



# Taiwan's 2050 Net-Zero Transition Key Strategies for Just Transition



**National Development Council**  
**December 28, 2022**



# Just transition ensures the core value of **"leaving no one behind"** in the process of transitioning towards net-zero emissions



**Just transition** helps support developing countries' transition from carbon-intensive economies to **more renewable and sustainable economies**, and is a decisive factor as to whether actions to combat climate change succeed or fail

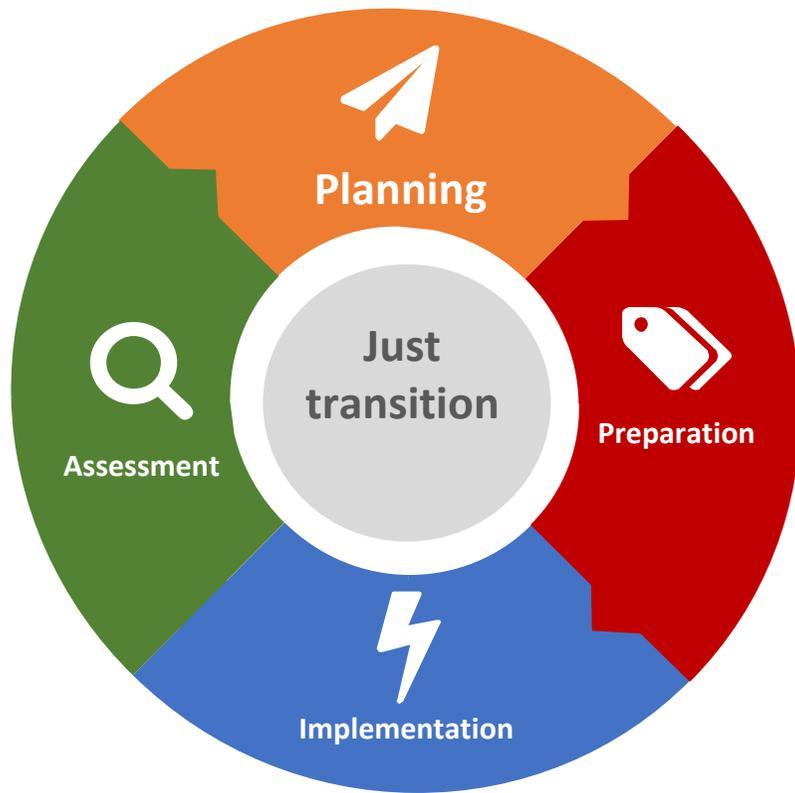


**Just transition** is implemented through **public participation in the decision-making process**, which is an effective way for incorporating the principle of fairness into policies at all levels



**The success of green transition policies is decided by public acceptance**, and countries are urged to implement just transition **to increase public acceptance of environmental policies**

*Refer to the method of the UNFCCC Secretariat*



**Planning** phase:

Understand the impact of the climate change policy and **research and assess** (e.g., the Green Jobs Assessment Model developed by the ILO) the socioeconomic impact of related policies.

**Preparation** phase:

Negotiate and engage in dialogs with society, including **finding stakeholders to engage in dialogues with**, and how to **design policies to incorporate the results of these dialogues**.

**Implementation** phase:

Assist or subsidize subjects that were impacted, and **ensure** that there are **sufficient resources**, while providing suitable **social security network protection measures**.

**Assessment** phase:

Conduct **post-assessment** of just transition measures and their sustainability, and conduct **rolling reviews** of the overall just transition strategy.

# Taiwan's principles for the implementation of just transition based on international experience



## Mechanisms for promoting multi-party participation: Responsible government agency + Advisory Commission

- Overseen by the responsible government agency, which handles the overall policy and contact tasks for just transition.
- Establish an Advisory Commission (permanent or task force) to provide advice and recommendations, and help resolve disputes in society over policies.



## The scope of just transition is no longer limited to labor issues

- For example, Germany has an electricity price compensation mechanism to avoid shifting too much electricity costs to consumers.



## The subjects of just transition have expanded from laborers to industrial transformation and even regional revitalization

- For example, the European Union not only pays attention to stakeholders (laborers and industries) for the promotion of just transition, but also to the impacted regions during the transition process.



## Design pathway, prepare evaluation report, and/or propose legislation for just transition

- Most countries have formulated a pathway or provided evaluation report for just transition, such as: Germany; a few countries have implemented just transition via legislation, such as: Canada.



## Budget allocation

- For example, the governments of Germany and Scotland have allocated a budget for implementing just transition.

# Key issues of just transition in Taiwan

## Employment

Implementing the net-zero pathway will change the existing economic and employment structure

## Industrial development

Net-zero related regulations and restrictions will impact the operations of high carbon emission industries

## Regional balance

Goals for net-zero transition must contemplate the revitalization or regeneration of impacted regions

## Consumption & well-being

Net-zero transition involves changes in people's behavior, and may cause maladjustments and increased costs of living

## Governance

Lack of transparency and information asymmetry may cause the government to face push back when implementing the net-zero transition

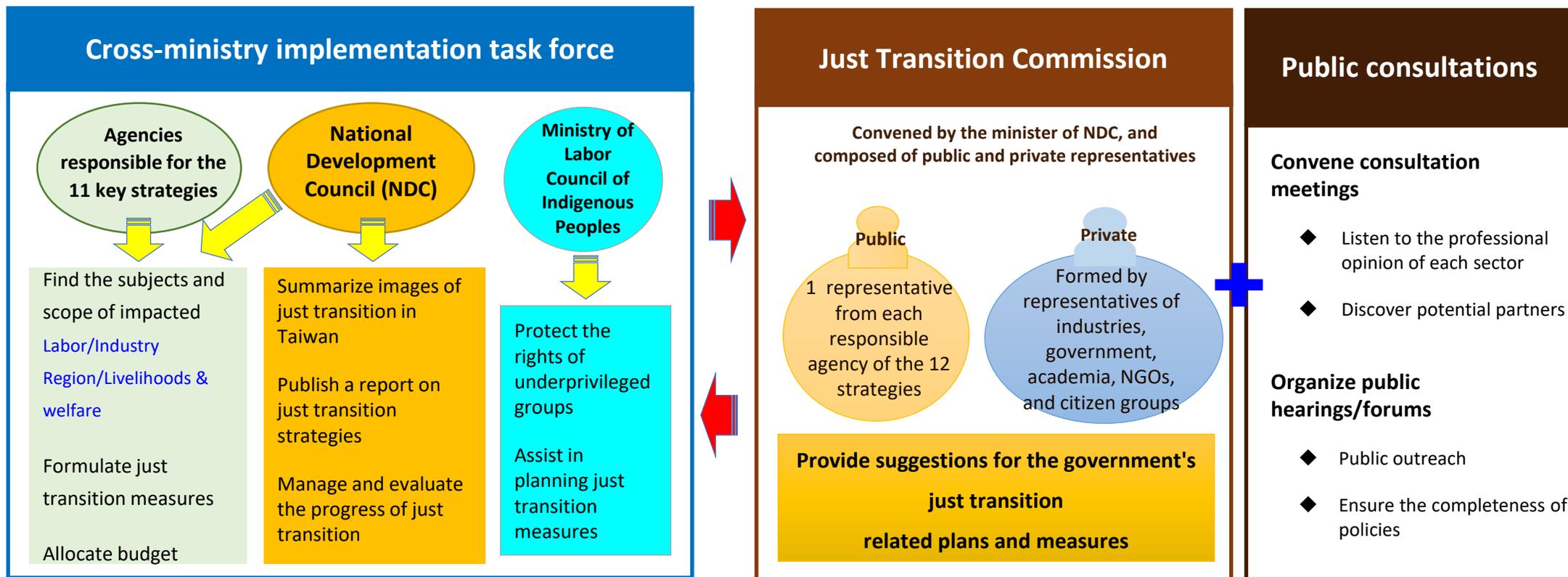
# Implementation mechanisms for just transition

Efficiently reallocating resources  
Effectively coordinating strategies



Taking public participation into account  
Ensuring a "just" decision-making process

Implementing the spirit of just transition



Ensure that the measures proposed have sufficient strength and breadth and meeting society's expectations

# Let stakeholders participate in planning through social communication and dialogue

## Ensure a "just" transition process

Just transition  
consultation  
meetings  
3 meetings



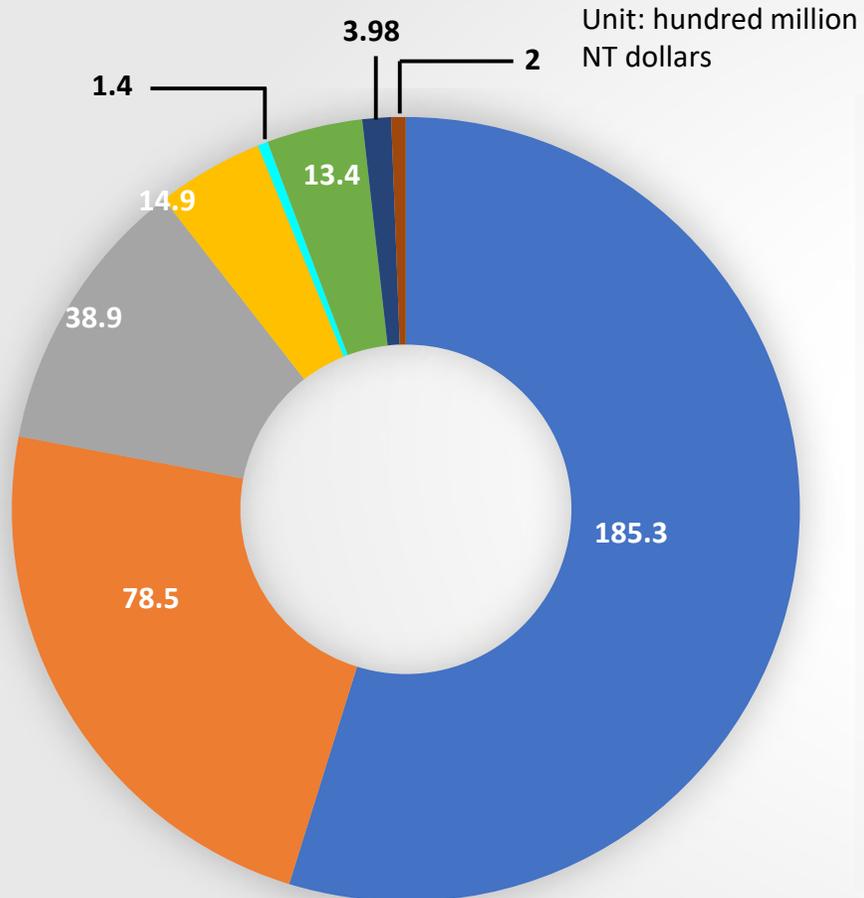
Small social  
communication  
and dialogue  
meetings  
38 meetings

Large social  
communication  
and dialogue  
meetings  
10 meetings

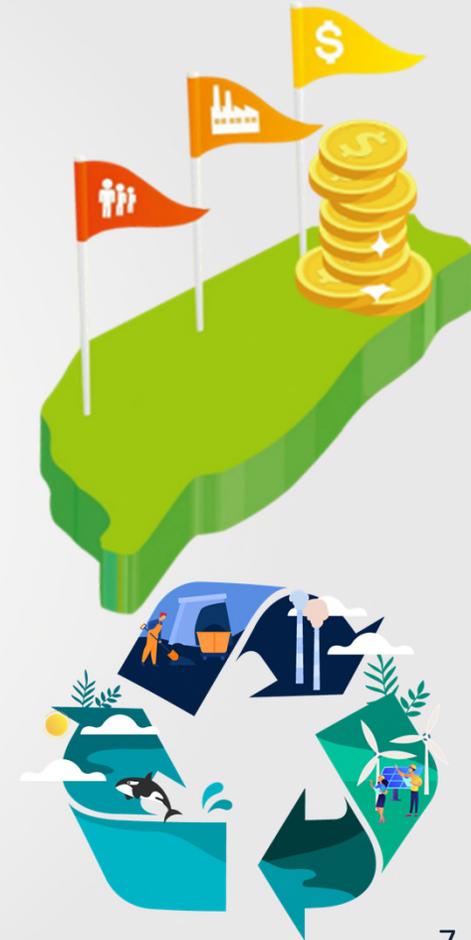


**Extensively collect the opinions of different sectors as reference for planning and adjusting key strategies for achieving net-zero emissions**

# Responsible agencies have allocated **NT\$338.29** billion to provide funding for just transition strategies up to 2030



- Carbon sinks (COA)
- Carbon-free & Electric Vehicles (MOTC)
- Wind/Solar PV, hydrogen, Innovative energy, power systems & energy storage (MOEA)
- Energy saving & efficiency (MOEA)
- Resource recycling & zero waste (EPA)
- Green lifestyles (EPA)
- Carbon capture, utilization & storage (NSC, MOEA, EPA)
- Just transition (NDC)



## Scope of impact analysis

## Response measures

### Wind/ Solar PV

- **Offshore wind power:** Expected to impact fisheries, ecology, aviation, radar operation, military supervision, zoning regulation, and vessel safety
- **Solar PV:** Expected to create co-opetition issues between **ecology** and **land use** (e.g., disputes over fishery and electricity symbiosis)

- ✓ **Social communication and dialogue:** Require developers to fully communicate with stakeholders (e.g., fishermen, local governments) before construction; establish public negotiation mechanisms with stakeholders
- ✓ **Damage compensation:** For example, damage compensation mechanisms in the Fishery Compensation Standards for Offshore Wind Farm, and increasing business opportunities from domestic demand on wind power to provide new employment opportunities
- ✓ **Benefit sharing:** Continue to monitor and improve the overall environment for fishery and electricity symbiosis.

### Hydrogen

- Hydrogen energy **is still in the development phase** in Taiwan, and its effects on labor, industry, region, and livelihood are **limited**
- The government needs to **assist laborers and companies in transformation and acquiring the new skills required to develop new infrastructure**, such as hydrogen refueling stations, transmission and storage pipes, and high pressure storage tanks
- The development of hydrogen energy facilities may create hazards for the **local environment and residents**

- **Promote the popularization of hydrogen energy applications:** Promote employment transition in response to new types of work related to hydrogen energy applications, and assist laborers in entering new energy industries
- **Reach an consensus on exploiting the hydrogen sources:** Increase channels and opportunities for citizens to access information
- **Infrastructure that complies with domestic regulations:** Attach importance to regulations for land use and environmental protection
- **Increase employment opportunities and drive the development of domestic industries**

### Innovative Energy

- Sites for developing geothermal energy might overlap with **hot spring areas** announced according to the Hot Spring Act or **indigenous** land or tribes
- Bio-energy applications will affect current business models of **farmers and waste cleaning/reusage companies**
- Ocean energy is mainly sourced from coastal and offshore areas, and will affect **fisheries, shipping, and regional ecology**

- **Geothermal energy:** Establish a benefit sharing mechanism for indigenous peoples, a single channel for smooth and transparent negotiations, the Renewable Energy Development Act, add a chapter on geothermal energy, and increase employment opportunities
- **Bio-energy:** Expand channels for circular applications of bio-energy byproducts
- **Ocean energy:** Improve application procedures and organize forums to gain support from society

## Scope of impact analysis

## Response measures

### Power Systems & Energy Storage

- **Regional impact:** The construction of power cables and substations for power transmission and distribution involves **land use and expropriation**, and may affect the rights of land owners and local residents
- **Impact on livelihoods and wellbeing:** Environmental pollution from large public construction projects will impact the daily life of local residents

### Carbon Capture Utilization & Storage

- CCUS will drive industrial transformation and create employment opportunities, but it is necessary to pay attention to **unemployment issue during skill upgrading**
- The cost of CCUS equipment and technologies will cause companies to face new **pressure from rising operation costs, or shift them to consumers, affecting people's livelihoods and wellbeing**
- **The safety management and environmental impact of carbon capture and storage** is an issue of public concern

- ✓ **Damage compensation:**
  - Utilize power development funds, whether provided as subsidies or on a project basis, and annual promotion and assistance fund and project promotion fund to improve the well-being of residents in areas around power facilities
  - Assist local communities with emergency relief, living assistance for low income households, social benefits for elderly and disabled people, and education, culture and other public welfare activities
- ✓ **Benefit sharing:** After large facilities begin operations, benefits are shared with local communities and stakeholders based on the situation of operations

- **Finalize regulatory framework:** Establish a CCUS implementation and management system
- **Establish a carbon cycle value chain:** Assist and guide industries to implement CCUS, provide incentives for companies to engage in transition, and provide employees with transition training plans as soon as possible
- **Analyze potential sites for carbon capture and storage in Taiwan:** Implement safety verification projects to collect scientific data for communicating with the public
- **Step up social science studies on net-zero emissions:** Conduct studies on the potential impact of net-zero transition on industries, laborers, the economy, or society in Taiwan

## Scope of impact analysis

### Carbon-Free & Electric Vehicles

- Laborers: **Employees and repair shops in the existing vehicle repair system**
- Industries: Automobile and parts manufacturing and sales industries
- Region: **Rural areas**, or regions in which the performance of electric vehicles **does not meet the local needs**
- Livelihoods and wellbeing: Electric vehicles drive gentrification **and increase the wealth gap, inadequacies of charging stations**

### Resource Recycling & Zero Waste

- Laborers: Laborers in **labor-intensive** recycling and retail industries
- Industries: May impact **industry technology development, raw material acquisition, costs, clearance and disposal methods**, among others
- Region: If companies cannot join the regional circular industrial chain, then this may cause **local industries to lack competitiveness and technological innovation**
- Livelihoods and wellbeing: Circular business models may force consumers to change their behavior, which will affect **consumer rights** and the income of **individuals who collect recyclable materials**

## Response measures

- ✓ **Labor capacity upskilling:** Implement education and training plans to help workers in the conventional internal combustion engine vehicle industry upgrade and transform their technical capabilities
- ✓ **Industry upgrade and transformation:** Guide industries to develop and upgrade electrification technologies and drive the transformation of existing industries
- ✓ **Balanced regional development:** Find suitable low carbon means of transportation for rural areas and offshore islands
- ✓ **Livelihood service applications:** Create a friendly environment for electric vehicles and provide incentives such as subsidies Lower the threshold for citizens to transition to electric means of transportation

- **Mitigate negative socioeconomic impacts:** Guide industrial transformation, guide companies and individuals that collect recyclable materials, set subsidy rates, match related industries to create links, strengthen information disclosure, establish quality specifications and verification systems for recycled materials and products, establish demonstration plans, and continue to show concern for underprivileged groups, such as providing guidance and assistance to individuals that collect recyclable materials.
- **Support SMEs in establishing circular business models:** Encourage SMEs to engage in resource recycling, and learn from each other through demonstration cases, so that more SMEs engage in resource recycling.
- **Encourage industries to engage in carbon reduction:** Classify companies that clear, process, and reuse waste for carbon footprint verification, and guide companies to implement carbon reduction processes or technologies.

## Scope of impact analysis

## Response measures



### Energy Saving & Efficiency

- **SMEs lack funds** to implement high performance equipment and generally have **insufficient awareness of energy conservation**, and may become detached from the global zero carbon supply chain, which will negatively affect their overall competitiveness
- **Net-zero building strategies** may cause **changes in requirements on the skills of professionals, such as architects**, and even impact the **livelihood of downstream equipment manufacturers, such as air conditioning and home appliances**

### ✓ **Technical support:**

- Bring together industry associations to raise the energy conservation and carbon reduction awareness of SMEs, and provide consultation and diagnosis services and in-depth guidance for energy conservation
- Plan incentive mechanisms and encourage large enterprises to take the lead in assisting SMEs to jointly conserve energy
- Assist companies with understanding international carbon reduction regulations, as well as energy conservation and carbon border tax handling measures

### ✓ **Financial assistance:** Provide SMEs with subsidies for energy conservation investments, and promote demonstrations for guaranteeing energy conservation performance

### ✓ **Talent cultivation:** Plan the pathway for net-zero buildings, and cultivate professional talent for net-zero buildings through training and seminars



### Carbon Sinks

- Some means of carbon sink development, such as wetland conservation and restoration, marine resources and environment, and forest maintenance, may **constrict the development rights of local residents or related owners** and affect their **economic benefits**

- **Protect the rights of indigenous peoples** Use of forests in indigenous areas as natural carbon sinks will be in accordance with spirit of the Indigenous Peoples Basic Law, obtain consent from local indigenous peoples or tribes for joint management or sharing, and provide compensation, such as the Logging Ban Compensation for Lands Reserved for Indigenous Peoples Act

### ● **Establish a benefit sharing mechanism:**

- Bring in resources from different parties through cross-sector collaboration, and ensure, via incentives and subsidies, carbon rights mechanisms, agriculture ESG, and offset for EIA, that interests are not affected
- Farmers, agribusinesses, indigenous peoples, and related organizations can carry out natural carbon sink certification and verification according to project methodology, participate in the GHG offset project announced by the EPA to obtain carbon rights, and trade carbon rights according to regulations to generate income

## Scope of impact analysis

## Response measures



Net-zero  
Green  
lifestyles

- Laborers: The rise of low carbon business models will impact **employment opportunities in existing industries**
- Industries: Increase in **raw materials costs**, growingly strict **laws** and regulations, and increasing demand from customers on the energy efficiency and carbon emissions of products and services, thus affecting related enterprises (especially SMEs with relatively low flexibility for adaptation).
- Region: Rural areas have **insufficient green infrastructure**, imbalanced regional development
- Livelihoods and wellbeing: Enterprises transfer the increased cost of raw materials to consumers, increasing the costs of living

- ✓ **Protect labor rights:** Provide employment guiding and training courses, assist in career change, or hold job fairs
- ✓ **Assist and guide industrial transformation:** Such as professional talent cultivation, increase supply of renewable energy use certificates, and carbon reduction technology transfers
- ✓ **Coordinate regional resource sharing:** Establish task forces or platforms for promoting net-zero green lifestyles at the central and county/city government levels, striving to achieve in sharing benefits
- ✓ **Mitigate the impact on livelihood:** Combine labor market policies with social security measures, lift the burden that may be put on underprivileged groups, and ensure that citizens at every level can benefit from the increased investment in green economy and energy

## Scope of impact analysis

## Response measures

### Green Finance

- The green finance key strategy is to **support the other 11 key strategies to achieve net-zero emissions**
- Continue to guide financial institutions and enterprises to implement sustainable development and net-zero emissions through financial mechanisms and measures, such as the Green Finance Action Plan and Sustainable Development Roadmap

- ✓ **Green Financial Action Plan:** Clearly define the scope of sustainable economic activity, and promote incentives to encourage financial institutions to active response to and monitor ESG and climate-related risks and business
- ✓ **Sustainable Development Roadmap:** Help domestic enterprises respond to the impact of climate change sooner and set carbon reduction goals, and require all listed companies to complete carbon footprint verification in 2027 and assurance in 2029

### Industrial Transformation

- **Industries:** In the low carbon transition process, the **costs of adaptation affect the revenue growth** and competitiveness of some companies
- **Region:** If some industries have trouble adapting, they might be **forced to exit** and thus also **impact regional economic development**
- **Laborers:** If some industries need to **cut labor costs** or might need to exit due to the net-zero transition, this will **impact employment**

- **Build carbon reduction capabilities:** Encourage industries to carry out carbon footprint verification and understand their carbon emissions and carbon reduction potential; guide industries to engage in the low carbon transition through process improvement, energy transition, and circular economy
- **Provide subsidies and resources:** Provide industries with subsidies for innovative carbon reduction technologies or methods, and promote industrial upgrade and transformation
- **Increase the knowledge and skills of laborers:** Organize low carbon management and technology courses to help laborers gain knowledge on carbon reduction. Organize low carbon seed courses, and implement low carbon talent transition in companies

# Expected benefits

## Ensure the employment rights of laborers impacted by the net-zero transition

Cross-ministerial collaboration to **guide the labor capacity upskilling** and **employment matchmaking**, and **mitigate structural unemployment** issues

## Avoid increasing the cost of living for citizens

Cross-ministerial collaboration to **establish a benefit sharing mechanism**, so that citizens can enjoy the benefits of the green transition

## Facilitate meaningful public-private dialogue and collaboration

**Expand participation in the private sector** and ensure that different opinions are accepted for policy planning and evaluation

## Assist domestic enterprises to transform to low-carbon production

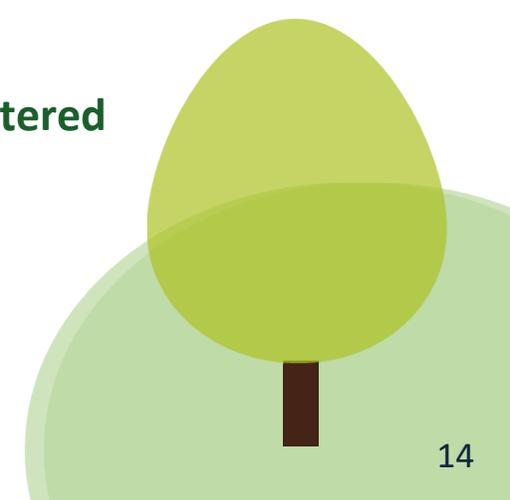
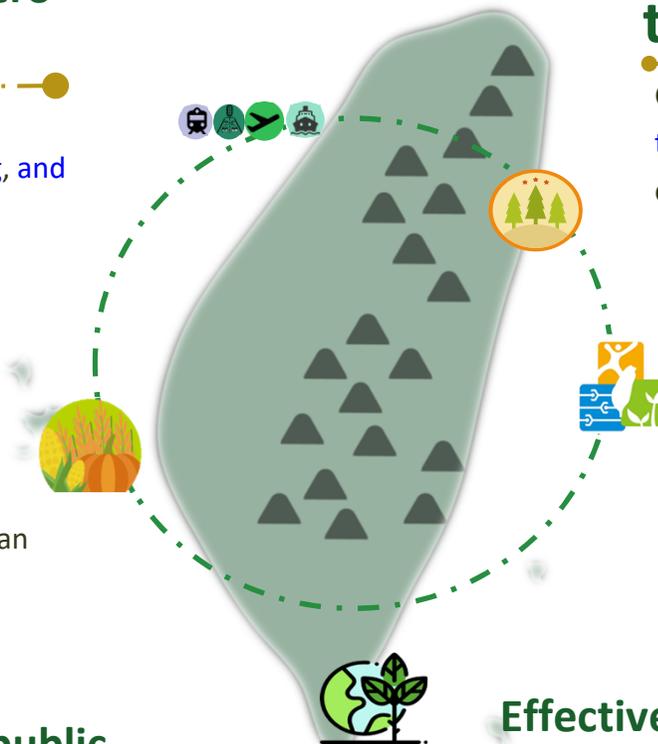
Cross-ministerial collaboration to **guide industrial transformation and upgrade**, actively **assist SMEs** in building carbon reduction capabilities

## Protect the diversity of local ethnic groups and regional development

**Consider the rights of local ethnic groups** and **environmental and ecological sustainability** while implementing the net-zero transition

## Effectively reduce the resistance encountered in the implementation process

Resolve the discontent or resistance from impacted subjects, and **increase** the general public's **support for the net-zero transition**



**Thank you**



## Development of just transition

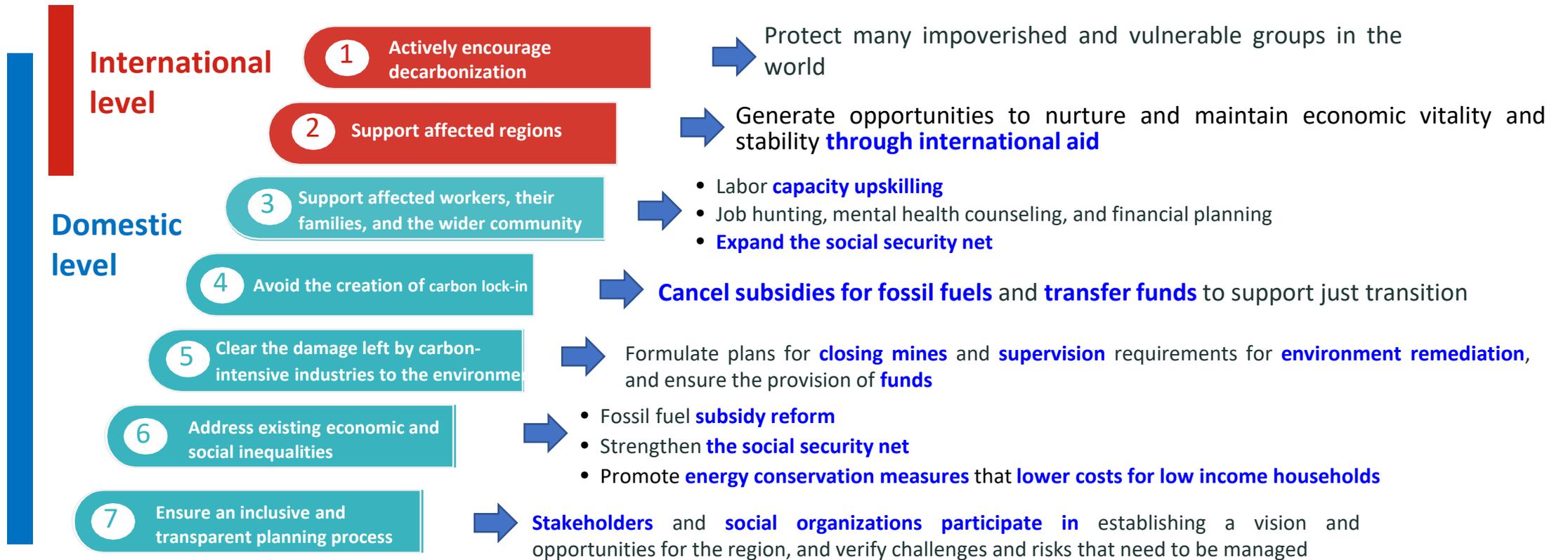
- ▶ The concept was first proposed by **North American unions** in the 1990s to help **laborers** who lost their job due to strict environmental regulations.
- ▶ As time passed, just transition became linked to **energy development** and **climate action**. As pointed out by the OECD: Just transition refers to careful planning and investment in **employment, industry,** and **economic** patterns for a **friendly environment** and **social sustainability** in the transition process.



## Three major concepts of just transition (Discussions of research institutes such as the University of Cambridge and the Canadian Climate Institute)

- ▶ **Recognitional justice:** Verify all the **stakeholders** of the net-zero transition, such as identifying and distinguishing stakeholders.
- ▶ **Procedural justice:** Ensure that stakeholders **have sufficient channels to participate in** the just transition **policy planning** process.
- ▶ **Distributional justice:** Ensure the **fairness of benefits or damages** sustained by stakeholders due to transition decisions in the net-zero transition process of economies.

## Seven principles for planning just transition policies (Proposed by Sweden's Stockholm Environment Institute)



	European Union	Scotland	Germany	Canada
Responsible Department	<ul style="list-style-type: none"> <li>European Commission</li> </ul>	<ul style="list-style-type: none"> <li>Just Transition Committee (Newly established)</li> <li>Ministry of Just Transition, Employment, and Fair Work</li> </ul>	<ul style="list-style-type: none"> <li>Growth, Structural Change, and Employment Committee (Newly established)</li> <li>Federal Ministry for Economic Affairs and Energy</li> </ul>	<ul style="list-style-type: none"> <li>Advisory Committee (Under preparation)</li> <li>Natural Resources Canada</li> </ul>
Key Initiatives and Features	<ul style="list-style-type: none"> <li>The EU passed the <b>European Green Deal</b> in 2019 and <b>proposed just transition mechanisms</b>.</li> <li>The core of the mechanism is to establish a new <b>just transition fund</b> with the purpose of <b>subsidizing affected groups or regions</b> (e.g., assist the unemployed with changing careers, compensation measures for regional development, etc.).</li> <li>In addition to the just transition fund, the Invest EU Programme <b>supports green investment</b>; collaborate with European banks in financing to <b>promote green infrastructure</b>.</li> </ul>	<ul style="list-style-type: none"> <li>The committee was established in 2019, with <b>2-year terms, formed by 17 representatives of industry, government, academia, and research institutes</b>, and its mission is to evaluate affected groups and provide policy recommendations.</li> <li>It published the report "<b>A Fairer, Greener Scotland</b>" in 2021 and <b>proposed 24 recommendations; restructured into a new committee after exit</b> with a term to 2026.</li> <li>The Scottish government proposed the <b>National Just Transition Planning Framework</b> in response to recommendations of the committee.</li> </ul>	<ul style="list-style-type: none"> <li><b>The committee</b> was established in 2018, it is <b>formed by representatives of industry, government, academia, and research institutes</b>, and makes policy recommendations to the federal government.</li> <li>The commission issued "<b>A Roadmap for a Just Transition from Coal to Renewables</b>" in 2019, which is jointly implemented by federal and local governments.</li> <li>Germany's <b>Federal Climate Protection Act</b> explicitly states that the government must <b>periodically issue</b> climate action reports to provide a detailed description of the current status of net-zero policies.</li> </ul>	<ul style="list-style-type: none"> <li><b>Currently</b> planning the <b>legislation</b> of just transition, and recently completed inquires of the opinion of experts, labor unions, and the public.</li> <li>There are two key points of the legislation: <ol style="list-style-type: none"> <li>To establish <b>people-oriented just transition principles</b> for providing guidance in policy-making processes</li> <li>To establish a Just Transition <b>Advisory Committee</b></li> </ol> </li> </ul>
Public Participation	<ul style="list-style-type: none"> <li>The commission empowers and provides <b>financial support</b>.</li> <li><b>Member states consult NGOs for their opinions</b> or <b>collaborate with the private sector</b> to implement just transition strategies based on their national situation.</li> </ul>	<ul style="list-style-type: none"> <li>Members contact groups that may be affected by the net-zero transition and <b>widely accept opinions</b> for discussion during committee meetings.</li> </ul>	<ul style="list-style-type: none"> <li>Establish a <b>stakeholder communication platform</b>.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to collect the opinions of different sectors through a <b>permanent</b> Advisory Committee, and periodically review policy direction.</li> </ul>

	Sweden	Spain	Japan
Responsible Department	<ul style="list-style-type: none"> <li>Agency for Economic and Regional Growth (under the Ministry of Enterprise and Innovation)</li> </ul>	<ul style="list-style-type: none"> <li>Ministry for the Ecological Transition and the Demographic Challenges (MITECO)</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Economy, Trade and Industry (Before 2021)</li> <li>Ministry of the Environment (After 2021)</li> </ul>
Key Initiatives and Features	<ul style="list-style-type: none"> <li>Formulate <b>Territorial Just Transition Plans (TJTP)</b> according to guidelines of the EU Just Transition Fund.</li> <li><b>For regions with high carbon emission industries</b>, analyze the main challenges faced by the affected regions, and propose <b>transition measures for socioeconomic and environmental actions</b>.</li> </ul>	<ul style="list-style-type: none"> <li>The ministry is responsible for planning <b>just transition strategies</b> (announced once every 5 years) and <b>establishing just transition agreements</b>.</li> <li><b>Economy and labor related agencies</b> prepare evaluation reports on affected regions, <b>after the MITECO negotiates and signs agreements with other government agencies</b>, the agreements are executed by the <b>relevant agencies</b>.</li> </ul>	<ul style="list-style-type: none"> <li>The <b>Long-Term Strategy under the Paris Agreement</b> was proposed in 2021, but the just transition <b>only focused on labor issues</b>.</li> <li>The strategy is a <b>declaration</b> and only proposes administrative guidelines for reference by administrative departments. It does not allocate any budgets.</li> </ul>
Public Participation	<ul style="list-style-type: none"> <li>Led by <b>local governments</b>, establishes a <b>dialogue mechanism with stakeholders</b>, and central and local governments jointly complete TJTP and decide on the transition pathway.</li> </ul>	<ul style="list-style-type: none"> <li>Includes public opinion where possible by <b>encouraging</b> all affected NGOs to <b>participate in the planning of just transition agreements</b>.</li> </ul>	<ul style="list-style-type: none"> <li><b>No specific regulations</b>, but long-term strategies emphasize <b>stakeholder participation</b>, including government, labor organizations, enterprises, and financial institutions.</li> </ul>