investors in the green sector.	Volume and value of low-cost financing provided to green sector investors.	Any type of FI
		Number of regions utilizing alternative funding instruments (regions (province/district/city))	Provide financing to support regional development plans.	Volume and value of financing provided for regional development plans.	Any type of FI
		Percentage of local grant performance (%)	Provide technical assistance to local governments for accessing and utilizing green funds.	The number of local governments receiving technical assistance. Technical assistance allocated and disbursed.	MDB/DFI
		Expenditure on science, technology, and innovation (% of GDP)	Co-finance innovation grants for green industries. Facilitate knowledge-sharing between research institutions, industry and government.	Volume and value of co-financed innovation grants. Number of knowledge-sharing events conducted.	MDB/DFI

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
Increased number of high quality, local human capital	Creating employment and generating income creation in energy transition sectors	Female labor force participation rate (%)	Introduce gender-balanced, sustainability-minded KPIs into financial products, and monitor & evaluate project results.	Number of gender-balanced, sustainability-minded KPIs integrated into financial products	Any type of FI
<b>Innovation &amp; Technology</b>					
Increased development and adoption of sustainable technologies at both national and local community levels	Enhancing capacity and inclusion of MSMEs to encourage broad public participation, fostering adaptation and growth within a green economy.	Proportion of small and medium enterprises (%)	<ul style="list-style-type: none"> <li>Provide favorable terms for financing small-scale RE supply chain infrastructure (e.g. solar panels) for MSMEs to use.</li> <li>Offer technical assistance to borrowers, particularly MSMEs, to help them transition to sustainable business models.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage increase of small scale RE infrastructure projects nationally for MSME use.</li> <li>Amount of technical assistance provided to MSMEs specifically for activities related to integrating into the green economy.</li> </ul>	MDB/DFI
		Entrepreneurship ratio (%)	<ul style="list-style-type: none"> <li>Provide funding for upskilling activities to enable JT related MSMEs to diversify and grow sustainably</li> <li>Provide loans and funding for small-scale renewable energy supply chain infrastructure for MSMEs</li> </ul>	<ul style="list-style-type: none"> <li>Amount contributed towards upskilling workshops for MSMEs to integrate into the green economy</li> </ul>	Any type of FI
		Number of certified environmentally friendly products	Providing loans and grants for financing small scale RE supply chain infrastructure for MSMEs to use	Amount of loans and grants channeled towards financing small scale RE supply chain infrastructure for MSMEs to use	Any type of FI
	Adopting sustainable, low-carbon technologies and its supply chain	Share of renewable energy in primary energy mix (%)	Providing favorable terms for loans directed towards RE supply chain investments with low-carbon emissions and significant social benefits.	Percentage increase of loans directed towards RE supply chain investments with low-carbon emissions and significant social benefits	Any type of FI
		Percentage of annual greenhouse gas (GHG) emission reduction (%)	Provide loans and grants for financing the development of sustainable low carbon technology projects	<ul style="list-style-type: none"> <li>Percentage increase of loans directed towards the development of sustainable technology projects</li> <li>Number of capacity building programs for the adoption and development of sustainable low-carbon technologies</li> </ul>	Any type of FI

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
			<ul style="list-style-type: none"> <li>Assist in creating capacity-building programs to encourage the adoption and development of sustainable low-carbon technologies</li> <li>Create workshops for knowledge and technology transfers for low-carbon technologies between member countries</li> </ul>	<ul style="list-style-type: none"> <li>Number of workshops hosted on knowledge and technology transfers for low-carbon technologies between member countries</li> </ul>	
		Renewable energy electricity production (GWH)	<ul style="list-style-type: none"> <li>Provide incentives to increase investment in nascent, slow-growing and/or underinvested, yet productive and sustainable sectors</li> <li>Adoption of new technologies that undergo risk and impact assessment for social and environmental risks at project level.</li> </ul>	<ul style="list-style-type: none"> <li>Number of incentives to increase investment in nascent, slow-growing and/or underinvested, yet productive and sustainable sectors</li> <li>Number of new technology projects adopting ESIA</li> </ul>	Any type of FI

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### Appendix 4.3 Proposed Actions for Subnational Government

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
<b>Economic and Financial Policies</b>				
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	<ul style="list-style-type: none"> <li>Implement regional poverty alleviation programs focused on energy transition impacts.</li> <li>Provide funding and infrastructure for social enterprises that support affected communities.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in poverty rates in regions affected by energy transition.</li> <li>Number of social enterprises with a focus on supporting affected regions.</li> </ul>
		Percentage of poor and vulnerable families receiving social aid and social insurance (%)	<ul style="list-style-type: none"> <li>Implement regional social assistance programs focused on energy transition impacts.</li> <li>Strengthen capacity to track and support vulnerable communities.</li> </ul>	<ul style="list-style-type: none"> <li>Number of beneficiaries of regional social assistance programs</li> <li>Development and implementation of tracking systems for vulnerable communities.</li> </ul>
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	Collaborate to innovate funding and financing models for social security	Number of new funding models implemented for social security programs.
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	<ul style="list-style-type: none"> <li>Adapt national policies to fit local economic and demographic conditions.</li> <li>Ensure budget allocations support social security expansion and accessibility</li> </ul>	<ul style="list-style-type: none"> <li>Number of regional policy adaptations/roadmaps/implementation plans made to address local conditions.</li> <li>Percentage increase in budget allocations for social security programs.</li> <li>Deficit identified for social security support</li> </ul>
		Coverage of national health insurance participation (%)	Expand local healthcare access points and infrastructure for regions affected by the energy transition	Number of new healthcare access points established in affected regions.
		Coverage of social insurance for employment (%)	Facilitate registration and awareness programs for energy workers to join social security schemes.	<ul style="list-style-type: none"> <li>Number of awareness programs held.</li> <li>Number of energy workers registered following awareness programs.</li> </ul>
		Percentage of climate-resilient villages (%)	Promote the renewable energy projects as the source of the electricity in the village	Number of renewable energy (RE) projects successfully implemented at the village level.
		Percentage of disadvantaged and severely disadvantaged regions or <i>desa</i> upgraded to developing and/or advanced status (%)	Transform mono-sector economies (e.g., agriculture or fisheries) into multi-sector economies by integrating	Number of MSMEs or businesses that have grown outside the traditional mono-sector.

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of resource-efficient, green industries			agro-processing, creative industries, and other related industries.	
		Total third-party funds/GDP (%)	<ul style="list-style-type: none"> <li>Establish regulatory frameworks to increase third-party funds mobilization towards sustainable investments.</li> <li>Encourage public participation in green investment programs.</li> </ul>	<ul style="list-style-type: none"> <li>Amount of third-party funds mobilized for sustainable investments.</li> <li>Participation rate/success in public green investment programs.</li> </ul>
		Financial inclusion (%)	Develop state-backed microfinance schemes to support small-scale renewable energy projects and green entrepreneurs.	<ul style="list-style-type: none"> <li>Reduction in the percentage of unbanked population.</li> <li>Total value or funding allocated for state-backed microfinance schemes.</li> </ul>
		Financial inclusion (%)	Provide financial literacy programs for MSMEs, energy transition workers and affected communities.	<ul style="list-style-type: none"> <li>Number of participants completing financial literacy programs.</li> <li>Number of trainings or programs offered and held per year.</li> </ul>
		Green economy index	Conducting regional assessments to identify the strengths and opportunities of each region and sector, to identify best sectors to allocate budgets for specific regions, ensuring meaningful stakeholder engagement in the process	Number of regional assessments completed.
		Green economy index	Collaborate to develop energy transition and green projects.	Number of collaborative projects initiated.
		Value of exports of green category goods (billion USD)	Provide support to export-oriented businesses to improve ESG compliance to meet international standards.	Number of businesses achieving ESG compliance.
		Percentage of investment realization in domestic investment (PMDN), including micro, small, and medium enterprises (MSME) (% of PMA/PMDN)	<ul style="list-style-type: none"> <li>Simplify investment procedures for domestic green businesses.</li> <li>Increase access to green finance for MSMEs through state-backed investment funds.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in time required for investment procedure completion.</li> <li>Volume and value of green finance accessed by MSMEs.</li> </ul>
		Number of regions utilizing alternative funding instruments (regions (province/district/city))	<ul style="list-style-type: none"> <li>Implement municipal green bonds.</li> <li>Create regional investment platforms for green industries.</li> <li>Establish public-private partnerships for local green infrastructure projects.</li> </ul>	<ul style="list-style-type: none"> <li>Volume and value of municipal green bonds issued.</li> <li>Number of regional investment platforms established.</li> <li>Volume and value of investments made through regional investment platforms</li> <li>Number of public-private partnerships formed.</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
		Percentage of local grant performance (%)	Strengthen grant implementation for green projects.	Number of green projects successfully implemented with grants.
<b>Human Capital Development</b>				
Increased number of high quality, local human capital	Creating employment and generating income creation in energy transition sectors	Percentage of youth with disabilities employed (%)	Create national/subnational recruitment programs to upskill people with disabilities to integrate to the green workforce	Number of people with disabilities allocated to new jobs in green sectors
		Female labor force participation rate (%)	Create women-targeted recruitment and upskilling programs for integration to the green workforce	Number of women employed in green jobs Number of upskilling programs related to green skills and green jobs that are targeted for women
	Addressing skill gaps by equipping educational institutions with the latest industry knowledge, including efforts for a just transition.	Percentage of labor force graduates from vocational education in the last year who are working/entrepreneurial	<ul style="list-style-type: none"> <li>Integration of basic knowledge on green industries &amp; economies in the national curriculum</li> <li>Enhance collaboration between vocational education institutions and green industries to ensure graduates have skills relevant to the green job market at the national and subnational level</li> <li>Collaboration with vocational schools and universities to prepare youths with practical skills for green jobs.</li> <li>Develop and expand inclusive education programs that emphasize skills and knowledge about sustainability and the environment.</li> <li>Promote green entrepreneurship programs in vocational high schools and higher education institutions to create more entrepreneurs focused on environmentally friendly businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Number of schools adopting green industries &amp; economies knowledge into their school curriculum</li> <li>Number of partnerships between vocational institutions and green companies</li> <li>Number of partnerships vocational schools &amp; universities have related to practical skills for green jobs</li> <li>Number of green entrepreneurship programs held in vocational high schools and higher education institutions</li> </ul>
		Percentage of workers with secondary and higher education working in high-level technical fields (%)		
		Percentage of higher education vocational graduates in the last year who: (a) are employed; (b) are entrepreneurs		
Average waiting time for higher education graduates to get jobs (months)				
Percentage of educational units implementing inclusive education that improves learning quality (%)				

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
		Number of workers whose green competencies are developed (persons)	<ul style="list-style-type: none"> <li>Provision of facilities and infrastructure for green education/training</li> <li>Enhancement of green competencies for educators/trainers</li> </ul>	<ul style="list-style-type: none"> <li>Number of attendees to the facilities for green education/training</li> <li>Number of educators/trainers who has a mastery on green competencies</li> </ul>
<b>Innovation &amp; Technology</b>				
Increased development and adoption of sustainable technologies at both national and local community levels	Increasing strategic innovations to enable a just transition	Number of collaborations utilizing science, technology, and strategic innovation with industry/business in priority areas (partnerships)	Implement programs to develop local suppliers who specialize in renewable energy (RE) and sustainable technologies and practices	Number of training programs implemented for local suppliers on renewable energy and sustainable practices
	Enhancing capacity and inclusion of (MSMEs to encourage broad public participation, fostering adaptation and growth within a green economy.	Proportion of MSMEs with business licenses (%)	Conduct assessments and programs to promote sustainable entrepreneurship practices at a regional level	<ul style="list-style-type: none"> <li>Number of programs promoting sustainable entrepreneurship practices for MSMEs</li> <li>Number of green certification and business permit workshops</li> </ul>
		Cooperative business volume ratio to GDP (%)	Provide upskilling opportunities to empower cooperatives to develop sustainable income sources	Number of upskilling workshops for cooperatives on developing sustainable income sources
	Adopting sustainable, low-carbon technologies and its supply chain	Proportion of cooperative business volume in the production sector to total cooperative business volume (%)	Support local manufacturing of RE components through upskilling programs	Number of upskilling programs for local manufacturers of RE components
		Renewable energy electricity production (GWH)	<ul style="list-style-type: none"> <li>Conduct electrification for public transportation in subnational regions</li> <li>Construct charging stations in big cities in Indonesia for EV mainstreaming</li> </ul>	<ul style="list-style-type: none"> <li>Percentage increase of electrification of public transportation per region</li> <li>Number of charging stations installed</li> <li>Average distance between charging stations in major cities</li> </ul>
		Installed public charging stations and private charging stations (Cumulative data as of 2023) (Units)		
Installed Public Battery Swap Stations (Cumulative data as of 2023) (Units)				

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### Appendix 4.4 Proposed Actions for National Government

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
<b>Economic and Financial Policies</b>				
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	<ul style="list-style-type: none"> <li>Establish direct financial assistance programs for communities affected by the energy transition.</li> <li>Mandate corporate contributions to poverty alleviation in transition-affected regions.</li> </ul>	<ul style="list-style-type: none"> <li>Number of households receiving direct financial assistance.</li> <li>Reduction in poverty rates in regions affected by energy transition.</li> <li>- Total corporate contributions to poverty alleviation initiatives in affected regions.</li> </ul>
		Percentage of poor and vulnerable families receiving social aid and social insurance (%)	Expand social security coverage and programs.	<ul style="list-style-type: none"> <li>Increase in social security program enrollment</li> <li>Increase in coverage for social security</li> <li>Increase in social security coverage flexibility (plans/programs)</li> </ul>
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	<ul style="list-style-type: none"> <li>Develop and revise social security policies to expand coverage for marginalized groups.</li> <li>Ensure policies align with international social protection standards and best practices.</li> </ul>	<ul style="list-style-type: none"> <li>Number of social security policies released that expand coverage for marginalized groups</li> <li>Number of policies revised to meet international standards</li> </ul>
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	Collaborate to innovate funding and financing models for social security	Number of new funding models implemented for social security programs.
		Coverage of national health insurance participation (%)	Expand JKN to include informal workers	Number of informal workers enrolled in JKN.
		Coverage of social insurance for employment (%)	<ul style="list-style-type: none"> <li>Make social security participation mandatory for energy workers.</li> <li>Expand coverage to informal workers in the energy sector.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance rate of energy companies with mandatory participation.</li> <li>Number of informal energy workers enrolled in social security.</li> </ul>
	Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of resource-efficient, green industries	Financial sector deepening/intermediation a. Banking assets/GDP (%) b. Pension fund assets/GDP (%) c. Insurance assets/GDP (%) d. Capital market capitalization/GDP (%) e. Total credit/GDP (%)	<ul style="list-style-type: none"> <li>Strengthen financial regulations and incentives to support capital market deepening.</li> <li>Strengthen regulations to ensure financial institutions integrate climate-related risks into their portfolios</li> </ul>	<ul style="list-style-type: none"> <li>Number of related regulations released</li> <li>Number of financial institutions incorporating climate risk assessments</li> </ul>
		Total third party funds/GDP (%)	<ul style="list-style-type: none"> <li>Establish regulatory frameworks to increase third-party funds mobilization towards sustainable investments.</li> <li>Encourage public participation in green investment programs.</li> </ul>	<ul style="list-style-type: none"> <li>Amount of third-party funds mobilized for sustainable investments</li> <li>Participation rate/success in public green investment programs.</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
		Financial inclusion (%)	<ul style="list-style-type: none"> <li>Introduce financial inclusion roadmaps that include digital banking expansion and accessible credit lines for marginalized groups.</li> <li>Strengthen financial services to reach unbanked and underbanked populations.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in digital banking users among marginalized groups.</li> <li>Reduction in the percentage of unbanked and underbanked population.</li> </ul>
		Financial inclusion (%)	Provide financial literacy programs for MSMEs, energy transition workers and affected communities.	<ul style="list-style-type: none"> <li>Number of participants completing financial literacy programs.</li> <li>Number of trainings or programs offered and held per year.</li> </ul>
		Manufacturing industry GDP ratio (%)	<ul style="list-style-type: none"> <li>Provide incentives to increase investment in green industries and the energy transition sector.</li> <li>Strengthen policies to ease business facilitation to implement projects in the energy transition sector.</li> <li>Allocate funds to inefficient sectors and industry to projects/technologies that increase productivity and resource efficiency</li> <li>Conduct economic assessments and develop tailored investment plans for traditionally underinvested sectors with high potential for sustainable growth such as sustainable agriculture, eco-tourism, and green technology to enhance economic diversification.</li> <li>Allocation of public funds for training, reskilling/upskilling, green jobs to create new job opportunities in green industries.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in investment in green industries.</li> <li>Number of new projects facilitated by policy changes.</li> <li>Amount of funds reallocated to resource-efficient projects.</li> <li>Number of investment plans developed for underinvested sectors.</li> <li>Number of individuals trained and employed in green jobs.</li> <li>Number of trainings held.</li> </ul>
		Green economy index		
		Value of exports of green category goods (billion USD)	<ul style="list-style-type: none"> <li>Develop trade policies that support green product exports.</li> <li>Negotiate international green trade agreements.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in the value of green product exports.</li> <li>Number of international green trade agreements signed.</li> </ul>
		Value of exports of green category goods (billion USD)	Provide support to export-oriented businesses to improve ESG compliance to meet international standards.	Number of businesses achieving ESG compliance.
		Ratio of MSME credit to total bank credit (%)	<ul style="list-style-type: none"> <li>Provide incentives to increase financial institutions' willingness to lend to MSMEs in green industries including guarantees.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in lending to MSMEs in green industries.</li> <li>Budget allocated for fiscal/financial incentives</li> </ul>
		Percentage of investment realization in domestic investment (PMDN), including micro, small,	<ul style="list-style-type: none"> <li>Simplify investment procedures for domestic green businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in time required for investment procedure completion.</li> <li>Volume and value of green finance accessed by MSMEs.</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
		and medium enterprises (MSME) (% of PMA/PMDN)	<ul style="list-style-type: none"> <li>Increase access to green finance for MSMEs through state-backed investment funds.</li> </ul>	
		Value of PMA/PMDN in the secondary sector (trillion IDR)	<ul style="list-style-type: none"> <li>Enhance investment incentives for green industrial processing.</li> </ul>	Increase in investment in green industrial processing.
		Number of regions utilizing alternative funding instruments (regions (province/district/city))	<ul style="list-style-type: none"> <li>Enhance regulations and mechanisms to support and upkeep the financial health of regional government bodies and BUMDs when implementing regional plans for green industries' growth.</li> </ul>	Solvency ratios for regional government bodies and BUMDs
		Percentage of local grant performance (%)	<ul style="list-style-type: none"> <li>Allocate grants to subnational regions for energy transition.</li> <li>Strengthen the monitoring and evaluation of local government spending on sustainability initiatives.</li> </ul>	<ul style="list-style-type: none"> <li>Value and volume of grants allocated for energy transition projects.</li> <li>Value and volume of grants disbursed for ET projects.</li> <li>Number of monitoring and evaluation reports produced.</li> </ul>
		Proportion of non-governmental/private research and development budget (%)	<ul style="list-style-type: none"> <li>Increase R&amp;D incentives for green innovation.</li> <li>Develop a national R&amp;D roadmap focused on green innovation and sustainable technology.</li> <li>Increase public-private research partnerships to drive technological advancements in clean energy and energy efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in R&amp;D spending on green innovation.</li> <li>Budget allocated for R&amp;D incentives.</li> <li>Completion and adoption of the national R&amp;D roadmap.</li> <li>Number of public-private research partnerships established.</li> </ul>
		Expenditure on science, technology, and innovation (% of GDP)	<ul style="list-style-type: none"> <li>Increase government budget allocation for green innovation.</li> <li>Establish national innovation grants for climate and energy transition research.</li> </ul>	<ul style="list-style-type: none"> <li>Percentage increase in budget for green innovation and grant funding.</li> <li>Number of innovation grants awarded for climate and energy research.</li> </ul>
<b>Human Capital Development</b>				
Increased number of high quality, local human capital	Creating employment and generating income in energy transition sectors	Percentage of provincial governments involving persons with disabilities in policy formulation (%)	<ul style="list-style-type: none"> <li>Formulation of policies and regulations on the inclusion of people with disabilities to transition to the green workforce</li> </ul>	Number of policies and regulations on the inclusion of people with disabilities in the green workforce
		Female labor force participation rate (%)	<ul style="list-style-type: none"> <li>Create women-targeted recruitment and upskilling programs for integration to the green workforce</li> </ul>	<ul style="list-style-type: none"> <li>Number of women employed in green jobs</li> <li>Number of upskilling programs related to green skills and green jobs that are targeted for women</li> </ul>
	Addressing skill gaps by equipping educational institutions with the latest industry knowledge,	Percentage of labor force graduates from vocational education in the last year who are working/entrepreneurial	<ul style="list-style-type: none"> <li>Integration of basic knowledge on green industries &amp; economies in the national curriculum</li> <li>Enhance collaboration between vocational education institutions and</li> </ul>	<ul style="list-style-type: none"> <li>Number of schools adopting green industries &amp; economies knowledge into their school curriculum</li> <li>Number of partnerships between vocational institutions and green companies</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used
	including efforts for a just transition.	Percentage of workers with secondary and higher education working in high-level technical fields (%)	green industries to ensure graduates have skills relevant to the green job market at the national and subnational level	<ul style="list-style-type: none"> <li>Number of partnerships vocational schools &amp; universities have related to practical skills for green jobs</li> <li>Number of green entrepreneurship programs held in vocational high schools and higher education institutions</li> </ul>
		Percentage of higher education vocational graduates in the last year who: (a) are employed; (b) are entrepreneurs	<ul style="list-style-type: none"> <li>Collaboration with vocational schools and universities to prepare youths with practical skills for green jobs.</li> <li>Developing and expanding inclusive education programs that emphasize skills and knowledge about sustainability and the environment.</li> </ul>	
		Average waiting time for higher education graduates to get jobs (months)	Promote green entrepreneurship programs in vocational high schools and higher education institutions to create more entrepreneurs focused on environmentally friendly businesses.	
		Percentage of educational units implementing inclusive education that improves learning quality (%)	Formulation and implementation of green curriculum and green education/training methods	
		Number of workers whose green competencies are developed (persons)	<ul style="list-style-type: none"> <li>Driving labor safeguard mechanisms to be adopted (e.g. transition plans, job retraining programs) particularly for informal workers and subcontracted workers at risk of displacement</li> </ul>	
<b>Innovation &amp; Technology</b>				
Increased development and adoption of sustainable technologies at both national and local community levels	Increasing strategic innovations to enable a just transition	Number of collaborations utilizing science, technology, and strategic innovation with industry/business in priority areas (partnerships)	<ul style="list-style-type: none"> <li>Engage research centers, think tanks, and university academics on the importance of publications on emergent technologies and sustainable business models</li> <li>Provide collaboration opportunities between BRIN and industry players to pilot test emergent low-carbon technologies</li> </ul>	<ul style="list-style-type: none"> <li>Number of FGD/workshops with research centers, think tanks, or university academics on emergent technologies and sustainable business models</li> <li>Number of pilot projects engaged by BRIN on low-carbon technologies implemented in industrial settings</li> </ul>
		Proportion of small and medium enterprises (%)	Provide upskilling activities to enable JT related MSMEs to diversify and grow sustainably in a green economy	Number of upskilling workshops for MSMEs to integrate into the green economy
	Enhancing capacity and inclusion of MSMEs to encourage broad public participation, fostering adaptation and growth within a green economy.	<ul style="list-style-type: none"> <li>Proportion of MSMEs with business licenses (%)</li> <li>Number of certified environmentally friendly products</li> </ul>	<ul style="list-style-type: none"> <li>Conduct assessments and programs to promote sustainable entrepreneurship practices at a national level</li> <li>Provide subsidized green certification opportunities and business permit workshops for MSMEs</li> </ul>	<ul style="list-style-type: none"> <li>Number of programs promoting sustainable entrepreneurship practices for MSMEs</li> <li>Number of green certification and business permit workshops</li> </ul>

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	
	Adopting sustainable, low-carbon technologies and its supply chain	Percentage of cumulative greenhouse gas (GHG) emission reduction (%)	<ul style="list-style-type: none"> <li>Increase the construction of renewable power plants and accelerate the retirement of CFPPs</li> </ul>	<ul style="list-style-type: none"> <li>Number of operational renewable power plants</li> <li>Number of retired CFPPs</li> <li>Number of capacity building programs for the adoption and development of sustainable low-carbon technologies</li> <li>Number of renewable energy projects at financial close</li> <li>Number of power plants that adopted cofiring technologies</li> <li>Percentage of GHG emissions reduction</li> <li>Publication of the early retirement roadmap of Indonesia</li> </ul>	
		GHG emission reduction in the energy sector (Million-ton CO <sub>2</sub> eq)	<ul style="list-style-type: none"> <li>Create capacity-building programs to encourage the adoption and development of sustainable low-carbon technologies within industries</li> </ul>		
		Reduction in GHG emission intensity (%)	<ul style="list-style-type: none"> <li>Drive the implementation of renewable energy projects in the power sector to be technically and financially feasible</li> <li>Increase the adoption of cofiring technology in Indonesian power plants</li> <li>Increase energy efficiency measures in industries and manufacturing sites</li> <li>Driving the electrification of industrial processes</li> <li>Finalization or publication of the early retirement roadmap of Indonesia</li> </ul>		
		Reduction in electricity generation emissions (Million-ton CO <sub>2</sub> )	Create fiscal and financial incentives for local renewable energy companies to grow the domestic supply chain		Number of fiscal and financial incentives for local renewable energy development
		Quality additional electricity connections (Units)	Expand the scope of electrification in Indonesia		Electrification ratio in Indonesia
		Quality additional electricity connections (Units)	<ul style="list-style-type: none"> <li>Conduct electrification for public transportation in subnational regions</li> </ul>		<ul style="list-style-type: none"> <li>Percentage increase of electrification of public transportation per region</li> <li>Number of charging stations installed</li> <li>Average distance between charging stations in major cities</li> </ul>
		National electrification ratio (%)	<ul style="list-style-type: none"> <li>Construct charging stations in big cities in Indonesia for EV mainstreaming</li> </ul>		

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### Appendix 4.5 Proposed Actions for Other Stakeholders

Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
<b>Economic and Financial Policies</b>					
Reduced economic reliance on a single sector including increased focus on decarbonisation businesses and the development of renewable energy	Implementing appropriate social protection measures to protect the people from adverse effects of the transition.	Poverty rate (%)	Advocate for equitable wage structures in the renewable energy sector.	Average wage levels in renewable energy sector jobs.	Associations
			Advocate for inclusive policies that protect vulnerable groups.	Number of inclusive regulations released to protect vulnerable groups	CSO, Academics, Think Tanks
		Number of policies to improve the program's quality and benefits of social insurance inclusively (policy recommendations)	Develop public awareness campaigns to educate communities on available social security benefits and increase enrollment.	Number of public awareness campaigns held Increase in enrollment rates following awareness campaigns.	CSO, Academics, Think Tanks
		Coverage of national health insurance participation (%)	Conduct impact assessments on health outcomes in transitioning energy communities.	Number of impact assessments completed and published.	CSO, Academics, Think Tanks
		Coverage of social insurance for employment (%)	<ul style="list-style-type: none"> <li>Establish industry-wide social protection standards.</li> <li>Develop best practices for companies to integrate social security into employment contracts.</li> </ul>	<ul style="list-style-type: none"> <li>Publication of social protection standards</li> <li>Adoption rate of published social protection standards by companies.</li> <li>Number of companies adopting best practices in employment contracts.</li> </ul>	Associations
	Enhancing fiscal, financial, and business facilitation incentives and increasing financing and funding availability for the development of resource-efficient, green industries	Total third party funds/GDP (%)	Assess best practices for mobilizing third-party funds for sustainable finance.	<ul style="list-style-type: none"> <li>Number of best practice reports published and disseminated.</li> <li>Number of socialization events held.</li> </ul>	Academics, Think Tanks
		Green economy index	<ul style="list-style-type: none"> <li>Track green economy performance and policy effectiveness.</li> <li>Benchmark and share best practices with the GoI of investment plans to channel resources towards underinvested sectors with</li> </ul>	<ul style="list-style-type: none"> <li>Improvement in the green economy performance.</li> <li>Number of best practice exchanges conducted.</li> <li>Number of research publications produced.</li> </ul>	Academics, CSO, Think Tanks

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
			high potential for sustainable growth Create research publications informing regulators of the sectors that fossil-fuel reliant resources could transition to.	Reduction in carbon emissions from supply chains.	
		Number of policies issued to support the carbon economic value (policy)	Provide technical guidance on carbon pricing policies.	Publication on technical guidance for carbon pricing policies.	CSO, Academics, Think Tanks
		Value of PMA/PMDN in the secondary sector (trillion IDR)	Assist members in accessing financial and technical resources and infrastructure needed for sustainable transitions, such as renewable energy systems, sustainable materials, and efficient supply chains.	Number of members accessing resources for sustainable transitions.	Associations
		Percentage of local grant performance (%)	Evaluate the effectiveness of government grants.	Number of evaluations conducted on grant effectiveness.	CSO, Academics, Think Tanks
		Proportion of non-governmental/private research and development budget (%)	Advocate for tax incentive policies for companies investing in research and development for green innovation.	Number of companies benefiting from tax incentives.	CSO, Academics, Think Tanks
		Expenditure on science, technology, and innovation (% of GDP)	Co-finance innovation grants for green industries. Facilitate knowledge-sharing between research institutions, industry and government.	Volume and value of co-financed innovation grants. Number of knowledge-sharing events conducted.	MDB, Academics, Think Tanks
<b>Human Capital Development</b>					
Increased number of high quality, local human capital	Creating employment and generating income in energy transition sectors	Number of collaborations involving DUDIKA in green job development (partnerships)	Encourage members to engage with local communities to widely share the benefits of	Number of engagements between association members and marginalized groups	Associations

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
			<ul style="list-style-type: none"> <li>energy transition, particularly among marginalized groups.</li> <li>Promote corporate social responsibility initiatives that contribute to community development and environmental conservation.</li> <li>Implement training programs and workshops to enhance members' ability to produce, provide and integrate low-carbon technologies and materials.</li> <li>Develop cooperation/partnerships within the green jobs ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Number of CSR initiatives that contribute to community development and environmental conservation</li> <li>Number of training programs and workshops for association members on the integration of low-carbon technologies and materials to their operations</li> <li>Number of partnerships established related to green jobs</li> </ul>	
	Addressing skill gaps by equipping educational institutions with the latest industry knowledge, including efforts for a just transition.	Number of workers whose green competencies are developed (persons)	<ul style="list-style-type: none"> <li>Facilitate knowledge exchange and best practices on green jobs through workshops, conferences, and networking events.</li> <li>Monitor the implementation of green education policies and advocate for continuous improvement.</li> </ul>	<ul style="list-style-type: none"> <li>Number of workshops/conferences/net working events held to facilitate knowledge exchange and best practices on green jobs.</li> <li>Number of green education policies implemented</li> <li>Percentage of pre-determined targets achieved on the implementation of green education policies</li> </ul>	CSO
			<ul style="list-style-type: none"> <li>Collaborate with government agencies and industry experts to design curricula that integrate theoretical knowledge with practical applications.</li> <li>Conduct studies and research on the potential for increasing human</li> </ul>	<ul style="list-style-type: none"> <li>Number of government agencies and industry experts participating in designing a curriculum on green economy/workforce</li> <li>Number of studies published related to human capital capacity needed for energy transition</li> </ul>	Think Tanks

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Outcome	Elements	National Level Indicators	Proposed Project/Program Specific Actions	Project/Program Possible Indicators Used	Party Responsible
			capital capacity needed for the energy transition.		
		Number of international collaborations on employment and skilled workforce movements (agreements)	<ul style="list-style-type: none"> <li>Work with government agencies and industry experts to design a curriculum that integrates theoretical knowledge with practical applications.</li> <li>Establish strong partnerships with industry stakeholders to co-develop curricula, share resources, and facilitate student placements.</li> <li>Conduct research on emerging trends and skills required for the green economy and adapt teaching methodologies accordingly.</li> <li>Raise awareness about green jobs</li> </ul>	<ul style="list-style-type: none"> <li>Number of government agencies and industry experts participating in designing a curriculum on green economy/workforce</li> <li>Number of industry stakeholders engaged in developing curriculums related to green economy/workforce</li> <li>Number of student placements in industry partners for internships/apprenticeships</li> <li>Number of publications on the emerging trends and skills in preparation for a green workforce</li> <li>Number of workshops/seminars held related to raising awareness on green jobs</li> </ul>	Academics
<b>Innovation and Technology</b>					
Increased development and adoption of sustainable technologies at both national and local community levels	Increasing strategic innovations to enable a just transition	Number of collaborations utilizing science, technology, and strategic innovation with industry/business in priority areas (partnerships)	<ul style="list-style-type: none"> <li>Conduct research to innovate and adopt sustainable technologies that enhance energy efficiency and resource optimization</li> </ul>	Number of publications on sustainable technologies that enhance energy efficiency and resource efficiency	Academics
		Number of science, technology, and strategic innovation products utilized by the government and society in priority areas (Products)	<ul style="list-style-type: none"> <li>Provide collaboration opportunities to pilot-test sustainable emerging technologies with the private sector</li> <li>Establish innovation hubs and provide R&amp;D support, with participation from the private sector, to scale up sustainable technologies</li> </ul>	<ul style="list-style-type: none"> <li>Number of pilot projects engaged by BRIN on low-carbon technologies implemented in industrial settings</li> <li>Number of participants contributing to innovation hubs aimed at scaling up sustainable technologies</li> </ul>	Think Tanks

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