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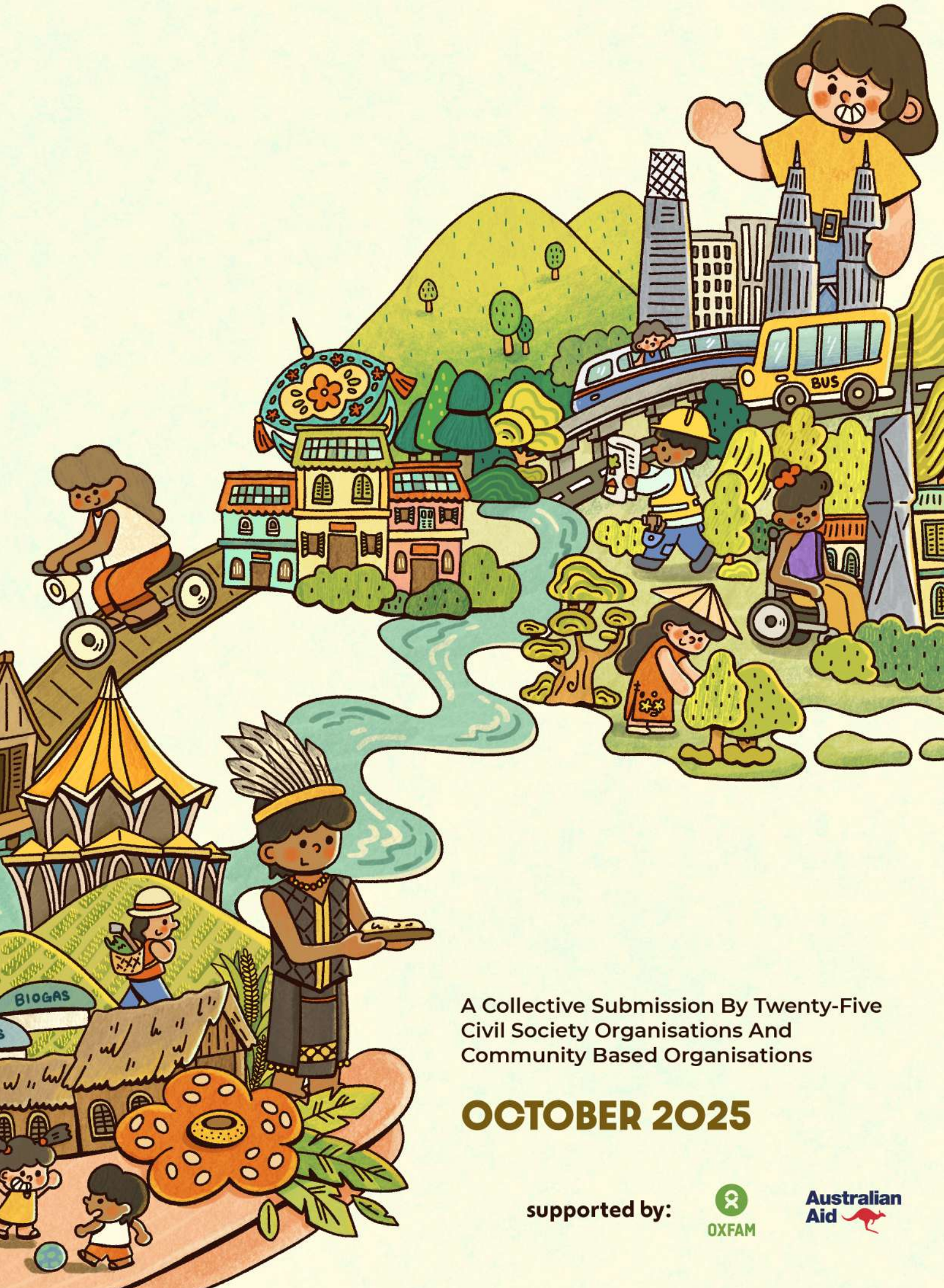
Southeast Asia

JUST ENERGY TRANSITION IN MALAYSIA:

INTEGRATING GENDER EQUALITY, DISABILITY, AND SOCIAL INCLUSION



A Collective Submission By Twenty-Five Civil Society Organisations And Community Based Organisations

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Preface

The Association of Southeast Asian Nations (ASEAN) is highly vulnerable to the impacts of climate change, yet remains heavily dependent on fossil fuels, which constitute 79% of the region's energy mix. Although ASEAN has committed to increasing the share of renewable energy (RE) to 23% by 2025, a transition that does not incorporate principles of justice, such as equitable distribution of benefits and protection for marginalised communities, risks exacerbating socio-economic inequalities.

As a rapidly developing nation, Malaysia faces the challenges of sustaining equitable growth while meeting its commitment under the Paris Agreement to reduce greenhouse gas emissions intensity by 45% against GDP by 2030. Given that the energy sector accounts for 79.2% of national greenhouse gas emissions, decarbonisation via a Just Energy Transition (JET) is imperative. Such a transition must achieve carbon reduction and also embed social equity.

In support of these objectives, the Climate Action Network Southeast Asia (CANSEA), in collaboration with Treat Every Environment Special (TrEES), hosted a National Convening of civil society organisations (CSOs) and community-based organisations (CBOs) to generate recommendations for the Malaysian Government in advancing and inclusive and rights-based energy transition with the following three strategic priorities:

1. Empowering CSOs and marginalised groups, especially women-led organisations, to shape a gender-responsive energy narrative.
2. Integrating gender and social inclusion into ASEAN energy policies, including the upcoming Asean Plan of Action for Energy Cooperation (APAEC 3: 2026-2030).
3. Increasing financing for inclusive RE initiatives, leveraging partnerships with ASEAN bodies such as the ASEAN Centre for Energy (ACE) and engaging strategic partners (e.g., Australia, EU, US).

This paper, an output of the National Convening, serves as a foundational guide for integrating Gender Equality, Disability, and Social Inclusion (GEDSI) into Malaysia's JET framework. It offers a conceptual overview of key issues and opportunities, followed by actionable policy recommendations to advance an inclusive, equitable, and sustainable energy transition. Additionally, it aims to raise awareness and provide stakeholders with a practical starting point for engaging and advocating for a transition that is both fair and sustainable.

The insights and recommendations presented here are synthesised from the National Convening held on 20 August 2025 in Petaling Jaya in the state of Selangor, which brought together 22 Malaysian CSOs and CBOs, along with three other contributing organisations. These organisations represent vulnerable communities, Indigenous Peoples, persons with disabilities, and advocates for women and children, ensuring that the guidance is grounded in diverse experiences and expertise.

Disclaimer

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Abbreviations

12MP	Twelfth Malaysia Plan
13MP	Thirteenth Malaysia Plan
BTR1	First Biennial Transparency Report
CBO	Community-Based Organisation
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CSO	Civil Society Organisation
DFAT	Department of Foreign Affairs, Australia
DOS	Department of Statistics
DTN	National Energy Policy
EIA	Energy Information and Administration
EPU	Economic Planning Unit
ESG	Environment, Social and Governance
FPIC	Free, Prior and Informed Consent
GDP	Gross Domestic Product
GEDSI	Gender Equality, Disability and Social Inclusion
GHG	Greenhouse Gas
GW	Giga Watt
ICAT	Initiative for Climate Action Transparency
ILO	International Labour Organization
JET	Just Energy Transition
KAMY	Klima Action Malaysia
KPI	Key Performance Indicator
LPWG	Enhanced Lima Work Programme on Gender
LT-LEDS	Long-Term Low Emissions Development Strategy
MOF	Ministry of Finance
MyRER	Malaysia Renewable Energy Roadmap
NC4	Fourth National Communication to the UNFCCC
NCCP	National Climate Change Policy
NDCRAP	Nationally Determined Contribution Roadmap and Action Plan
NETR	National Energy Transition Roadmap
NRE	Ministry of Natural Resources and Environment
NRES	Ministry of Natural Resources and Environmental Sustainability
OSA	Official Secrets Act
PERKESO	Pertubuhan Keselamatan Sosial
PV	Photovoltaic
PWD	Persons with Disabilities
RE	Renewable Energy

RTI	Right to Information
SADED	Sex, Age, Disability, And Ethnicity-Disaggregated Data
SDGs	Sustainable Development Goals
SEDA	Sustainable Energy Development Authority
STEM	Science, Technology, Engineering and Mathematics
TEK	Traditional Ecological Knowledge
TVET	Technical and Vocational Education and Training
UN	United Nations
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

1. CONTEXT

1.1 Introduction

As a rapidly developing nation, Malaysia faces a plethora of challenges, particularly in sustaining an equitable economic growth while mitigating climate change impacts as reflected in its Paris Agreement (UN, 2015) commitment to reduce GHG emission intensity by 45% against GDP by 2030 (NRE, 2021). With the energy sector accounting for 79.2% of national emissions (NRES, 2024a), Malaysia's decarbonisation efforts must centre on transforming this sector through a Just Energy Transition (JET) that ensures an equitable, inclusive shift from fossil fuels to renewable energy (RE). JET implies more than just a technological pathway as it requires building energy systems that are ecologically responsible and socially accountable (Caretta & Vela- Almedia, 2025). This transition must protect formal and informal energy workers, and vulnerable and marginalised communities and groups, while aligning with global momentum toward sustainable energy solutions. As part of the international community, Malaysia is positioned to both contribute to this worldwide movement and address domestic priorities; meaning its energy policies must pursue decarbonisation alongside social protection, specifically by empowering women, persons with disabilities, and Indigenous People who risk being left behind.

1.2 Malaysia's Energy Landscape

Malaysia's energy sector remains predominantly reliant on fossil fuels, which constituted 96.1% of its total primary energy supply in 2020 (MOF, 2023). Natural gas was the primary source at 42.4%, followed by crude oil and petroleum products (27.3%) and imported coal (26.4%), sourced mainly from Indonesia and Australia (EIA, 2024). Renewable energy (RE) contributed only 3.9% (MOF, 2023), predominantly from hydropower, from large-scale dams such as Bakun in Sarawak and smaller installations in Peninsular Malaysia.

The energy sector dominates Malaysia's GHG emissions, responsible for 79.2% of the nation's total emissions in 2021 (NRES, 2024a). Industrial processes, particularly from cement and steel manufacturing, accounted for 11.3% of emissions, while agricultural activities and waste management contributed the remaining 9.5% (NRES, 2024a). This emissions' profile highlights the critical need for decarbonisation efforts in the energy sector to meet Malaysia's climate commitments.

Malaysia's installed power generation capacity was 37.4GW in 2021 (EC, 2025) and is projected to increase to 97GW by 2050 (MOF, 2023). However, the country possesses abundant RE resources capable of transforming its energy landscape. Solar energy stands out as the most promising, with a technical potential of 269 GW due to the country's high solar irradiance (SEDA, 2021). Hydropower also presents substantial opportunities, particularly in Sarawak, where feasibility studies indicate up to 13.6 GW of untapped capacity. Additionally, bioenergy, derived from biomass, biogas, and municipal solid waste, could contribute up to 3.6 GW if fully harnessed. Small hydropower further complements this potential, offering an estimated 2.5 GW of additional capacity.

1.3 Energy Transition Challenges

The oil and gas sector currently contributes approximately 20% of government revenue (MOF, 2024) and supports nearly four million jobs (EPU, 2022), particularly in resource-rich states such as Sarawak and Terengganu. With rapid transition to RE, energy costs are expected to reduce, impacting the demand for fossil fuels over the next decade (Americo et al., 2023), potentially eroding Malaysia's fiscal revenues and displacing formal and informal energy workers. Without a proactive economic diversification strategy and targeted mitigation measures, this shift could destabilise the economy and exacerbate regional inequalities.

Grid infrastructure limitations pose technical challenges. The intermittent nature of renewable sources such as solar requires substantial upgrades to transmission systems and energy storage capacity (Fernandez et al., 2024). Current transmission and distribution grids are designed to deliver power from traditional coal and gas plants, and are ill-suited for renewable energy (EnergyWatch, 2024). Investments are needed in grid infrastructure upgrades and energy storage to support future energy mix with greater variable RE penetration (EPU, 2022), including introducing smart grid features and enabling third party access (MOF, 2023).

Ensuring social equity must be at the heart of the energy transition. Vulnerable populations, including low-income households and Indigenous communities, risk bearing disproportionate costs or being excluded from its benefits without deliberate intervention. While the shift to clean energy will create new employment opportunities (ILO, 2015), these jobs often require different skills, are located elsewhere, or belong to entirely different sectors than those disappearing with the decline of fossil fuels. To address this, energy policies must prioritise affordability, equitable access to clean energy solutions, and robust support for communities impacted by fossil fuel phase-outs.

1.4 Just Transition

The concept of a just transition is rooted in ensuring that the shift toward a low-carbon economy is fair and inclusive, safeguarding workers' rights and livelihoods, as well as communities dependent on the fossil fuel infrastructure. The Paris Agreement (UN, 2015) explicitly acknowledges the need for a just transition of the workforce, emphasising decent work and nationally defined development priorities. It also highlights the importance of respecting human rights, gender equality, and the rights of vulnerable groups, ensuring that climate action aligns with social equity. ILO (2015) further elaborates on this framework, promoting social dialogue, skills development, and social protection to ensure that environmental policies do not leave workers or communities behind.

The Katowice Climate Package (UNFCCC, 2018) through the Silesia Declaration, calls for a participatory approach involving all social partners to create decent jobs while transitioning to a low-emissions economy. The declaration explicitly references ILO (2015), underscoring the need for inclusive policies that balance economic growth, environmental sustainability, and workers' rights. This approach ensures that climate action does not exacerbate inequality but instead fosters equitable development. The Glasgow Climate Pact (UNFCCC, 2021) further recognised just transitions as essential for sustainable development and poverty eradication. It stressed the need for financial flows and technology transfers to support developing nations in achieving climate-resilient growth while creating quality jobs.

The newly released synthesis report, published in the first week of September 2025, by the Katowice

Committee of Experts on the Impacts of the Implementation of Response Measures (KCI) on Just Transitions frameworks (UNFCCC-KCI, 2025), highlighted seven fundamental principles to guide effective work on just transition (Box 1). The report is a consolidation of frameworks, toolkits and real case studies identifying best practices and critical gaps to support government, businesses and non-government actors to develop inclusive, evidence-based policies for just transition.

Box 1: Principles of just transition (UNFCCC-KCI, 2025)

1. **Active encouragement of emissions reduction** – The prospect of negative impacts on carbon-intensive regions is not a reason to avoid or delay climate action. Delay is fundamentally unjust. A just transition is one that is in line with achieving globally agreed climate goals; that is, one that accomplishes a very swift decline in emissions towards near zero.
2. **Participation** – Stakeholders, especially affected groups like workers, women and marginalised communities, must be engaged and empowered and their voices must be included in shaping transition plans.
3. **Inclusion** – It must be ensured that no one is left behind in the transition, and programmes and social protection must be implemented so that impacts are fairly distributed.
4. **Transparency** – The planning and implementation of the transition should be transparent, including regular progress reviews.
5. **Solidarity** – Social dialogue and cooperation between governments, businesses and civil society must be fostered in planning a just transition.
6. **Human rights** – These must be upheld, promoted and institutionalised through the transition, including rights to health, decent work and non-discrimination.
7. **Equity and fairness** – Equitable outcomes

1.5 Gender Equality, Disability, And Social Inclusion

The Gender Equality, Disability, and Social Inclusion (GEDSI) framework that ensures marginalised groups, including women, persons with disabilities, Indigenous People, and other socially excluded communities, are actively included in decision-making and benefit equitably from development initiatives. GEDSI integrates intersectionality which recognises that an individual's identity has many layers, and each layer may confer either negative or positive status and may either close or open access to resources and power (DFAT, 2023). The framework aligns with international commitments, including the United Nations Sustainable Development Goals (SDGs), particularly SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities), as well as the Convention on the Rights of Persons with Disabilities (UN, 2006).

2. POLICY FRAMEWORK

2.1 National Policies and Plans

2.1.1 The Twelfth Malaysia Plan, 2021-2025

The Twelfth Malaysia Plan (12MP) (EPU, 2021) outlines the aspiration for the nation to achieve net-zero GHG emissions as early as 2050, balancing the energy trilemma by ensuring energy security, affordability, and sustainability. The 12MP proposes a 31% RE capacity target through the development

of floating solar farms, waste-to-energy projects, and rooftop solar photovoltaic (PV) systems through innovative financing models such as solar leasing and power purchase agreements.

The 12MP also focuses on enhancing biomass and biogas contributions while adopting advanced technologies including cogeneration, solar thermal systems, fuel cells, and energy storage solutions to stabilise the grid. These comprehensive measures aim to strengthen Malaysia's electricity sector, improve energy sustainability, and accelerate the transition to a low-carbon future. The 12MP reported persistent socioeconomic inequalities, exacerbated by the COVID-19 pandemic, which disproportionately affected vulnerable groups. The B40 (bottom 40% income group) struggles with low education, high debt, and limited access to healthcare and housing, while M40 (middle 40%) households face rising living costs, inadequate social protection, and slow income growth. The Orang Asli (Indigenous People) in West Malaysia remains marginalised, with 33.6% poverty rates, poor education, and inadequate infrastructure. Additionally, youth unemployment (8.3%) and underemployment (40.8% of graduates in low-skilled jobs) highlight systemic labour market inefficiencies, worsened by financial instability and limited career pathways. Persons with disabilities (PWDs) face accessibility barriers, low registration rates, and limited vocational training, restricting economic participation. Older persons experience financial insecurity due to insufficient aged-care frameworks and pension support, increasing poverty risks.

In the 12MP, efforts were geared towards enhancing the security, wellbeing, and inclusivity by addressing poverty, reducing disparities among low-income groups, improving Bumiputera (the majority Malay and Indigenous People of Sabah and Sarawak) socioeconomic outcomes, advancing Orang Asli development, and supporting vulnerable populations. Key strategies include increasing income through diversified opportunities, improving access to education, healthcare, and housing, strengthening social protection, and refining poverty measurement and policy implementation. Specific focus areas include empowering the B40 and M40 groups, ensuring equitable Bumiputera progress through education, entrepreneurship, and wealth creation, uplifting Orang Asli via education and infrastructure, and supporting targeted groups such as women, youth, the elderly, and persons with disabilities.

2.1.2 The Thirteenth Malaysia Plan, 2026-2030

The Thirteenth Malaysia Plan (13MP) (EPU, 2025) builds upon its predecessor with the theme 'Redesigning Development' to comprehensively address national challenges including rising living costs, wage stagnation, demographic aging, and environmental sustainability. Central to its strategy is increasing renewable energy capacity from 29% to 35% by 2030 through the National Energy Transition Roadmap (NETR) (MOF, 2023), which encompasses exploring nuclear energy, expanding hydrogen fuel use, implementing carbon capture technologies, and facilitating carbon trading.

The plan is structured around three core dimensions, (1) creating a high-income sustainable nation, (2) ensuring quality inclusive living, and (3) fostering environmental sustainability, implemented through four strategic pillars: enhancing economic agility, improving social mobility, accelerating public service reform, and advancing well-being and environmental sustainability. Economically, the 13MP focuses on energy diversification through natural gas development, stable electricity access, nuclear power introduction, and rare earth element value chain development, while simultaneously promoting green financing, boosting eco- friendly products, strengthening blue economy industries, and modernising public transport infrastructure.

Socially, it drives education reform, labour market transformation, inclusive development policies, and targeted support for all communities including Bumiputera, Indigenous groups, and persons with disabilities, alongside balanced regional development initiatives. Additionally, the plan proactively addresses demographic ageing through sustainable care ecosystems, adapted labour policies, and enhanced social protection, while preserving environmental health via climate action, biodiversity conservation, and circular economy implementation, ultimately aiming to transform Malaysia into a resilient, value-based MADANI[1] society by 2030.

[1] MADANI is a Malaysian synthesis, intertwining existing practices with new methods designed to address emerging issues and uncertainties. MADANI is inspired by the concept of readiness for change, considering the input from all levels of society with the aspiration of recovery through substantive Reform for a more advanced and prosperous Malaysia (https://malaysiamadani.gov.my/pengenalan/).

2.1.3 National Climate Change Policy 2.0, 2024

The National Climate Change Policy (NCCP) 2.0 (NRES, 2024b) establishes a strategic pathway for Malaysia to transition toward a low-carbon, climate-resilient economy, harmonising national sustainable development priorities with global climate commitments. Acknowledging the reliance on fossil fuels, the policy highlights the potential socioeconomic disruptions, such as job losses in the oil and gas sector, that may arise from decarbonisation.

To address these challenges, NCCP prioritises a just transition, ensuring equitable support for affected workers and communities through reskilling programmes, social safety nets, and inclusive green economic opportunities. Embedded in Principle 2, the policy underscores a Just and Equitable Transition, mandating that the shift to sustainable development must protect livelihoods, particularly for vulnerable groups and at-risk industries. Key Action ST2S1KA5 outlines proactive strategies to mitigate energy transition risks, including workforce displacement and community impacts, while unlocking new prospects in green growth sectors.

2.1.4 National Energy Policy, 2022-2040

The National Energy Policy (DTN) 2022-2040 (EPU, 2022) positions Malaysia's energy sector as a driver of socioeconomic growth while advancing its Low Carbon Nation Aspiration 2040. By embracing the energy transition, the policy ensures long-term resilience, leveraging new opportunities in clean energy while mitigating risks to energy security and economic stability.

It prioritises three core objectives: macroeconomic resilience (sustaining growth through energy security), social equitability (fair distribution of transition costs and benefits), and environmental sustainability (futureproofing the economy and improving living standards). A key enabler is human capital development, including workforce reskilling for green and digital jobs, strategic labour market planning, and fostering innovation to support a competitive energy sector.

Central to this transition is a cross-cutting strategy to ensure fairness for workers in affected industries. This includes holistic workforce planning, upskilling initiatives, and partnerships with educational institutions to align training with future energy sector needs. **Action E3** proposes specific measures, such as sector-specific transition packages and updated TVET curricula, to safeguard livelihoods, enhance employability, and unlock new economic opportunities.

2.1.5 Malaysia Renewable Energy Roadmap, 2021

The Malaysia Renewable Energy Roadmap (MyRER) (SEDA, 2021) sets targets to expand Renewable Energy (RE) share in power generation, from 23% (8.45 GW) currently to 31% (12.9 GW) by 2025 and 40% (18 GW) by 2035. This transition is driven by key strategies: accelerating solar PV deployment, maximising hydropower potential, advancing bio-energy innovations, and exploring emerging technologies such as hydrogen and energy storage. Beyond decarbonisation, this shift promises significant economic benefits, with MYR 19.93 billion in investments and 28,416 new jobs projected by 2025, scaling up to MYR 33.07 billion and 46,636 jobs by 2035.

To ensure a smooth transition, the roadmap emphasises public awareness and workforce readiness. **Initiative 5.3** focuses on building human capital development through tailored vocational training programmes to cultivate skilled labour for engineering, procurement, construction, and operations/maintenance sectors. Collaboration with educational institutions aims to align curricula with industry needs, fostering a domestic talent pipeline while supporting innovation in RE technologies.

2.1.6 National Energy Transition Roadmap, 2023

The NETR outlines Malaysia's strategic shift from fossil fuel dependence to a greener, low-carbon energy system through its Responsible Transition (RT) Pathway 2050. This transition aims to enhance climate resilience while unlocking new economic opportunities, projecting a rise in gross domestic product (GDP) contribution from RM25 billion (2023) to RM220 billion by 2050, alongside the creation of 310,000 jobs.

The RT Pathway prioritises RE, hydrogen, bioenergy, and carbon capture technologies, while phasing out coal and advancing energy efficiency and electrification in public transportation. By balancing energy security, affordability, and sustainability, NETR seeks to deliver broad-based prosperity while ensuring no community is left behind, a core tenet of its just and inclusive transition principle.

Human capital development is central to NETR's success, requiring workforce adaptation to emerging green sectors. Challenges include declining jobs in GHG-intensive industries (e.g., oil and gas) and skill gaps in green technologies. To address this, NETR proposes targeted initiatives: a green skills taxonomy **(EN6)** to align workforce planning with industry needs; reskilling programmes **(EN7)** through university-industry partnerships and updated TVET curricula; and community support **(EN8)** for affected regions.

2.1.7 Malaysia's Nationally Determined Contribution Roadmap and Action Plan

Malaysia has reinforced its commitment to achieving Net Zero greenhouse gas emissions by 2050 through the Nationally Determined Contribution Roadmap and Action Plan (NDC RAP) (NRES, 2025a) and the Long-Term Low Emissions Development Strategy (LT-LEDS) (NRES, 2025b). These strategies outline a balanced and just transition to Net Zero, ensuring no disproportionate harm to vulnerable communities while aligning with global efforts to combat climate change.

The transition also presents economic opportunities, including the creation of an estimated 207,000 jobs through low-carbon initiatives, with renewable technologies offering higher employment potential than fossil fuels. However, safeguards such as reskilling programmes and financial support

for affected workers and households will be crucial to mitigate job losses and economic disruptions.

The shift to greener technologies, such as hydrogen and green manufacturing, is expected to generate 350,000–500,000 new jobs but will require significant workforce reskilling in areas such as project management, Environment, Social and Governance (ESG) reporting, and emerging engineering fields. **Enabler 6** in the LT-LEDS outlines the need for talent development which will be supported through apprenticeships, vocational training, higher education, and private-sector partnerships.

2.2 National Reports on Climate Change

2.2.1 Malaysia's Fourth National Communication Report under the United Nations Framework Convention on Climate Change (2024)

Malaysia's Fourth National Communication (NC4) to the United Nations Framework Convention on Climate Change (UNFCCC) (NRES, 2024c) presents a comprehensive assessment of the nation's climate actions, encompassing greenhouse gas inventories, mitigation and adaptation measures, and capacity-building initiatives. A key focus of the report is advancing gender inclusivity in climate governance, aligning with the Enhanced Lima Work Programme on Gender (LPWG) that advocates for women's full, equal and meaningful participation in climate processes (see **Box 2**).

Box 2: Lima Work Programme on Gender

The LWPG was established in 2014 to advance gender-responsive climate policy and action under the UNFCCC and Paris Agreement by promoting women's participation and addressing differentiated impacts. The programme was enhanced with a five-year action plan in 2019 and, following a successful review at the 29th Conference of Parties (COP), was extended for another decade. The process to develop a new Gender Action Plan is now underway, with deliberations starting in June 2025 and a draft scheduled for adoption at COP 30 in November 2025, informed by the comprehensive 2024 programme review.

The NC4 preparation process involved ninety-seven stakeholder engagements with 1,699 participants, achieving 56% female representation overall. While women occupied 42% of technical positions in climate committees, their participation remained disproportionately low in traditionally male-dominated sectors such as forestry and energy. Public-sector climate awareness programmes demonstrated progress with 53% achieving gender parity or better, though private-sector initiatives showed significantly lower female engagement.

The report acknowledges persistent challenges in mainstreaming gender perspectives, noting limited understanding of gender-differentiated climate impacts due to prevailing socio-cultural norms. Building on these findings, the NC4 establishes actions across priority areas to guide Malaysia's development of a comprehensive, gender-responsive climate policy framework in line with LPWG objectives **(Box 3).**

Box 3: Priority Areas on Gender Participation in NC4 (NRES, 2024c)

Priority Area A: Capacity Building, Knowledge Management and Communication

1. Strengthen capacity building efforts for government agencies and other stakeholders in mainstreaming gender in formulating, monitoring, implementing and reviewing, as appropriate, national climate change policies, plans, strategies and action, including nationally determined contributions, national adaptation plans and national communications.
2. Appoint a national gender focal point for UNFCCC
3. Enhance capacity building for government agencies and other stakeholders to collect, analyse and apply sex-disaggregated data and gender analysis in the context of climate change, where applicable.
4. Strengthen the evidence base and understanding of the differentiated impacts of climate change on men and women, and the role of women as agents of change and on opportunities for women.

Priority Area B: Gender Balance, Participation and Women's Leadership

1. Promote initiatives for capacity building in leadership, negotiation and facilitation of negotiation for women delegates, including through webinars and in-session training to enhance women's participation in the UNFCCC process
2. Promote travel funds as a means of supporting the equal participation of women in all national delegations at the UNFCCC sessions, as well as funds to support the participation of grass roots local and Indigenous Peoples' communities and share information on travel funding with the UNFCCC secretariat.

Priority Area C: Gender-Responsive Implementation and Means of Implementation

1. Support capacity building on gender budgeting, including on the integration of gender-responsive budgeting into national budgets to advance gender-responsive climate policies, plans, strategies and action, as appropriate.
2. Use the financial and technical support made available by various climate funds, promote the strengthening of gender integration into climate policies, plans, strategies and action, as appropriate, including good practices to facilitate access to climate finance for grass-roots women's organisations and Indigenous Peoples and local communities.
3. Promote the deployment of gender-responsive technological solutions to address climate change, including strengthening, protecting and preserving local, Indigenous and traditional knowledge and practices in different sectors participation and leadership in science, technology, research and development
4. Support the collection and consolidation of information and expertise on gender and climate change in sectors and thematic areas as well as identifying experts on gender and climate change, as needed, and enhance knowledge platforms on gender and climate change.
5. Engage women's groups and national women and gender institutions in the process of developing, implementing, and updating climate policies, plans, strategies and action, as appropriate, at all levels.

6. Exchange information on lessons learned among neighbouring countries in the region that have integrated gender into national climate policies, plans, strategies and actions, as appropriate and on the actions, countries are taking to mainstream gender in any updates thereto, as appropriate.
7. Enhance the availability of sex-disaggregated data for gender analysis, taking into consideration multidimensional factors, to better inform gender-responsive climate policies, plans, strategies and action, as appropriate.

Priority Area D: Monitoring and Reporting

1. Strengthen the monitoring and reporting on women in leadership positions within the UNFCCC process in the context of the gender composition report submitted by the secretariat.
2. Monitor and report on the implementation of gender-responsive climate policies, plans, strategies and actions, as appropriate, reported by Parties in regular reports and communications under the UNFCCC process.

2.2.2 Malaysia's First Biennial Transparency Report Under the United Nations Framework Convention on Climate Change (2024)

Malaysia's First Biennial Transparency Report (BTR1) under the UNFCCC demonstrates the nation's climate action commitments, anchored in the Malaysia MADANI vision, a framework prioritising sustainability, inclusivity, and equitable development. The report reaffirms Malaysia's dedication to a just transition to a low-carbon economy, ensuring environmental stewardship and shared benefits for all citizens. By integrating MADANI principles into climate policies, Malaysia seeks to harmonise ecological sustainability with social equity, ensuring no one is left behind in its green transformation. However, BTR1 reported that of the 1,267 participants engaged in consultations, 53.7% were women, though their representation in technical roles remained lower at 35.3%, highlighting persistent gaps in gender-balanced participation.

Building on the foundation laid in NC4, BTR1 reinforces the five priority areas, from capacity-building to gender-responsive implementation, to strengthen women's leadership in climate action. Recognising the need for a more integrated and inclusive approach, the report identifies opportunities to enhance cross-sectoral data integration and develop gender-sensitive climate strategies.

3. ISSUES AND OPPORTUNITIES

The implementation of the JET framework in Malaysia is a strategic imperative, essential for simultaneously advancing decarbonisation and addressing entrenched structural inequalities. This transition from fossil fuels to renewable energy systems presents a unique window to correct GEDSI disparities within the energy sector. A critical barrier to achieving these dual objectives is a deficient level of public awareness, which reinforces social stigma and constrains the participation of marginalised groups.

3.1 Gender Dimensions of Energy Transition

In Malaysia, more than half of local Science, Technology, Engineering and Mathematics (STEM) graduates are women (53.2% in 2021) but men outnumber women in employment (The Star, 2024). This imbalance reflects broader societal norms that discourage women from pursuing STEM careers, compounded by workplace cultures that frequently lack family-friendly policies. The renewable energy transition offers a critical opportunity to disrupt these patterns through deliberate workforce development initiatives aimed at fostering gender equality. However, the sector remains marked by gender inequality, with women occupying far fewer tactical and leadership roles than men, reflecting deeper workforce disparities in the industry (Kuah et al., 2025).

Women remain underrepresented in clean energy entrepreneurship, facing gender-specific barriers including limited financing access, scarce mentorship opportunities, and persistent industry stereotypes. The energy transition offers a chance to overcome these challenges through targeted initiatives such as microfinance programmes, skills training, and networking platforms. Malaysia could further support women-led renewable ventures through tax incentives, grants, and dedicated funding mechanisms to address the financing gap.

At the same time, women in rural Indigenous communities face parallel challenges at the household and community level. In rural Peninsular Malaysia, Orang Asli women depend on water pumps for clean water, a necessity made increasingly difficult by soaring fuel costs and frequent mechanical failures (KAMY, 2023). These challenges deepen their financial strain, compounding the already heavy energy burden they bear. Their struggle mirrors a widespread global issue: rural and Indigenous women often lack reliable access to electricity grids, which severely undermines their health, economic stability, and long-term opportunities. Decentralised renewable energy solutions, designed with gender considerations, can address these challenges. By providing access to clean, affordable energy, these solutions alleviate the energy burden and also open new economic opportunities, supporting livelihoods, healthcare, and education.

For rural women in particular, workforce participation in the renewable energy sector is constrained by time, mobility, and care responsibilities. Gender-sensitive training programmes, offered with flexible schedules, childcare support, and mobile learning options, can help overcome these barriers while equipping women with the technical skills needed for meaningful involvement across all communities. Complementing this, structured mentorship schemes and professional networks are essential for supporting women's entry and progression in the sector. By connecting women with industry leaders and peers, such initiatives create more inclusive professional environments, open pathways to leadership, and strengthen the visibility of women as role models for future generations.

3.2 Disability Inclusion in Clean Energy Systems

Despite Malaysia's ratification of the UN Convention on the Rights of Persons with Disabilities (CRPD) and the Persons with Disabilities Act 2008, PWDs continue to face systemic exclusion in education, employment, and social participation due to persistent stigma, inaccessible infrastructure, and inadequate support systems (OKU Rights Matter, undated).

Non-compliance with accessibility standards, financial constraints, and digital exclusion, particularly the incompatibility of smart energy technologies with assistive devices, further marginalise PWDs in emerging sectors such as renewable energy. Without urgent interventions such as universal

design in energy projects and inclusive policy reforms, the clean energy transition risks exacerbating existing inequalities.

Current renewable energy initiatives often overlook accessibility, excluding PWDs from employment opportunities and decision-making roles. The rapid adoption of smart energy management systems, many of which lack assistive technology compatibility, widens this gap. To ensure an inclusive transition, policies must mandate accessibility audits, subsidise assistive technologies, and actively engage PWDs in energy project planning. Financial incentives for businesses adopting universal design and reasonable accommodations are critical to dismantle structural barriers.

Concrete measures should include targeted recruitment programmes, accessible training initiatives, and subsidies for assistive devices to enable PWDs' participation in the renewable energy workforce. Tax credits or grants could incentivise companies to hire PWDs and integrate inclusive technologies. Simultaneously, clean energy infrastructure, from solar panel interfaces to grid management systems, must embed universal design principles to ensure equitable access.

Meaningful inclusion requires PWDs' direct involvement in all stages of energy project development, from design to leadership. Quotas for PWD employment, tailored mentorship programmes, and participatory policymaking can transform the sector into a driver of social equity. By aligning Malaysia's clean energy transition with disability rights frameworks, these actions would set a precedent for inclusive sustainable development.

3.3 Social Inclusion of Marginalised Communities

Indigenous communities and urban low-income populations face unique challenges in Malaysia's energy transition that demand culturally sensitive and equitable solutions.

The rapid deployment of utility-scale renewable energy projects has at times led to land rights conflicts. In 2009, the Murum Hydroelectric Project displaced over 1,400 Indigenous Penan and Kenyah communities leading to severe disruptions to their livelihoods, culture practices, and access to essential resources. Reports by SUHAKAM (2009) and the Malaysian Bar (2014) highlighted poor resettlement conditions, including infertile land, polluted resources, and inadequate infrastructure, exacerbating the community's struggles. These tensions highlight the critical need for robust Free, Prior and Informed Consent (FPIC) processes aligned with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

In rural Peninsular Malaysia, at least 137 Orang Asli villages remain without access to electricity (The Star, 2023). While plans exist to connect them to the national grid, their remote locations present significant logistical and financial challenges. For some villages where off-grid solutions such as solar PV systems have been installed by non-governmental organisations and private sector initiatives, many systems fall into disrepair due to a lack of long-term maintenance. For these communities, a sustainable and well-supported transition to renewable energy comprising of off-grid solar PV and micro-hydro installations is essential to improve access to energy.

Households in Malaysia allocate a sizeable portion of their expenditure to energy-related costs, with 23.2% spent on housing and utilities and 11.3% on transportation (DOS, 2023). This burden is disproportionately felt by low-income families. For example, households earning less than RM 5,000 per month spend an average of RM 51–250 monthly on electricity, with bills evenly split between the

RM 51–100 and RM 101–250 brackets (Daud et al., 2023). Furthermore, families in Kuala Lumpur's low-cost housing dedicate approximately 10% of their income solely to electricity expenses (Zaid, 2015).

These financial pressures are compounded for the bottom 40% income group (B40), who are disproportionately affected by rising living costs and food inflation (The Edge, 2025). The high upfront cost of energy-efficient appliances often places them out of reach for these households (Kasavan, 2021). Consequently, well-intentioned energy-efficiency initiatives frequently fail to reach the most economically vulnerable groups. This exclusion exacerbates energy affordability challenges, trapping them in a cycle of high operational costs and reinforcing broader inequalities.

To ensure an equitable energy transition, policies must prioritise inclusivity by addressing the specific needs of marginalised communities. Indigenous and rural groups should have meaningful participation in decision-making through FPIC conducted in local languages and with respect to local social and cultural settings. Low-income urban households require tailored energy efficiency programmes and financial support, such as subsidies or low-interest financing for energy-efficient appliances. Tax incentives for renewable energy adoption, particularly solar and wind systems, could further reduce cost barriers in underserved urban areas, enabling broader access to clean energy.

Beyond accessibility, renewable energy policies must integrate marginalised groups into the energy transition. Indigenous women often face compounded barriers despite their established roles in managing community energy systems. Their traditional ecological knowledge (TEK) is frequently overlooked in project design, reducing both effectiveness and local ownership. In many Indigenous contexts, women hold culturally specific responsibilities for resource management and knowledge transmission; excluding them risks misalignment with community practices. Policies should therefore ensure that project planning and implementation processes recognise these roles, create space for Indigenous women's participation, and provide context- appropriate training to strengthen technical and leadership pathways. For Malaysia, embedding such measures would help align renewable energy initiatives with local governance systems and ensure a more inclusive and sustainable transition.

3.4 Intersectional Challenges and Data Gaps

Current energy transition planning frequently overlooks how intersecting vulnerabilities, based on gender, disability, ethnicity, and socioeconomic status, compound energy inequities. A critical barrier is the lack of disaggregated data, as evidenced by Malaysia's National Energy Balance, which fails to systematically track the energy needs of PWDs, Indigenous communities, and other marginalised groups. Addressing this requires deliberate collaboration with local organisations to collect both quantitative and qualitative data across these identity markers, enabling policymakers to design targeted interventions. Without such intersectional analysis, energy policies risk perpetuating existing exclusions.

Effective solutions must expand data frameworks to incorporate key variables such as household composition, caregiving responsibilities, and geographic disparities (urban/rural). This demands both upgraded data infrastructure, including tailored energy-access surveys for marginalised populations, and inclusive consultation processes. By engaging vulnerable communities directly in data collection, Malaysia can achieve dual objectives: improving data accuracy while creating formal channels for these groups to articulate their distinct energy challenges and opportunities. Such an approach would transform data gaps into actionable insights for equitable energy planning.

To address these gaps, frameworks such as the Initiative for Climate Action Transparency (ICAT) Just Transitions Monitoring Guide (WRI, 2025) offer a structured approach to monitor just transition processes. The guide emphasises a justice-centred approach to track the social, economic, and environmental changes faced by communities, workers, vulnerable populations, businesses, and other groups. Key steps outlined in the guide include:

1. Defining just transition-related goals or priorities.
2. Establishing social, economic, and environmental targets and indicators.
3. Developing a robust data collection process.
4. Analysing data to understand trends.
5. Communicating findings to reflect changes and inform policies and decisions.

4. POLICY RECOMMENDATIONS

The following policy recommendations synthesises the most significant proposals from a review of existing sources. They were further discussed and refined during the national convening of CSOs/ CBOs on 20 August 2022. They are categorised into eleven aspects; and some interconnections to the NC4 priority areas for gender participation and the seven principles highlighted by UNFCCC-KCI (2025) are illustrated in **Figure 1.** The recommendations aim to provide actionable policy guidance to ensure Malaysia's energy transition is inclusive, equitable, and just.

4.1 Strengthen Governance and Institutional Frameworks

4.1.1 Establish a permanent GEDSI Task Force within the National Energy Council with equal representation from women's organisations, disability rights groups, and Indigenous leadership to institutionalise inclusion in energy policymaking.

4.1.2 Institutionalise GEDSI mainstreaming across all energy transition planning instruments, with explicit alignment mechanisms for the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), SDG 5 (Gender Equality), SDG 7 (Affordable and Clean Energy) and SDG 10 (Reduced Inequalities), and UNFCCC commitments.

4.1.3 Establish a National Gender and Climate Change Focal Point position with ministerial-level authority to enforce gender-responsive policy implementation.

4.1.4 Implement mandatory GEDSI impact assessments for all large-scale energy transition projects, with approval authority held by the Task Force.

4.1.5 Implement capacity-building programmes for policymakers and implementers within relevant government agencies on JET-GEDSI.

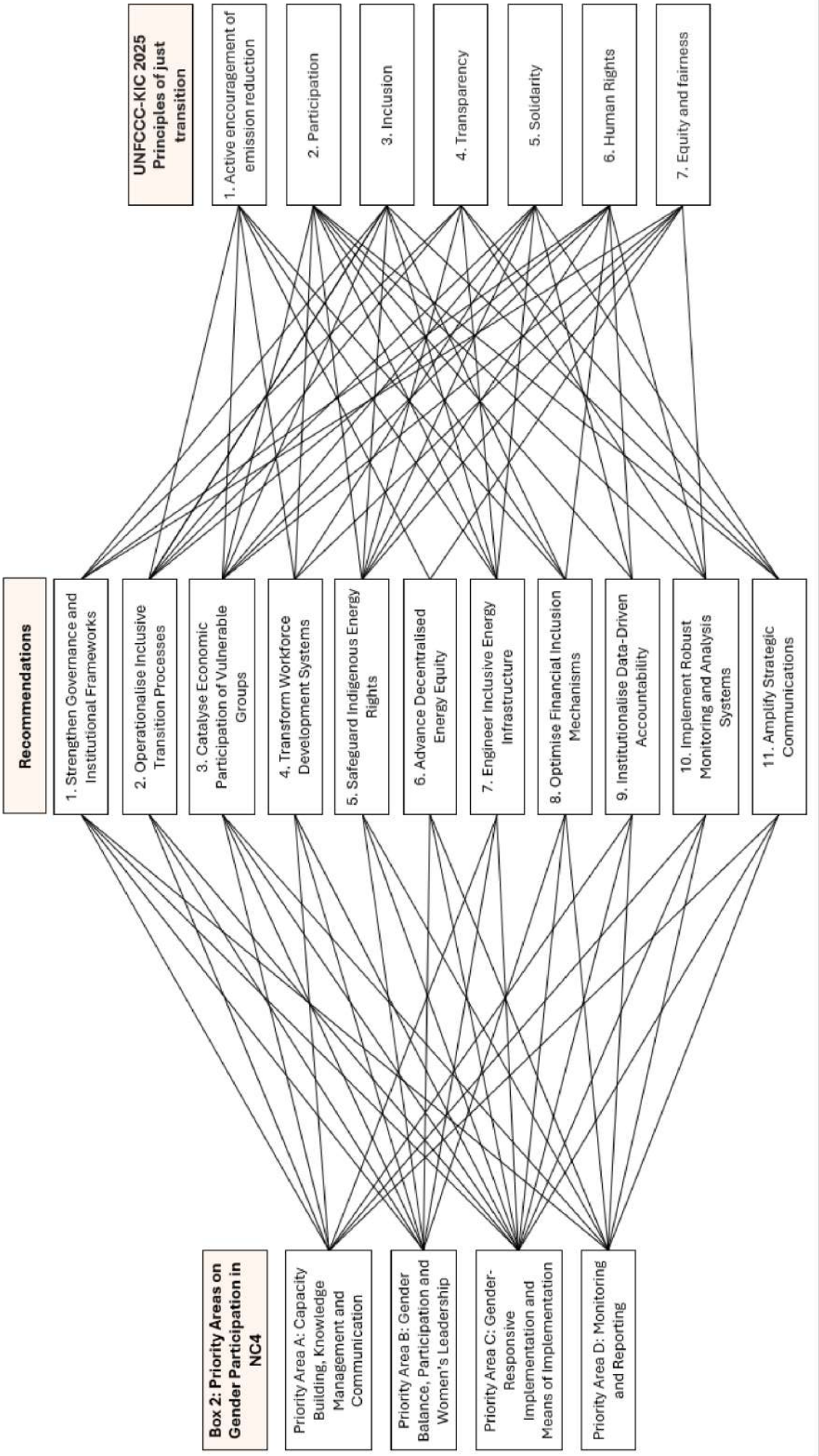

Figure 1: Some Interconnections of the Recommendations with Priority Areas on Gender Participation in NC4 and the UNFCCC-KIC 2025 Principles of Just Transition

4.2 Operationalise Inclusive Transition Processes

4.2.1 Legislate representation of PWDs, Indigenous People, and women participation in energy policy formulation and project design committees.

4.2.2 Implement standardised inclusive-responsive protocols for environmental and social impact assessments for energy projects to mitigate the risks of displacement and gender-based discrimination.

4.2.3 Mandate FPIC in Indigenous areas and gender-sensitive consultations to protect the rights and involvement, particularly for Indigenous women.

4.2.4 Ratify ILO C190 (Violence and Harassment Convention) and enact comprehensive Gender Equality in Employment Act with specific energy sector provisions on gender equality and disability inclusion.

4.2.5 Establish multi-stakeholder platforms for direct engagement with marginalised communities to advocate for inclusive policies and monitor progress in the energy transition.

4.3 Catalyse Economic Participation of Vulnerable Groups

4.3.1 Direct targeted public investments into accessible education, vocational training, and reskilling programmes, co-designed with representatives from women, PWD, and Indigenous communities to meet their specific needs.

4.3.2 Establish a Women in Renewable Energy Fund providing microloans and technical assistance for women-led clean energy enterprises.

4.3.3 Promote community-managed renewable energy projects that prioritise the inclusion of marginalised groups, particularly Indigenous communities, including women, in the management of local energy systems, supported by dedicated financial and technical assistance

4.3.4 Implement digital energy literacy programmes reaching rural women through mobile platforms.

4.3.5 Integrate social and economic empowerment into energy policies by promoting the active participation of vulnerable groups in the renewable energy sector, with consideration of cultural relevance and sustainability.

4.4 Transform Workforce Development Systems

4.4.1 Mandate merit-based, inclusive hiring practices across the energy sector, requiring that all candidates be evaluated solely on qualifications, skills, and experience, free from bias related to age, gender, ethnicity, or cultural background.

4.4.2 Enforce gender parity quotas in RE technical training programmes, coupled with mandatory parallel investments in onsite childcare infrastructure at all training facilities.

4.4.3 Launch a National Disability-Inclusive Energy Programme to create accredited training pathways and guarantee employment placements for PWDs within the public energy sector.

4.4.4 Reform labour regulations and social security frameworks to formally recognise care economy contributions by providing portable benefits (e.g., health insurance, retirement savings).

4.4.5 Implement a STEM-RE Pipeline Initiative featuring targeted scholarships, mentorship, and paid apprenticeship placements for women and other marginalised genders in the RE sector.

4.4.6 Expand Pertubuhan Keselamatan Sosial (PERKESO) coverage to incorporate transitional unemployment benefits and wage insurance for workers displaced by the energy transition.

4.5 Safeguard Indigenous Energy Rights

4.5.1 Legal Recognition of Rights – Formally recognise and protect the rights of Indigenous People to self-determination in accordance with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and the International Labour Organization (ILO) Convention No. 169, ensuring consistency across national energy policies and legal frameworks.

4.5.2 Mandatory Free, Prior, and Informed Consent (FPIC) Protocols – Require the implementation of FPIC for all energy projects affecting Indigenous lands, territories, and resources.

4.5.3 Data Sovereignty Safeguards – Extend FPIC principles to all data collection and research activities, ensuring that Indigenous communities retain sovereignty over their information, are fully informed of potential uses, and provide explicit consent before any application or dissemination.

4.5.4 Equitable Energy Access – Guarantee that underserved and Indigenous communities are prioritised in the distribution of affordable, reliable, and modern energy services. This includes targeted measures to reduce existing inequalities and ensure just participation in the renewable energy transition.

4.6 Advance Decentralised Energy Equity

4.6.1 Establish a supportive legal and regulatory framework for diverse community energy ownership models, including cooperatives, trusts, and special purpose vehicles.

4.6.2 Mandate that all community-scale renewable energy projects demonstrate significant local ownership, with guaranteed majority representation for women, PWDs, and Indigenous communities in governance structures.

4.6.3 Conduct thorough needs-based assessments to strategically target investments and ensure renewable energy projects effectively reach the most marginalised demographics.

4.6.4 Incorporate TEK into design and planning processes to co-create culturally appropriate and sustainable energy solutions.

4.6.5 Launch a Rural Green Jobs Corridor programme, featuring targeted investments in regional training hubs for mini-grid construction, operation, and maintenance.

4.7 Engineer Inclusive Energy Infrastructure

4.7.1 Enforce compliance of universal design and accessibility standards for PWDs for all public RE facilities, through amendments to the Electricity Regulations 1994

4.7.2 Adopt universal design and accessibility standards for PWDs for off-grid energy installation through updates of the technical requirements within the Malaysia Standard 62257 Recommendations for Small Renewable Energy and Hybrid Systems for Rural Electrification.

4.7.3 Develop next-generation assistive technologies through public-private R&D consortia.

4.8 Optimise Financial Inclusion Mechanisms

4.8.1 Develop a National Just Transition Fund earmarked for women, PWDs, and Indigenous self-determined initiatives.

4.8.2 Implement gender budgeting protocols across all energy transition financing instruments.

4.8.3 Introduce progressive tax incentives for companies meeting diversity thresholds.

4.8.4 Implement targeted subsidies and incentives for low-income groups to access renewable energy and energy-efficient technologies.

4.8.5 Dedicate carbon tax revenues to GEDSI-focused programmes through statutory requirement

4.9 Institutionalise Data-Driven Accountability

4.9.1 Enact a Right to Information (RTI) law and reform the Official Secrets Act (OSA) to enhance transparency and accountability.

4.9.2 Mandate all licensed energy operators to submit annual public reports with data disaggregated by sex, age, disability, and ethnicity (SADED) across all energy sources.

4.9.3 Expand ESG reporting requirements to mandate the disclosure of intersectional GEDSI data and waste generation metrics, standardising corporate accountability.

4.9.4 Institute a parliamentary oversight mechanism with civil society shadow reporting, providing independent government scrutiny.

4.10 Implement Robust Monitoring and Analysis Systems

4.10.1 Develop a harmonised GEDSI-JET monitoring and evaluation framework with clear indicators, baselines, and targets to systematically assess progress.

4.10.2 Leverage AI and machine learning tools to analyse integrated datasets, identify trends, forecast outcomes, and model missing information.

4.10.3 Deploy a public National GEDSI Dashboard with real-time data integration to ensure transparent and accessible monitoring for all stakeholders.

4.10.4 Invest in data visualisation and stakeholder socialisation programmes to translate technical monitoring data into accessible, actionable formats for non-expert audiences, including the public and policymakers.

4.10.5 Integrate existing community-level data, applying robust privacy safeguards, and formalise collaboration with civil society organisations (CSOs) to ensure data accuracy, ground-truthing, and comprehensive coverage

4.11 Amplify Strategic Communications

4.11.1 Establish a permanent Just Energy Transition Social Dialogue Platform, convening multistakeholder assemblies quarterly.

4.11.2 Launch a nationwide “Energy Equity Malaysia” campaign with tailored messaging for each key stakeholder segment.

4.11.3 Partner with mainstream media to amplify GEDSI narratives, combat stigma, and elevate the stories of marginalised groups.

4.11.4 Integrate GEDSI principles into the national education curriculum.

5. CONCLUSION

Malaysia's Just Energy Transition must be firmly grounded in equity and inclusion principles to realise its full societal benefits. These include concrete strategies to tackle gender gaps, disability exclusion, and social disparities through focused governance reforms, workforce development, accessible technology solutions, and innovative financing mechanisms. Implementing these measures through a structured, monitored approach would advance progress toward SDG 5 (Gender Equality), SDG 7 (Affordable Clean Energy), and SDG 10 (Reduced Inequalities).

Effective implementation requires dual focus on data precision and financial inclusion. Robust disaggregated data collection for women, PWDs, and Indigenous communities is essential to shape targeted policies and track outcomes. Complementary financing solutions such as a National Just Transition Fund could empower marginalised groups through renewable energy projects; while reskilling initiatives and entrepreneurship support would create economic opportunities in clean energy sectors. Prioritising women-led startups and community energy projects would simultaneously address gender and disability gaps while democratising energy benefits.

Global cooperation must underpin these domestic efforts. Malaysia should align its transition with international frameworks including UNFCCC, CEDAW, and SDGs while actively engaging in regional energy equity dialogues. Strategic partnerships can accelerate knowledge transfer and scale up inclusive practices, ensuring Malaysia's energy transition achieves both environmental goals and social justice imperatives.

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Appendix 1: List of Contributing Organisations

1. Agora Society Malaysia
2. Alliance of River Three (ART!)
3. All-Party Parliamentary Group Malaysia on Sustainable Development Goals (APPGM-
4. SDG)
5. Building Initiatives in Indigenous Heritage (BIIH)
6. Center for Orang Asli Concerns (COAC)
7. Center to Combat Corruption and Cronyism (C4 Center)
8. Centre for Environment, Technology & Development, Malaysia (CETDEM)
9. Climate Action Network Southeast Asia (CANSEA)
10. CSO Platform for Reform
11. Engineers without Borders Malaysia (EWBM)
12. Environmental Protection Society of Malaysia (EPSM)
13. Free Tree Society
14. Gabungan Darurat Iklim Malaysia
15. Greenpeace Malaysia
16. Indigenous and Community Conserved Areas (ICCA) Malaysia
17. Klima Action Malaysia (KAMY)
18. Malaysia Community Service Alliance Foundation
19. Malaysian Climate Change Group (MCCG)
20. PACOS Trust
21. Persatuan Rimba Komuniti Shah Alam (SACF Society)
22. Pusat KOMAS
23. Sustainable Development Network Malaysia (SUSDEN Malaysia)
24. Terabai Kenyalang Heritage Association of Sarawak (TKHAS)
25. TKC EDUCATION GROUP
26. Treat Every Environment Special (TrEES)