



**T20** **Brasil 2024**  
Let's rethink the world

# T20 Policy Brief

Task Force 02

**SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS**

## Navigating Just Energy Transition Through Large-Scale Skill Development Program

**Amirah Jinan Dhia**, Evaluation Manager, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)

**Eric Roeder**, Technical Specialist on Green Jobs and Climate Action and Resilience, ILO Regional Office for Asia-Pacific (Thailand)

**Romora Edward Sitorus**, Head of Evaluation, Research, Dissemination and Advocacy, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)

**Rizki Fajar Pangestu**, Evaluation Staff, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)

**Alfiansyah Achmad**, Evaluation Staff, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)

**Ni Putu Mia Tarani**, Evaluation Staff, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)

**Cahyo Prihadi**, Director of Monitoring and Evaluation, Program Management Office of Kartu Prakerja Coordinating Ministry for Economic Affairs of the Republic of Indonesia (Indonesia)



---

**TF02**

## Abstract

The challenges posed by climate change are expected to result in significant job shifts across various sectors. These global challenges could lead to 6 million job losses while generating 24 million new jobs (ILO 2018). In Indonesia, vital sectors like agriculture, fisheries, and forestry, employing a third of the workforce, are at risk, with over 60% of the youth potentially unprepared for green economy roles.

The proactive development of green skills and jobs is crucial for mitigating the adverse effects of climate change and for propelling nations towards a more competitive, equitable, and sustainable economic trajectory. Thus, in April 2020, the Indonesian government launched Prakerja, a large-scale skill development program designed to prepare the workforce for the future, including equipping them with green skills. As the world gears up to tackle climate change and transition to a green economy, upskilling and reskilling platforms like Indonesia's Prakerja program, which has trained 17.5 million beneficiaries, play a critical role in preparing the global workforce for this shift and building a climate-resilient economy.

Some key lessons that can be drawn from Prakerja encompass establishing a national commitment, implementing an on-demand approach underpinned by dependable and inclusive digital technology, fostering partnerships with multi-stakeholders across all levels, adapting to labor market trends, offering job market insights, maintaining openness to evaluations, and enhancing public awareness of labor issues through various communication channels. However, critical challenge of blue-collar job underrepresentation on job portals must be addressed to broaden the impact of such programs across all employment sectors and promote a more inclusive workforce development strategy.

## Diagnosis of the Issue

Climate change stands as one of the most pressing global challenges of our time, with far-reaching implications for economies, societies, and ecosystems worldwide. The impact of climate change is starkly exemplified in G20 countries. Several G20 countries with high vulnerability to climate change (in terms of water, food, health, ecosystems, human habitat, coastal, energy, and transportation infrastructure) have low readiness level in areas of economics, governance, and social issue (see Figure 1).

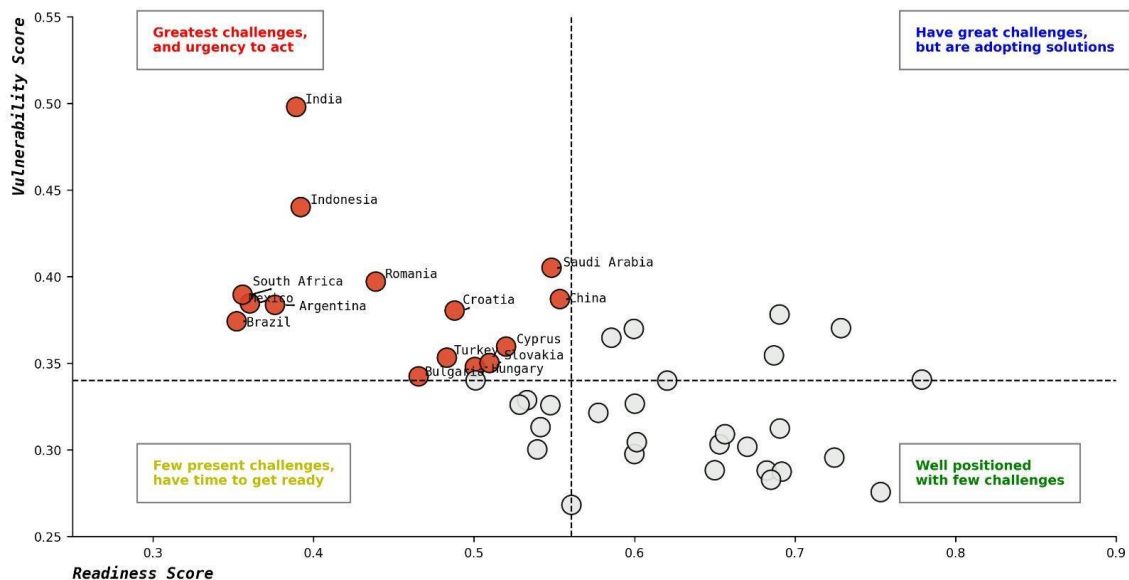


FIGURE 1. Readiness and Vulnerability Index due to Climate Change in G20 Countries

Source: University of Notre Dame, 2021

Climate change will also have a direct impact on labor. By 2030, approximately 2.2% of total working hours worldwide will be lost due to high temperatures, amounting to a productivity loss equivalent to 80 million full-time jobs (ILO 2019). On average, 34% of total G20 country's employment is directly dependent on ecosystem services or relies heavily on the environment (ILO 2018). This includes jobs in agriculture, forestry,

fisheries, food and beverage, tobacco, wood and paper, biofuels, renewable energy, pharmaceuticals, chemicals, and environmental tourism. Among G20 countries, India (52%), China (50%), and Indonesia (41%) have the highest proportion. Nearly half of the employment in these jobs could be lost due to climate change impacts without effective mitigation. Globally, as many as 6 million jobs will be lost due to climate change. Nevertheless, climate change will also create around 24 million new job opportunities by 2030 due to just energy transition (ILO 2018).

**However, the increase in green job creation does not align with the readiness of the skills possessed by workers.** Over the past five years, while job openings requiring eco-friendly expertise have surged by 8% annually, the increase in green talent has only grown around 6% per year (LinkedIn 2022). In Indonesia, over 74% of youth are unfamiliar with green skills, and only 23% believe that skill development is the most crucial preparation for addressing climate change, underscoring a significant knowledge gap that needs to be addressed (UNICEF Indonesia 2023). Given the phenomenon and the current trend of young people comprising half of Indonesia's population, over 60% of the youth may lack the necessary skills for the green economy by 2030 (United Nations 2023). Without adequate training, workers may struggle to adapt to the changing demands of green jobs, hindering the overall growth and success of just transition initiatives.

**Unfortunately, numerous countries face a shortage of educators and experts in environmental awareness and specialized fields like renewable energy.** Many institutions in the country that offer technical and vocational training also react more slowly, whereas training systems need to respond quickly, as demand changes fast (ILO 2011).

**Drawing from the lessons of the COVID-19 pandemic, the imperative for the G20 to address external risks to economic stability, including the labor sector, arising from the climate crisis is undeniable.** G20 countries play a pivotal role in achieving the zero emissions goal, as they are responsible for a total of 78% of all greenhouse gas emissions (Oxfam International 2023). By convening leaders from diverse backgrounds, the G20 facilitates dialogue, collaboration, and the exchange of best practices, enabling countries to learn from each other's experiences and collectively identify innovative solutions to shared problems.

**Indonesia, as one of the G20 countries, is also paying particular attention to this issue,** as it is an archipelagic country, with 53.89% of its districts/cities having at least one coastal sub-district (Statistic Indonesia 2023). Furthermore, most Indonesians own agricultural land in coastal lowland areas (Case et al. 2007). The nation's heavy reliance on climate-sensitive sectors like agriculture and fisheries, which account for almost a third of the workforce working in these sectors, is projected to lose its GDP of 2-4% by 2050 (CMCC 2023).

Given these circumstances, Indonesia has made the green economy part of game-changer strategies in the economic transformation effort toward the Indonesian Vision 2045. It encompasses three policy subsets: transitioning to a low-carbon economy, advancing the blue economy, and shifting towards sustainable energy practices (Partnership For Action On Green Economy 2023). To prepare Indonesia's workforce to face the labor market dynamic resulting from the policy framework, including the just energy transition, the government initiated a large-scale skill development program called the Kartu Prakerja Program (Prakerja) in 2020. By implementing Prakerja, Indonesia commits to leaving no one behind, ensuring everyone is prepared for a more environmentally sustainable future while fulfilling industries' sustainability objectives.

Therefore, this policy brief will share some lessons learned from Prakerja that can be replicated in other G20 countries as our collective efforts in navigating through a just transition.

## Recommendations

Prakerja is a large-scale skill development program that aims to increase competency, productivity, and competitiveness and promote entrepreneurship through skilling, upskilling, and reskilling.

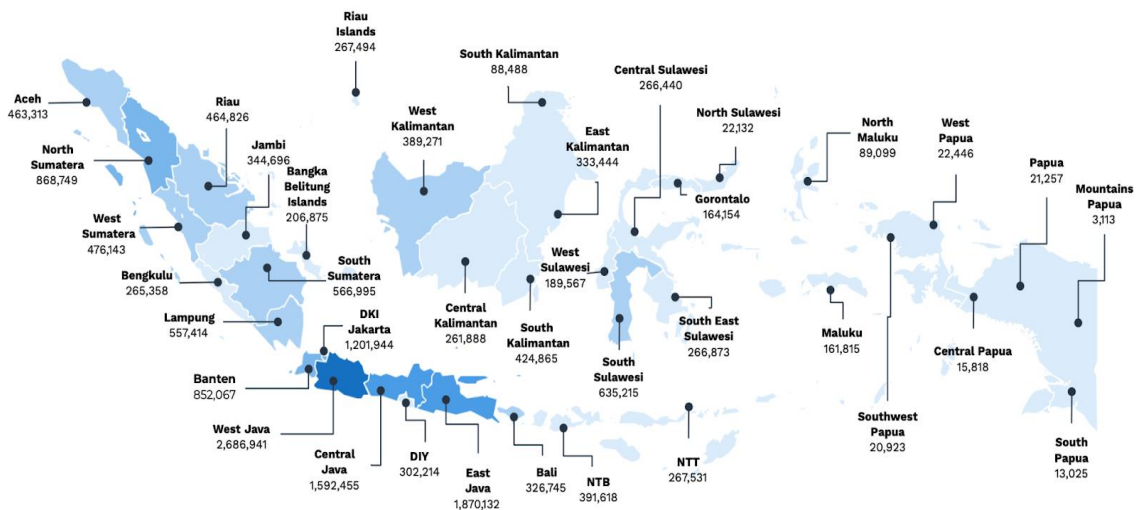


FIGURE 2. Prakerja’s Beneficiaries Distribution 2020 - 2023, by Province. Source: Prakerja Data, 2023

Through digital implementation, Prakerja has reached 17.5 million beneficiaries from all 514 districts/cities in Indonesia, including areas most affected by climate change, such as coastal and agricultural areas. Incorporating green skills into programs like Prakerja will equip individuals for the growing green economy, promoting a just transition. Below

are some lessons from Prakerja that we recommend for skill development programs' implementation in G20 countries:

### **1. Political will to provide access to knowledge and skills**

Prakerja is a product of Indonesia's government's strong commitment to developing the workforce. It stemmed from President Joko Widodo's 2019 campaign pledge, aiming to establish a platform to reduce skill mismatch. The solid political will underpinning Prakerja sets its institutional structure and implementation apart from previously existing programs, making it agile and adaptive to changes.

Prakerja is managed by the Job Creation Committee for policy oversight and the program management office for technical execution, enhancing its efficiency. It showcases a model that can be adapted to ensure effective implementation of green job initiatives. This institutional arrangement also streamlines Prakerja's budget planning compared to other programs, enabling greater agility in responding to changes. Such flexibility proved especially advantageous in reallocating budgets during the Covid-19 crisis, demonstrating a level of political will that could inspire other nations aiming to improve access to education and skills training for green jobs.

### **2. Inclusive Reach through On-Demand Digital Technology**

Prakerja utilizes digital technology for nationwide access, offering an on-demand platform that allows beneficiaries to control their experience, from registration to incentive payment channel, based on individual needs. Through continuous user journey evaluations and usability testing, the program guarantees an intuitive and user-friendly experience, ensuring inclusivity and reaching all demographics, including those vulnerable to climate change.



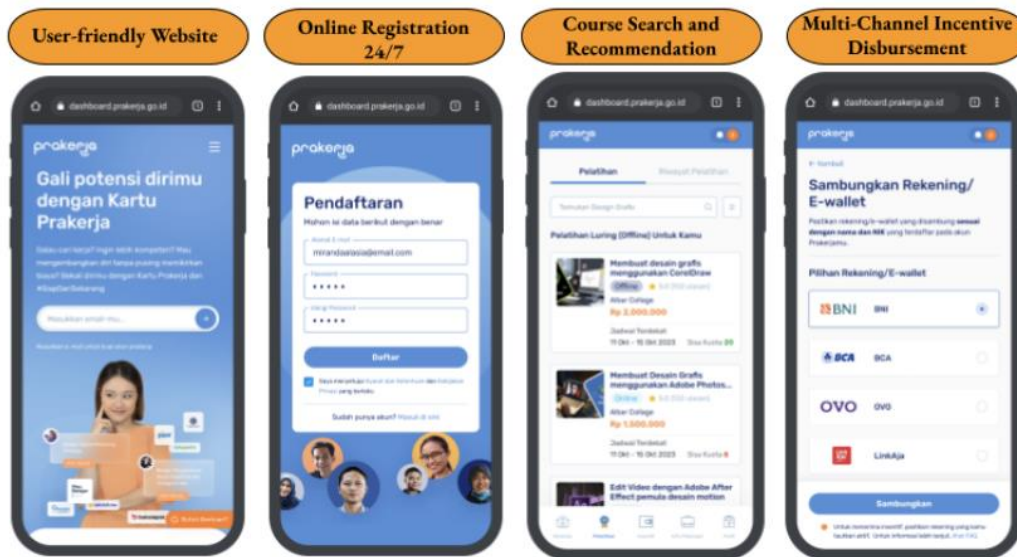


FIGURE 3. Prakerja’s Platform Illustrations. Source: Prakerja Documentation, 2024

As a result, based on Prakerja Data of all Prakerja’s beneficiaries in 2020 to 2023, 51% are women, 12% are aged 50 or above, 3% have disabilities, 64% are from rural areas, 85% are high school educated or below, and 86% are new to training. Furthermore, 11.2% or 1.9 million beneficiaries are from the coastal areas, with 65% unemployed and 35% employed before joining Prakerja. Of those who worked, 21% worked in the agricultural sector.

### 3. Collaborative Efforts to Build a Robust Training Digital Ecosystem

Prakerja engages in collaborative efforts with diverse stakeholders across the entire training ecosystem, involving public and private sectors. The ecosystem was built by the partnership from 12 ministry integrations through API, National Treasury, six marketplaces, more than 390 training institutions, six payment partners (banks and e-wallet providers), and four job portals.



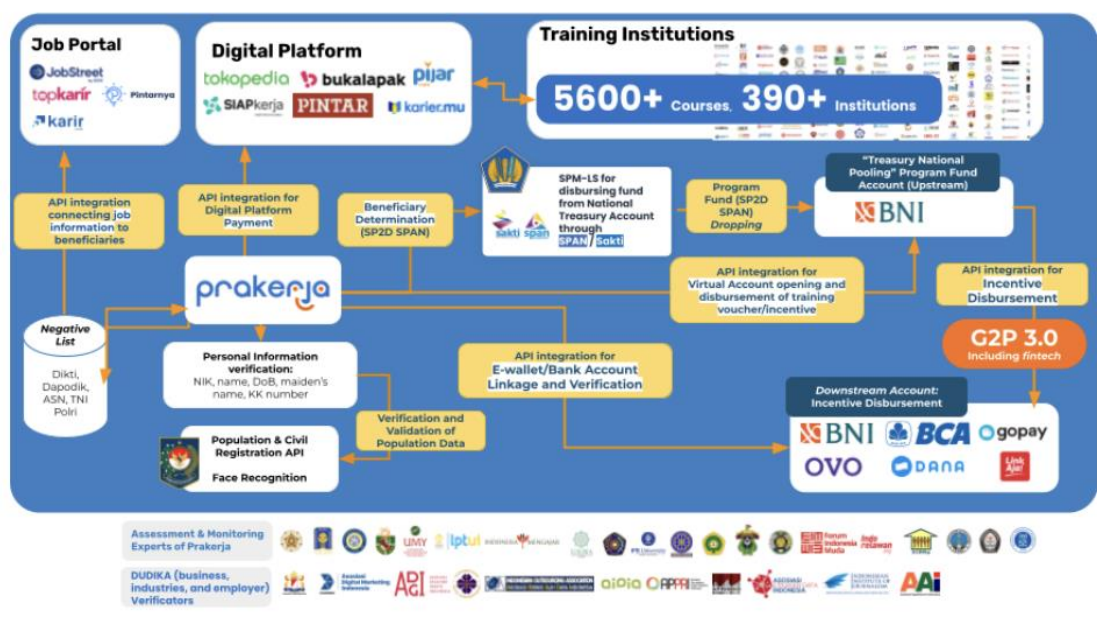


FIGURE 4. Ecosystem of Partnership. Source: Prakerja Documentation, 2024

Prakerja strengthen its ecosystem through strategic partnerships and rigorous assessment and monitoring involving six universities and one NGO for training feasibility assessment, and collaborating with 11 universities and one NGO for implementation monitoring. Prakerja also aligns its training with labor market and green economy needs by collaboration with ten industry associations. Over 5,600 courses, including green skills, are offered, with thousands of beneficiaries in 2023 focusing on green skills like Carbon Accounting and Waste Management. Additionally, among coastal area beneficiaries, notable training enrollments were in sales and marketing (22.8%), Food & Beverages (14.5%), and Lifestyle (14.4%). By involving public and private sectors, Prakerja showcases a model that emphasizes the importance of partnerships in creating effective training programs for green jobs and a just transition.

#### **4. Training Standard Improvement Based on Projections and Trends**

Prakerja uses data to track labor trends and green job growth, analyzing sources like LinkedIn and the National Occupational Map for Green Jobs to keep training relevant. For instance, Prakerja offers several training programs specialized in green skills, offering a few topics including modifying motorbike EV, eco-fashion design, waste management, sustainable tour guide, CSR & Sustainability, sustainability reporting, carbon accounting, organic farming. This approach helps Prakerja to prepare beneficiaries for the evolving labor market, contributing to a just transition.

#### **5. Providing Job Matching Recommendation**

To address asymmetric information in the job market, Prakerja provides a job vacancy platform with personalized recommendations based on training taken. Beneficiaries can access vacancies through their accounts and apply with their certificates. Prakerja's website also provides open information on top-demand vacancies. This system prepares workforce for the green economy by highlighting in-demand jobs and ensuring they are informed about market needs, emphasizing the importance of continuous learning and adaptation to labor market changes.

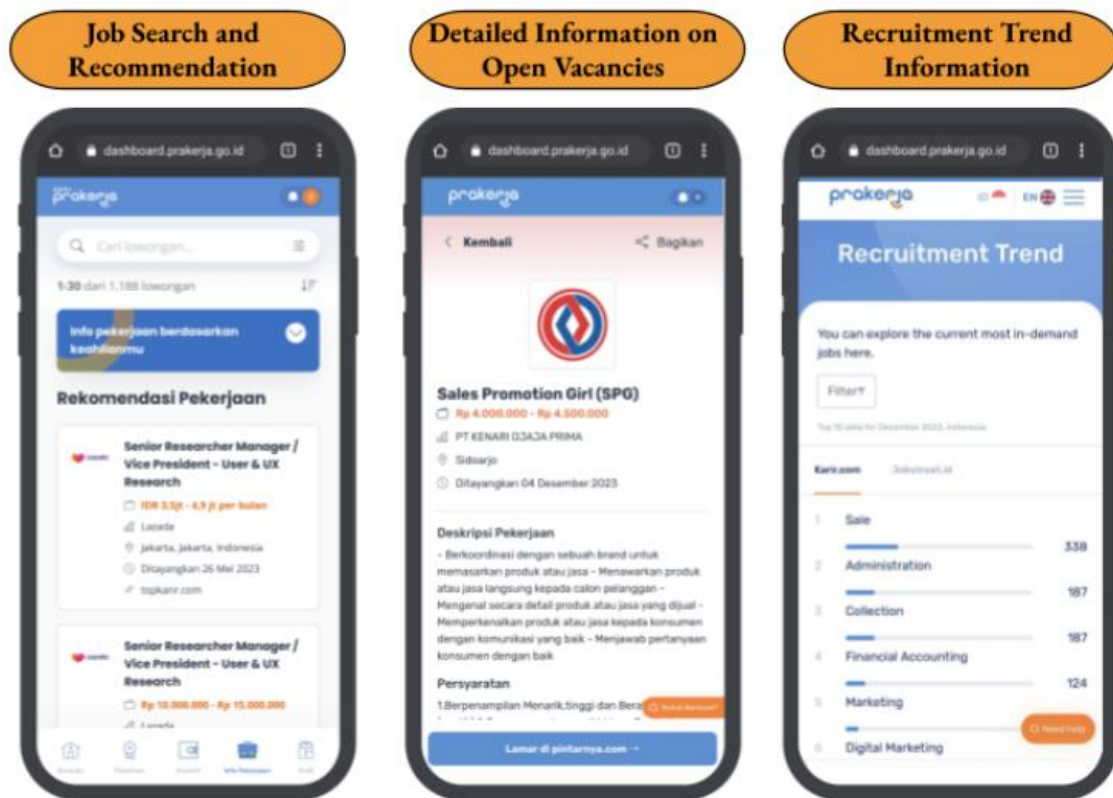


FIGURE 5. Prakerja’s Job Matching Feature. Source: Prakerja Documentation, 2024

## 6. Fostering Climate Change and Workforce Transition Awareness

In its implementation, Prakerja provides awareness and education about climate change and its impact on the labor sector, particularly in transitioning to green employment opportunities. Moreover, Prakerja not only provides training but is also active in disseminating information related to employment trends through television, radio, websites, social media, webinars, and seminars. These efforts empower the workforce to make informed decisions regarding their training choices, thereby fostering adaptability and resilience in the face of a changing job market.

## 7. Comprehensive Program Impact Evaluation

Since launching in 2020, Prakerja has prioritized continuous improvement, leveraging a digital approach for ecosystem monitoring and data-driven decision-making. Through surveys sent to beneficiaries and partners, capturing feedback on employment and skills outcomes, with 14.5 million respondents, Prakerja gathers insights for program enhancement. Additionally, over ten national and international institutions have evaluated Prakerja's impact and effectiveness, ensuring its contributions are significant and beneficial.

## Scenario of Outcomes

Only 46 out of 110 countries have substantial awareness of climate change, underscoring the critical need for global education initiatives to increase awareness across all countries, highlighting the need for collaborative efforts to combat its effects and promote sustainable practices (Leiserowitz et al. 2022). Moreover, The shift towards a green economy could affect jobs, necessitating worker reskilling to prevent unemployment, (ILO 2019). Acquiring relevant training is crucial for individuals' competitiveness in the dynamic labor market, boosting their likelihood of securing employment opportunities. The G20, as major greenhouse gas emitters, play a key role in raising awareness and addressing climate-related impacts and disparities, including job losses and skill shortages. It is important to encourage major economies, like G20 to lead by example in implementing sustainable practices and supporting skill development initiatives.

Implementing large-scale skill development programs, as part of Active Labor Market Policies, is essential for G20 nations, as exemplified by Indonesia's Prakerja initiative. These programs are essential to reduce the risk of unemployment and equip workers with the necessary skills for emerging job opportunities. Recent studies conducted by several independent institutions have shed light on the impact of the Prakerja program, revealing compelling findings. Prakerja beneficiaries are 18% more likely to secure a new job than non-beneficiaries, and their likelihood of starting a business is 30% higher than non-beneficiaries (Alatas et al. 2021). Furthermore, Prakerja contributes to a 17-21% increase in the monthly income of beneficiaries (Mugijayani et al. 2022). These studies demonstrating Prakerja's effectiveness in addressing skill gaps and supporting economic advancement.

Besides providing training, Prakerja also provides job recommendations by integrating data with job portals to bridge skill mismatch gaps. This allows beneficiaries to apply for vacancies that align with their completed training easily. Establishing solid links between vocational training and the world of work increases the chance that the skills and competencies workers learn are relevant, timely, and well-targeted (OECD 2014). However, the challenge is particularly great because blue-collar jobs are rarely on the job portals. Blue-collar jobs typically require lower education. Thus, this vulnerable group will be at risk and potentially overlooked by the current system.

According to Prakerja Data in 2020 to 2023, beneficiaries in areas impacted by climate change, particularly in coastal areas, have experienced several positive impacts:

- The level of competence increased by 13.3% as seen from the beneficiaries in the average pretest to post-test score.
- 24% of previously unemployed became employed with an average monthly income of IDR 1.11 million/USD 70.51.
- 16% of individuals who transitioned from jobs in the agriculture, forestry, fishing, and hunting sectors to other sectors experienced an income increase of 8%, with averages rising from IDR 641,423 (USD 41.11) to IDR 691,585 (USD 44.33). Besides, those who remained employed in the agriculture, forestry, fisheries, and hunting sectors experienced an income increase of 2%, rising from an average of IDR 1,183,087 (USD 75.84) to IDR 1,201,089 (USD 76.99).
- An increase in income of employees and entrepreneurs by 14% from an average of IDR 1,184,816 (USD 75.95) to an average of IDR 1,349,126 (USD 86.48).

These outcomes underscore the critical role of green skills development in not only enhancing individual livelihoods but also fostering socio-economic resilience in the face of climate change-induced disruptions.

This positive impact generated by Prakerja in such a short time can only be achieved due to its design. Some of the lessons learned by Prakerja and scenario that G20 nations can apply in developing the skill development program needed for just transition are building national commitment, emphasizing an on-demand principle supported by reliable and inclusive digital technology, partnership with multi-stakeholders from upstream to downstream, being adaptive to labor market trends, provide job market information, open to evaluation, and raise public awareness about labor issues through multiple channels.



## References

- Alatas, Vivi, Rema Hanna, Achmad Maulana, Benjamin A. Olken, Elan Satriawan, and Sudarno Sumarto. "Kartu Prakerja Impact Evaluation: Preliminary Findings." (2021). [https://public-prakerja.oss-ap-southeast-5.aliyuncs.com/www/ebook-reporting/Ringkasan\\_Eksekutif\\_Kajian\\_Evaluasi\\_Dampak\\_Kartu\\_Prakerja\\_2021\\_oleh\\_J-PAL\\_SEA\\_Bahasa\\_Ingggris.pdf](https://public-prakerja.oss-ap-southeast-5.aliyuncs.com/www/ebook-reporting/Ringkasan_Eksekutif_Kajian_Evaluasi_Dampak_Kartu_Prakerja_2021_oleh_J-PAL_SEA_Bahasa_Ingggris.pdf).
- Case, Michael, Fitriani Ardiansyah, and Emily Spector. "Climate Change in Indonesia: Implications for Humans and Nature." (2007). [https://www.researchgate.net/publication/237325800\\_Climate\\_Change\\_in\\_Indonesia\\_Implications\\_for\\_Humans\\_and\\_Nature/link/54edd2ea0cf25238f93911ce/download?tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19](https://www.researchgate.net/publication/237325800_Climate_Change_in_Indonesia_Implications_for_Humans_and_Nature/link/54edd2ea0cf25238f93911ce/download?tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6InB1YmxpY2F0aW9uIn19).
- Centro Euro-Mediterraneo sui Cambiamenti Climatici. "Atlas Risiko Iklim G20." 2023. [https://files.cmcc.it/g20climaterisks/Indonesia\\_tr.pdf](https://files.cmcc.it/g20climaterisks/Indonesia_tr.pdf).
- International Labor Organization. "Greening The Global Economy The Skills Challenge." 2011. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---ifp\\_skills/documents/publication/wcms\\_164630.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_164630.pdf).
- International Labour Organization. "Skills For A Greener Future: Challenges and Enabling Factors to Achieve a Just Transition." 2019. [https://www.ilo.org/skills/pubs/WCMS\\_731957/lang--en/index.htm](https://www.ilo.org/skills/pubs/WCMS_731957/lang--en/index.htm).
- International Labor Organization. "The Employment Impact of Climate Change Adaptation." 2018. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/documents/publication/wcms\\_645572.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_645572.pdf).

International Labor Organization. “Working on a warmer planet: The effect of heat stress on productivity and decent work.”

2019. <https://www.ilo.org/resource/news/increase-heat-stress-predicted-bring-productivity-loss-equivalent-80#:~:text=Projections%20based%20on%20a%20global,losses%20of%20US%242%2C400%20billion.>

International Labor Organization. “World Employment and Social Outlook 2018: Greening with jobs.” 2018. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_628654.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf).

Leiserowitz , Anthony, Jennifer Carman, Nicole Buttermore, Liz Neyens, Seth Rosenthal, Jennifer Marlon, J.W. Schneider and Kelsey Mulcahy. “International Public Opinion on Climate Change.” CT: Yale Program on Climate Change Communication and Data for Good at Meta. 2022. <https://climatecommunication.yale.edu/wp-content/uploads/2023/07/international-public-opinion-on-climate-change-2022b.pdf>.

LinkedIn. “Global Green Skills Report 2022.” 2022. <https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/global-green-skills-report/global-green-skills-report-pdf/li-green-economy-report-2022.pdf>.

Mugijayani, Widdi, Made Suardhini, Nur Afni Panjaitan, Thalia Wikapuspita, Kinanti Z. Patria, Erizqa Mahardhika, Putu Gede Bhismananda, Yessy Verawati. “Impact Evaluation of Kartu Prakerja as a COVID-19 Recovery Program.” 2022. [https://public-prakerja.oss-ap-southeast-5.aliyuncs.com/www/ebook-reporting/Evaluasi-dampak-kartu-prakerja-eng.pdf?utm\\_source=prakerjalandingpage](https://public-prakerja.oss-ap-southeast-5.aliyuncs.com/www/ebook-reporting/Evaluasi-dampak-kartu-prakerja-eng.pdf?utm_source=prakerjalandingpage).

OECD/Cedefop. “Greener Skills and Jobs.” *OECD Publishing*. .2014. <https://doi.org/10.1787/9789264208704-en>.

Oxfam International. “G20 countries failing by big margins to cut greenhouse gas emissions to below ‘catastrophic’ levels.” 2023. <https://www.oxfam.org/en/press-releases/g20-countries-failing-big-margins-cut-greenhouse-gas-emissions-below-catastrophic>.

Partnership For Action On Green Economy. “Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector in Indonesia.” *International Labour Organization*. 2023. [https://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_ent/documents/publication/wcms\\_888170.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_888170.pdf)

Statistics Indonesia. “Potensi Kabupaten/Kota dan Kecamatan Hasil Pendataan Potensi Desa (Podes) 2021.” 2023. <https://www.bps.go.id/id/publication/2023/12/22/dc2fa13e8b9b1c70870845ab/potensi-kabupaten-kota-dan-kecamatan-hasil-pendataan-potensi-desa--podes--2021.html>.

UNICEF Indonesia. “Green Skills & Green Jobs POLL untuk Hari Pemuda Internasional 2023.” 2023. <https://indonesia.ureport.in/opinion/6506/>.

United Nation. “Green skills for youth: Shaping a greener future for youth in Indonesia.” 2023. <https://indonesia.un.org/sites/default/files/2023-09/Final%20Draft%20Issue%20Brief%20IYD.pdf#:~:text=If%20current%20trends%20persist%2C%20by,transition%20to%20a%20greener%20future>.

University of Notre Dame. “Notre Dame Global Adaptation Initiative Index.” 2021. <https://gain.nd.edu/our-work/country-index/rankings/>.



# Let's **rethink** the world

