

The background image shows a person wearing a white hard hat and a yellow safety vest, pointing towards a wind turbine in the distance. The image is overlaid with large, white, geometric shapes that resemble stylized letters or architectural elements. The text "Green Jobs and Skills Development" is written in a bold, green, sans-serif font, and "GGGI's Employment Studies" is written in a smaller, green, sans-serif font below it.

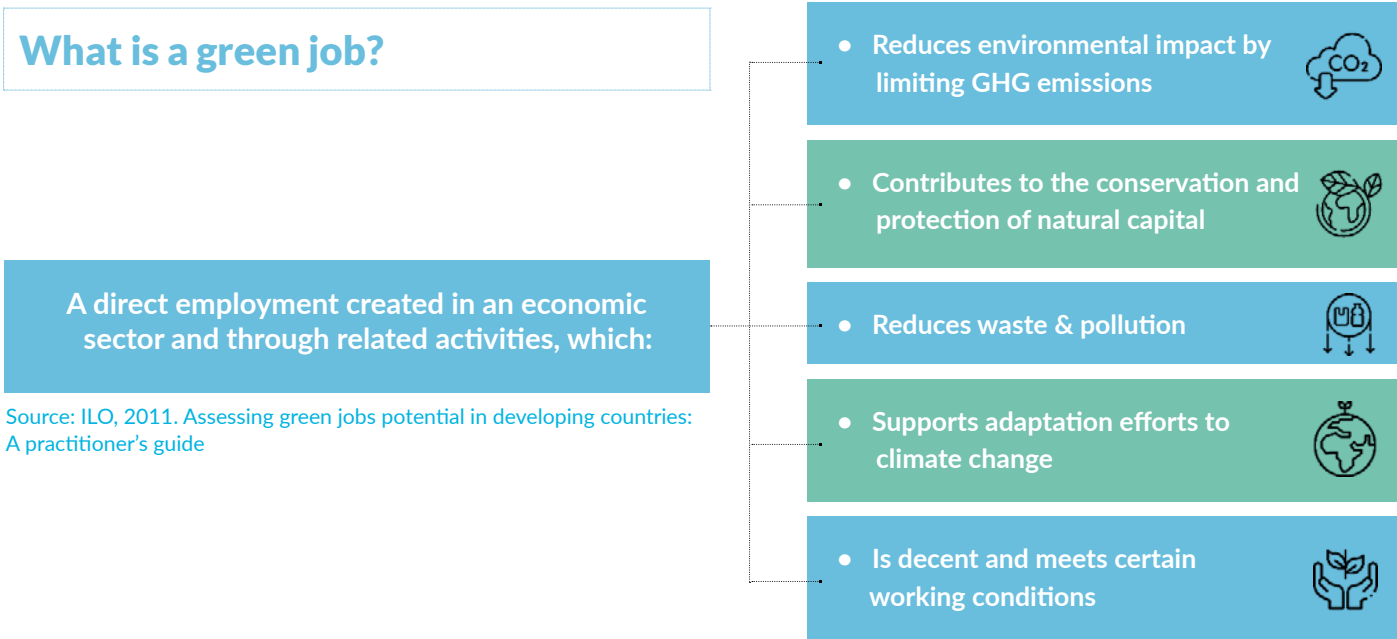
# Green Jobs and Skills Development

GGGI's Employment Studies

GGGI's Green Employment Assessments

GGGI develops technical assessments that help developing countries maximize their green employment creation.

- GGGI's green employment assessments accomplish four objectives:
- 1. Model the employment effects of reaching long-term climate goals. This includes assessing the quality & quantity of green jobs per sector, per value chain stage, at the national, subnational, or regional level considering the targets stated in the NDCs and/or other long-term climate policies.
  - 2. Model the employment effects of different ambition level scenarios of NDCs/LEDs targets.
  - 3. Identify skills & gender gaps hindering the creation of future green jobs and slowing down the green transition.
  - 4. Provide actionable policy options at a national, subnational, or regional level to maximize the green employment opportunities in priority economic sectors and complement the existing labor and sectoral policies.




Source: ILO, 2011. Assessing green jobs potential in developing countries: A practitioner's guide

Methods used by GGGI to estimate and forecast green jobs


Employment factors	Input-output analysis	General equilibrium models
<p>Function</p> <ul style="list-style-type: none"><li>• Estimates direct employment effects of increased activity in one sector</li></ul> <p>Scope</p> <ul style="list-style-type: none"><li>• Provides a snapshot of the current employment situation</li><li>• Provides a basis for further assessment using more complex models</li></ul>	<p>Function</p> <ul style="list-style-type: none"><li>• Estimates direct, indirect, and induced employment effects over the short and medium term</li></ul> <p>Scope</p> <ul style="list-style-type: none"><li>• Provides a higher degree of accuracy on what actually happens in the economy</li></ul>	<p>Function</p> <ul style="list-style-type: none"><li>• Estimates long term and dynamic employment effects</li></ul> <p>Scope</p> <ul style="list-style-type: none"><li>• Provides a logical and systemic approach to study ripple effects of an economic change</li></ul>

GGGI Main Employment Studies

Estimation of employment co-benefits from Mongolia's NDC Electricity Sector targets (2022)



### Energy Sector



**Objective**

This report quantifies the employment effects of achieving Mongolia's electricity target stated on the country's Nationally Determined Contribution (NDC).


**Methods**

Two scenarios were analyzed using Input-Output analysis. Current Trend scenario assumes a total installed capacity for electricity generation of 3,401 MW by 2030 with 16% share of renewable capacity, and NDC scenario, which reaches Mongolia's renewable energy targets of 20% share in total installed capacity by 2023 and 30% share of total installed capacity target by 2030. The employment quantification is complemented with an evaluation of skill requirements as well as an estimation of potential added value to the economy and investment requirements.

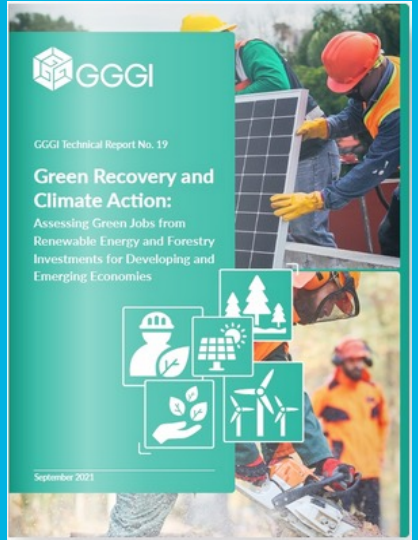
**Employment Opportunities**

- Reaching NDC electricity targets in Mongolia could support the creation of almost 10% more total job-years for the period 2020 to 2030 than the Current Trend Scenario.
- Renewable technologies can create 1.2 times as many jobs as the same level of spending on fossil fuels.
- More than half of the total job years supported in renewable electricity generation will be focused on project development, as well as construction and installation stages. Reaching the NDC electricity targets requires 10% more investment than the Current Trend Scenario.

Green Recovery and Climate Action: Assessing Green Jobs from Renewable Energy and Forestry Investments for Developing and Emerging Economies (2021)



### 27 Member Countries



**Objective**

This study assessed employment co-benefits of implementing NDC targets related to renewable energy (RE) and forestry in selected developing and emerging economies.

**Methods**

The study used employment factors (EF) to estimate the number of direct job-years which are generated as a result of investments in RE and forestry to achieve NDC targets.

**Employment Opportunities**

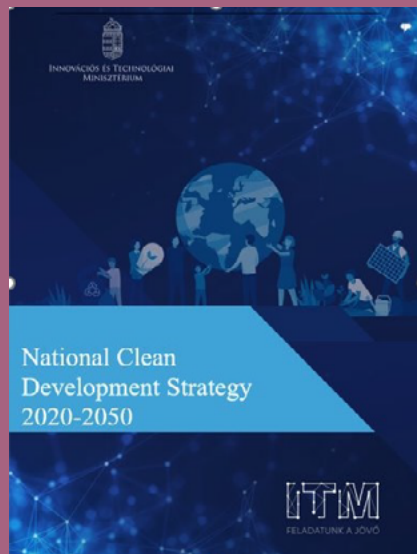
- For the 27 GGGI Member emerging and developing economies that had quantifiable RE targets in their NDCs, implementation of these commitments would lead to more than 10 million job-years for the 11-year period until 2030.
- For the 14 GGGI Member emerging and developing economies that had quantifiable forest-related targets in their NDCs, the study concludes that implementation of these commitments would lead to some 30–40 million job-years over the 11-year period until 2030.
- Both RE and forestry offer significant opportunities for green job creation in developing and emerging economies.



## National Clean Development Strategy of Hungary (2021)



### All economic sectors with mitigation potential



#### Objective

This study estimates the green jobs potential of Hungary's National Clean Development Strategy (NCDS). This Strategy outlines a 30-year vision of socioeconomic and technological development pathways for the country.

#### Methods

An integrated general equilibrium modeling approach was used to explore the specificities of the sectors as well as the system-wide and cross-sectoral dynamics of the decarbonization process, for three main scenarios. Clean development is a model of development that nurtures sustainable economic growth and creates green jobs and economic development opportunities while minimizing environmental pollution and greenhouse gas emissions.

#### Employment Opportunities

- Investing in the green transition brings macroeconomic benefits that lead to significant boost in economic growth and create additional green jobs compared to the BAU scenario. An important aspect is that the early implementation of investments can serve as an incentive for recovery during the economic crisis caused by the COVID-19 pandemic by creating thousands of new and green jobs and increasing the well-being of the Hungarian people.

## Employment Assessment of Renewable Energy: Power sector pathways compatible with NDCs and national energy plans (2020)



### Energy Sector



#### Objective

This study assessed the employment creation potential of RE technologies based on future power sector scenarios for three GGGI Member countries: Mexico, Indonesia, and Rwanda.

#### Methods

The study applied a scenario analysis to investigate the employment implications of RE technologies under different power sector scenarios up to 2030 and applying Input-Output and value change analysis.

#### Employment Opportunities

- Mexico, the results show that installing the additional RE capacity required to reach the 2030 NDC target will result in the creation of more than 600 thousand total job-years.
- Indonesia, under the RUKN scenario the selected RE technologies such as hydro, geothermal and solar PV, could create about 3.7 million direct jobs, whereas about 2.1 million direct jobs could be created under the PLN scenario.
- Rwanda, under the NDC unconditional scenario, 14 thousand direct job-years and USD 136 million in value added will be created by 2030. The additional 171 MW RE capacity required under the HA scenario will generate around 31 thousand direct jobs.
- Overall, all three countries assessed in the study will benefit from investments in RE compared to investments in fossil fuel-based technologies, as RE has greater potential in terms of employment and economic value-added in the wider economy beyond the RE sectors.

## UAE Green Jobs Program: Jobs & Skills for the UAE's Green Economy Transformation (2019)



### Energy, waste management, manufacturing, buildings and construction, agriculture, forestry, and fisheries transport, services, academia, and the public sector



#### Objective

This report provides a starting point to explore and coordinate policymaking and stakeholder actions targeting green jobs in the UAE.

#### Methods

To understand the current status of green jobs in the UAE, relevant business activities and initiatives in the ten sectors expected to contribute to the UAE Green Agenda 2030 were reviewed. The first attempt to quantify green jobs in each sector was also made by using employment factors from other countries, which were then applied to the already confirmed national targets and technology deployment plans, as well as existing growth prospects.

#### Employment Opportunities

- Results showed that current number of green jobs in the UAE are estimated at around 49,500, roughly 0.7% of the total workforce. Significant sources of green jobs today are the public sector, waste management and recycling, tourism, and transport. The number of green jobs could reach 83,000 in 2030 if more sustainable practices are adopted.
- There has been no single policy specifically targeting the promotion of green jobs in the UAE to date. However, several policies that relate to green jobs are being implemented.

## Fiji Green Jobs Assessment: A Preliminary Study of Green Employment in Fiji (2019)



### Energy, transport and forestry



#### Objective

This study assessed opportunities for expanding green jobs in Fiji consistent with national policies, plans, priorities, NDC commitments and the achievement of the SDGs. This study is linked to the Fiji Low Emission Development Strategy 2018-2050 (LEDS, 2018).

#### Methods

This study provides a baseline green jobs estimate for selected sectors for 2018 and indicative projections of green jobs for 2030 and 2050 for two LEDS scenarios: BAU-U (Business as Usual-Unconditional) which assumes no additional finance and VHA (Very High Ambition) emissions reductions, with substantial financial implications.

#### Employment Opportunities

- Under BAU-U, investment in both renewable and thermal electricity result in both green and 'conventional' employment respectively as electricity generation grows. Under VHA, there is heavy investment in renewable electricity but none in thermal (petroleum-based) energy.
- BAU-U direct green employment is 2,774 in 2030 and 4,195 in 2050 with total employment (direct, indirect and induced) of 12,168 and 18,883 respectively. Under VHA assumptions, direct indicative green jobs are 5,785 (2030) and 13,451 (2050) respectively, with total jobs (direct, indirect and induced) over four times higher than direct job creation at 24,350 (2030) and 54,211 (2050).

## Our approach to assessing green jobs

The Climate Action and Inclusive Development Unit (CAID) develops GGGI's green jobs assessments in coordination with sector-level experts in energy, transport, waste, agriculture, and forestry, depending on the scope of the assessment.

Simultaneously, in-country staff, government counterparts as well as national and international partners are involved in the design, development, and validation of the assessment and its results.

All of GGGI's employment assessments are peer-reviewed by a group of expert partners from renowned organizations with relevant experience in the employment assessment field. For example, the International Labour Organization (ILO), Food and Agriculture Organization (FAO), International Renewable Energy Agency (IRENA), United Nations Industrial Development Organization (UNIDO), New Climate Institute, Asian Institute of Technology (AIT), Korean Environment Institute, Institute of Advanced Sustainability Studies - Potsdam, LUT University, etc.

## About Global Green Growth Institute (GGGI)

The Global Green Growth Institute (GGGI) is an international organization dedicated to supporting and promoting strong, inclusive, and sustainable economic growth in developing countries and emerging economies.

GGGI's mission is to support the transition of its Member and Partner countries toward a model of green growth by developing and implementing strategies that simultaneously achieve poverty reduction, social inclusion, environmental sustainability and economic growth. By pursuing this mission, GGGI aims to achieve its vision of a resilient world of strong, inclusive and sustainable green growth.

## Contact Information



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