Analyzing the policy landscape enabling human resource development as a pathway to the Philippines' decarbonized future

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Abstract

The Philippines' first Nationally Determined Contribution highlights a human-centered approach to achieving a low-carbon future. Widely advocated by international organizations, this approach emphasizes investing in people's capacities, institutions, and community engagement as necessary for an inclusive, greener, and sustainable transition. Drawing on these elements, this paper examines how the country can leverage human resource development to accelerate its decarbonization efforts. It explored the country's current policy landscape relevant to climate action and human resource development, identified the stakeholders involved, and analyzed their level of engagement. The findings of this paper show that although several laws and policies supporting human resource development exist in the country, particularly in the context of decarbonization, implementation proves to be a challenge. Finally, this paper also underlines the opportunities that could potentially address them, giving insight into how the country can attain its climate goals through human resource development.

1. Introduction

In April 2021, the Philippines officially presented its first Nationally Determined Contribution, in line with the global fight against climate change through the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC). It has committed to reducing greenhouse gas emissions by up to 75% from 2020 to 2030 – 2.71% of which are unconditional, which means that the country will use its own resources, while 72.29% are conditional and will be dependent on the Means of Implementation provided by developed countries (UNFCCC, 2021). Through its NDC, the country pledges to peak GHG emissions and shift to a low-carbon economy by 2030 while adhering to the Just Transition guidelines, which include the generation of green jobs and skills development.

The Philippines' NDC has garnered mixed reactions. While some express optimism, others are skeptical about the feasibility of achieving the set targets (CAT, 2023; Kuramochi et al., 2021). Although the country has not committed to a net zero target, it has declared its intention to shift to a low-carbon future, where adopting clean energy technologies is one of them. In the projected clean energy scenario, the goal is to increase renewable energy's share in the power generation mix to 35% by 2030 and 50% by 2050, capitalizing on the abundance of available resources such as geothermal, biomass, hydro, solar, wind, and biofuels (DOE, 2022). However, factors such as the COVID-19 pandemic, natural disasters, and the perceived cost-effectiveness of fossil fuels hinder the prompt adoption of renewable energy, prolonging dependence on unsustainable energy sources.

The content of the country's NDC is reflective of its experience: its constant exposure to a multitude of extreme weather events, believed to have intensified by global warming (Holden & Marshall, 2018). For example, the devastating impact of Typhoon Haiyan in 2013 served as a wake-up call, prompting the country to recognize the urgency of taking action (UN, 2013). Its NDC is rooted in the country's national priorities and highlights human-focused elements: climate resilience and adaptive capacity of communities, mitigation of socioeconomic impacts, just transition for affected workers,

communities, and industries, the inclusion of indigenous peoples in decision-making processes, and gender equality and women empowerment in climate actions.

The "human-centered approach" has been advocated by international organizations in various themes such as sustainable development, energy transition, and economic growth, among others. The International Labour Organization (ILO) describes the approach as one that prioritizes investing in people's capabilities, strengthening institutions of work, and promoting decent and sustainable work (ILO, 2019**)**. Similarly, the International Energy Agency (IEA) proposes a people-centered transition that goes beyond providing fair and affordable access to sources of energy, especially for vulnerable populations. This transition involves 1) prioritizing skills development, creating decent jobs, and protecting workers' rights; 2) promoting social and economic development while striving for equity and social inclusion; and 3) actively engaging communities in the process (IEA, 2021). Although both organizations have distinct objectives and mandates, their definitions converge on the concept of putting people forward in the agenda.

This study contributes to the existing literature by examining the Philippines' targets and actions toward decarbonization from a human-centered approach. Drawing on the critical elements from the definitions above (i.e., human capital development and institutions investment, community, and stakeholder engagement), this paper explores the route taken by the country thus far. Specifically, it examines how the country's human resources-relevant policies and programs contribute to achieving a low-carbon future. The following questions will guide this paper:

1. What are the current policies in the energy and employment sectors, specifically concerning human resource development, aligned with the Philippines' decarbonization efforts?
2. Who and how are the stakeholders involved?
3. What are the challenges and opportunities encountered in the process?

2. Decarbonization through human resource development: a review of related literature

Reducing greenhouse gas emissions has been at the forefront of solutions to achieving a low-carbon future. Extensive research has also provided us with a plethora of strategies and pathways - from coal phase-outs to technological innovations. Compared with these approaches, the focus on human resource development (HRD) as a critical element to speed up decarbonization has yet to achieve the same level of attention globally. The developed regions are already advanced in recognizing its importance, having already created institutional arrangements and mechanisms to harness human capital to realize a greener economy (European Commission, Joint Research Centre, 2022; OECD/Cedefop, 2014; Sommers, 2013). Fortunately, the rest of the world is gradually catching up: the literature is growing, as greater emphasis is placed on sustainable development and just transition in climate actions in the last decade (Sharpe & Martinez-Fernandez, 2021; Strietska-Ilina et al., 2011).

2.1 Green Jobs

Human resource development, as an instrument in the low-carbon transition, is often linked to the more popular "green jobs" concept. The general idea is that HRD, i.e., skills training and development activities, is imperative in order to occupy and perform the functions of these green jobs. However, several studies note that there is no single, widely accepted definition of the concept, making it challenging for some countries to utilize this "tool" to maximize the job-generating potential of a low-carbon economy (Sulich et al., 2020).

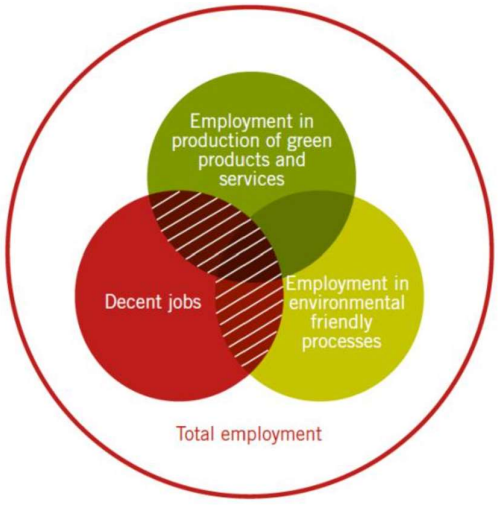
Earlier definitions have characterized green jobs as any work that involves producing goods and services that are environmental-friendly or any job which functions to protect and conserve the environment (Stanef-Puică et al., 2022). It applies to a wide range of sectors - energy, agriculture, tourism, forestry, and waste management – therefore resulting in divergences in what constitutes a green job in the first place (Arnedo et al., 2021; Cai et al., 2011; Unay-Gailhard & Bojnec, 2019). In this instance, researchers

use O*NET's green occupations classification in identifying, forecasting data, and formulating corresponding policies (Bowen et al., 2018). Additionally, the concept has been examined from various angles – which sectors have the potential to generate green jobs, which are most highly impacted by the "greening" of the economy, what skills are required, as well as what role the higher institutions have in support of green jobs (Lee & Van Der Heijden, 2018; Stilwell & Primrose, 2010; Sulich et al., 2020).

In the 2008 background paper on Green Jobs jointly produced by the United Nations Environment Programme (UNEP), International Labour Organization (ILO), and the International Trade Union Confederation (ITUC), the concept is defined more broadly. It encompasses a broader range of sectors, including manufacturing, administrative, and service activities. The report highlights the impact on employment as countries strive for economic growth and sustainable development, resulting in jobs being "created, substituted, eliminated, and transformed." Figure 1 displays the ILO's definition of green jobs, which must also satisfy the criteria of "decent work."

Figure 1

ILO's definition of green jobs



Note. Adapted from https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm.

Green jobs are also often used as an argument in favor of implementing climate policies. Fankhaeser et al. (2008) outline the short, medium, and long-term effects of such policies on employment and liken them to that of the "creative destruction" process – where jobs are generated from investing in greener technologies. However, this may require an additional or entirely different set of skills and an adequate workforce due to unfamiliarity, uncertainty, and the scalability of this "new technology" (Jagger et al., 2013). These studies make a good case for policymakers to make human resource development a legitimate decarbonization strategy. However, some green jobs literature do not thoroughly account for (or give equal attention to) the people on the other side of the fence – those who lose their jobs during the transition.

2.2 Just Transition

The International Labour Organization (ILO) emerged as the catalyst for bringing the "human-centered" approach to sustainable development and climate actions. Their Just Transition (JT) framework significantly gained international recognition and is now considered a critical component of decarbonization, as evidenced by its inclusion in the Paris Agreement. The ILO defines JT as shifting to a greener economy that is "equitable and inclusive as possible to everyone, creating decent work opportunities and leaving no one behind" (ILO, n.d.). It underscores the importance of the fair distribution of costs and benefits during the transition, focusing on safeguarding the rights and livelihoods of workers and communities from carbon-intensive industries and other high GHG-emitting sectors, particularly those reliant on fossil fuels. Integrating JT into the discourse, in essence, completes the missing piece that some of the green jobs literature are not able to cover extensively.

Similar to green jobs, the concept of just transition has been analyzed across different contexts and applied to various sectors. Consequently, there are several interpretations, some of which are "competing." According to Snell (2018), one of the critical areas of contention in JT is finding the "balance between social and ecological fairness." This is because the perception of fairness can vary depending on the circumstances and concerns of the actors involved. For example, trade unions prioritize

job security and income and are not necessarily concerned with the environmental repercussions of their occupations and industries. Meanwhile, some environmentalists are overly fixated on the benefits of greening the economy (i.e., generating jobs), to the point where they may overlook the quality of these supposed new employment opportunities (Econie & Dougherty, 2019; Sofroniou & Anderson, 2021). Such divergence in perception poses a persistent challenge, especially when translated into actual policies (Abram et al., 2022; Snell, 2018).

These dynamics, however, are an important reminder of the need for collaboration and interaction between various stakeholders in achieving a just transition. The ILO's JT framework recognizes social dialogue as a fundamental element in dealing with conflicts and gaps that may emerge as the transition to a low-carbon economy progresses. This is where human resource development may play a vital role in bridging these gaps. To address these, the JT framework particularly prescribes skills development, along with a social dialogue with stakeholders, to mitigate the expected negative impacts of climate change and environmental degradation on the employment and livelihood of communities (ILO, 2022).

2.3 Whole-of-government-and-society approach

Building on the necessity of social dialogue and stakeholder collaboration suggested in the previous subsection, the whole-of-government (WoG) and whole-of-society (WoS) approach will also be briefly discussed. This paper considers it essential to introduce the concept together as the NDC highlights this as its approach in formulating and achieving its climate commitments.

The whole-of-government approach posits a collaborative strategy across government agencies in various public initiatives, activities, or policies (Cázarez-Grageda, 2019). Previously referred to as “joined-up government” on several occasions, WoG mostly appeared in public health studies (Ortenzi et al., 2022). Together with the whole-of-society approach, both concepts often appear in grey literature, particularly in the WHO and the UN-produced reports on health policies and the SDGs. Indeed, speeches

from several UN officials have repeatedly emphasized the combination of WoG and WoS approaches as the best means of achieving the SDGs collectively (UN, 2018; WHO, 2020).

Although there are studies that mention such concepts, especially WoS, they only discuss its key features but fail to provide a comprehensive framework. Määttä (2021) notes that the WoS approach has not been applied in energy studies but attempts to utilize its features (i.e., crisis framing, shared responsibility, leadership or WoG, inclusivity, and systems-thinking) in analyzing climate and energy transition governance. The whole-of-government-and-society approach fundamentally signifies a multi-agency, multi-level and multisectoral cooperation. It engages all relevant stakeholders, including governments, civil society organizations, the private sector, academia, communities, and individuals, to participate in the policy development and decision-making processes.

Linking the concepts together

In the preceding subsections, the paper established the role of human resource development in decarbonization and attempted to draw a clearer picture of how HRD is enabled by introducing the concept of the whole-of-government-and-society approach. This approach further sheds light on the roles that non-government stakeholders hold in attaining a low-carbon future. To summarize, the pathway to decarbonization necessitates a just transition. Where just transition's goal is to provide sustainable, decent work and equal opportunities for all in the low-carbon future, human resource development is integral. Only when this is made available can the promising green job-generating potential of a low-carbon future be maximized.

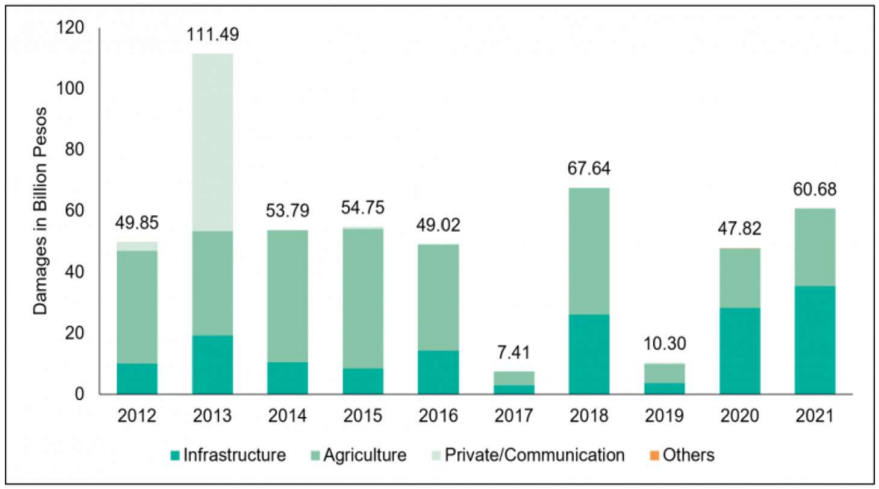
The following sections of this paper will examine how these concepts are incorporated into the Philippines' legal frameworks and policies. First, it will provide a concise overview of the country's energy situation. Second, it will explore the existing policy landscape and the key stakeholders involved. Finally, it will identify both the challenges and opportunities associated with advancing human resource development in the context of decarbonization.

3. The road to a low-carbon future: The case of the Philippines

The Philippines is considered one of the most vulnerable countries to climate and disasters. In 2021, the Global Climate Risk Index ranked the country 17th among the countries frequently impacted by extreme weather events (Eckstein et al., 2021). Last year, the World Risk Report ranked the country 1st among 193 countries with the highest exposure to disasters and other extreme natural events such as earthquakes and droughts (Atwii et al., 2022). As a country regularly experiencing typhoons and flooding, frequent damage to infrastructure, livelihood, and loss of lives continue to challenge the country's efforts to achieve sustainable economic growth (Ramachandran & Sacra-Dejucos, 2022). Figure 2 shows the value of damages in the Philippines from 2012 to 2021.

Figure 2

Value of Damages due to Extreme Natural Events and Disasters (in Billion PHP), 2012-2021



Note. Adapted from https://psa.gov.ph/environment/peenra/releases/168270

Historically, extreme weather events like typhoons have brought major damage to infrastructure (especially energy), consequently affecting the provision of basic services such as electricity, water, and communications. As one of the most crucial sectors in the Philippine economy, the government has consistently included energy security (in conjunction with climate actions) in its development plans. Under the Philippine Energy

Plan (PEP) 2020-2040, the government prioritized expediting the approval and permitting process for new power generation facilities. The National Security Council (NSC)'s National Security Strategy also identified energy security as one of its 12-point agenda, recognizing the challenges it is facing, such as natural calamities as well as international/regional and national issues, i.e., geopolitical issues, territorial claims, local terrorism, cyberattacks, etc. (NSC, 2018).

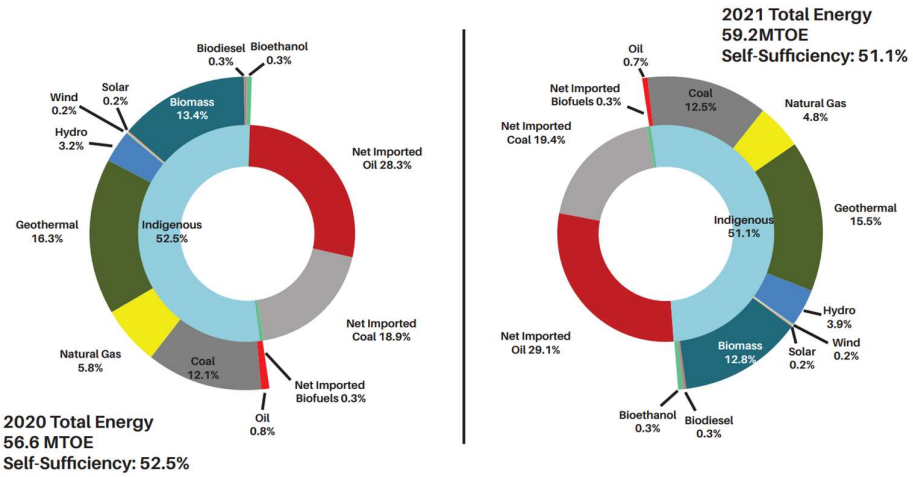
3.1 Country context

Energy situation

The Department of Energy (2021) reports that coal remained the biggest energy source for the Philippines, with its 31.9% share in the total primary energy supply (TPES). This is followed by oil at 29.8% share and natural gas at 4.8%, while aggregate renewable energy supply completed the remaining 33.5% of the country's TPES. Approximately 49% of the country's energy supply is imported, while 51% comes from indigenous energy sources. Energy self-sufficiency also fell by approximately 1.31%, from a 52.5% share registered from indigenous energy sources in 2020. There was also growth in the renewable energy supply by 2.9% from the previous year, as shown in Figure 3.

Figure 3

Total Primary Energy Mix, by Fuel (% Shares), 2020-2021



Note. Adapted from the DOE's Philippine Energy Situationer https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/doe-pes-kes-2021.pdf

Meanwhile, consumption of oil and electricity remained the highest in 2021. As the COVID-19 pandemic-related mobility restrictions eased, energy consumption in the transport sector bounced back and increased by 12.2% from 2020, accounting for the 31.3% share of the TFEC in 2021. Diesel and gasoline were the primary sources of fuel for the sector. On the other hand, the majority of electricity consumption came from households, which was at 29.6% in 2021.

GHG Emissions

Similar to other countries, transport and electricity generation have consistently been the two sectors that emit the highest greenhouse gas in the Philippines, as shown in Table 1. Coal remains the main source of power generation, while diesel and gasoline remain the primary fuel sources for the transport sector (DOE, 2021b).

Table 1

GHG Emissions by Sector and Activity

GHG Emission by Sector and Activity

$MtCO_2e$[1]

Sector and Activity	2011	2012	2013	2014	2015	2016
Industry	11.57	10.71	12.36	12.88	13.20	15.29
Transport	23.42	24.38	25.48	26.45	30.60	33.11
Others[2]	5.97	5.87	6.31	7.15	7.06	8.59
Electricity Generation	32.70	35.00	40.69	43.63	47.49	51.61
Energy[3]	0.99	1.10	0.94	1.11	0.96	0.66
Total	**74.65**	**77.07**	**85.78**	**91.22**	**99.30**	**109.25**

Sector and Activity	2017	2018	2019	2020	2021	AAGR*
Industry	16.63	14.22	13.18	11.32	12.50	0.8%
Transport	34.19	35.38	36.63	28.16	31.54	3.0%
Others[2]	10.16	10.63	11.27	11.35	12.13	7.3%
Electricy Generation	59.00	64.60	70.32	70.95	73.88	8.5%
Energy[3]	0.71	0.75	1.05	0.79	0.40	-8.6%
Total	**120.69**	**125.58**	**132.45**	**122.58**	**130.45**	**5.7%**

Notes:
(1) Million tons of CO_2 Equivalent ($MTCO_2e$)
(2) includes Household, Services and Agriculture Sectors
(3) includes Oil refining, Electricity and other Energy sector own use and losses

*average annual growth rate

Note. Adapted from the DOE's Philippine Energy Situationer https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/doe-pes-kes-2021.pdf.

Employment in the Energy and Transport sectors

According to the latest available data from the Philippine Statistics Authority (PSA), the energy sector employed 123,163 workers in 2019. This represented a 5.5% increase from the 116,716 workers employed in 2018 (PSA, 2022). The majority of the workers in the energy sector were employed in electricity, gas, steam, and air conditioning supply (EGSAS), which accounted for 97.4% of the total employment in the sector. The remaining 2.6% were employed in mining and quarrying, which also falls under the energy sector. In terms of sub-industries under EGSAS, the highest number of workers were employed in electricity distribution, accounting for 58.4% of total employment in

the sector. This was followed by the generation of electricity, which accounted for 25.8% of employment.

In the transport (sub)sector, around 3.059 million workers were employed as of March 2023, which accounts for 12.5% of the employed in the Services industry (PSA, 2023). It should be noted that these figures are preliminary (as of writing) and consist of both those employed in the formal and informal sectors. The formal sector, in this context, refers to the modes of transportation that are traditionally considered and legally accepted as an economic activity, such as driving buses or taxis. The informal sector (unrecorded in official statistics such as GNP), on the other hand, includes modes of transportation such as motorcycle taxis, Public Utility Jeepneys – which comprise the larger number of workers in the whole transport sector in the country (Guillen, 2009; Pablico, 2021; PSA, 2022b).

3.2 Policy Landscape and Stakeholders

The Philippines has a comprehensive set of the legal and policy frameworks that support decarbonization. Table 2 is a compilation of select national laws and policies, containing elements that either explicitly support for and are instrumental in advancing the low-carbon transition, creation of green jobs, and human resource (skills) development.

Table 2

Policies and frameworks relevant to decarbonization, green jobs, and human resource development

National Laws/National Plans and/or Frameworks	Reference to Green Jobs[a]	Reference to Human Resource Development[b]
Renewable Energy Act of 2008	No	Yes
Climate Change Act of 2009	No	Yes
Green Jobs Act of 2016	Yes	Yes
Advanced Energy and Green Building Technologies Act of 2019	No	Yes
National Climate Change Action Plan 2011-2028	Yes	Yes
Philippine Energy Plan 2020-2040	Yes	Yes
Philippine Development Plan 2022-2040	Yes	Yes
Nationally Determined Contribution (2021)	Yes	Yes
National Green Jobs - Human Resources Development Plan 2020-2023	Yes	Yes

Note. [a] Per ILO definition: product, process, and decent work. [b] HRD activities include trainings, skills, and capacity development. Author's compilation from DOE, DOLE, and CCC.

Furthermore, to maintain the focus and objective of this research, only the stakeholders who take the lead, directly mandated, or designated significant roles in these laws and policies are mentioned in this section. The non-state stakeholders listed are neither exhaustive as with the government stakeholders.

Renewable Energy Act of 2008 (RA 9513)

The Renewable Energy Act (2008) aims to 1) promote the exploration and development of renewable energy resources in the country, 2) boost utilization and commercialization of RE through a combination of capacity development at the national and local levels, and provision of fiscal and non-fiscal incentives. The law recognizes the use of RE resources as an instrument for reducing GHG emissions and dependence on fossil fuels, supporting not only economic growth but also environmental and health protection. Even before the law was enacted, the Philippines had already recognized the adverse consequences of relying excessively on imported fossil fuels. The country's awareness of its susceptibility to price volatility and the significance of safeguarding the environment prompted the introduction of the Biofuels Act in 2006, which aimed to

reduce the use of imported fuels and promote the use of locally-sourced biofuels (Rosellon, 2017; Senate of the Philippines, 2008).

Under the law, the Department of Energy (DOE) is mandated to increase national renewable energy capacity and diversify the country's power mix through several mechanisms (including fiscal and non-fiscal incentives) in coordination with other government agencies such as the Department of Environment and Natural Resources (DENR), Department of Finance (DOF) and Department of Science and Technology (DOST). The renewable installed capacity has increased by approximately 50% in 2022 (DOE, 2022c). The DOE has also awarded 1,002 projects in the same year, where 216 of which are existing facilities, and the rest are in the development stages. Despite this, the share of RE in the country's energy mix remains at 21% in 2021 compared to the 34% share in 2008 (Koty, 2023).

The law does not explicitly reference the Just Transition framework or green jobs. It may be because this legislation predates the Intended Nationally Determined Contributions (INDC) and before the SDGs Agenda was established. Nevertheless, it mentions creating the Renewable Energy Trust Fund (RETF), which will finance research, development, and demonstration of RE technologies and provide scholarships and fellowships for energy studies. However, the general guidelines for the utilization and administration of RETF were only created in 2018, with supplementing details on the fund sourcing, accounting, and auditing finalized in 2022**.** The RETF Operations manual, which is supposed to provide particulars on the types of financial support, eligible organizations, etc., is said to be finalized only by the end of 2023 (DOE, 2023, p. 17).

In the latest version of the legislation's policy framework, the National Renewable Energy Plan (NREP) 2020-2040, targets to include RE in the power generation mix by at least 35% in 2030, specifically through capacity building and partnering with international partners and agencies. The report recognizes the job-generating potential of increased adoption of clean energy technologies, as well as the anticipated need for workforce capacity-building as RE development continues to advance. (DOE, 2022b).

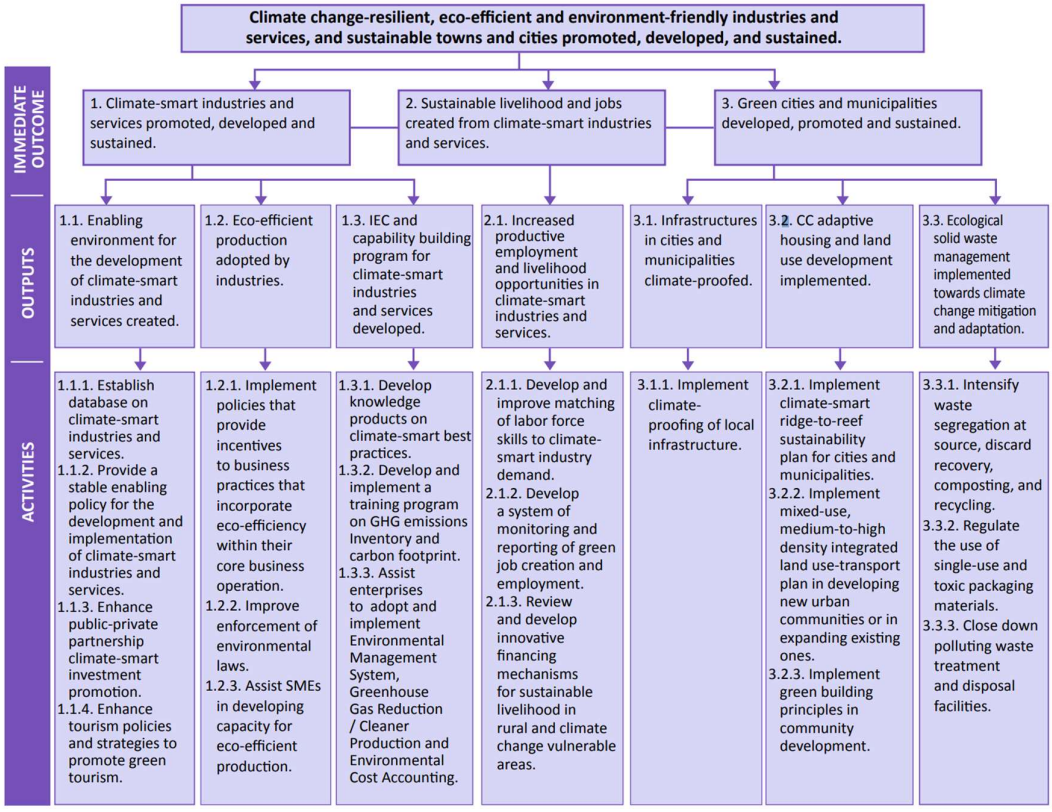
Climate Change Act of 2009 or RA 9729 (amended by RA 10714 in 2015)

Similar to the Renewable Energy Act, the Climate Change Act (2009) does not contain salient references to green jobs. The law established the Climate Change Commission (CCC) to lead the formulation, coordination, monitoring, and evaluation of the country's climate policy, strategic framework, and action plans at the national, local, and multisectoral levels. It designates the CCC to develop and administer appropriate standard assessment and certification of green goods and services, technologies, and practices. It mandated the Commission to create the National Framework Strategy on Climate Change (NFSCC) in 2010 and was operationalized through the National Climate Change Action Plan (NCCAP) 2011-2028. The strategy aims to enhance the resilience of the vulnerable sectors and ecosystems and the adaptive capacities of communities while ensuring gender sensitivity to climate policies and actions. At the local level, city and municipal governments were also required to craft and submit their respective climate action plans (LCCAP).

The framework's latest version has yet to be released, however, an early reference to green jobs and skills development already appears in the NCCAP. It identifies seven priorities and corresponding actions for adaptation and mitigation, namely 1) food security, 2) water sufficiency, 3) ecological and environmental stability, 4) human security, 5) climate-friendly industries and services, 6) sustainable energy, and 7) knowledge and capacity development. Figure 5 details the activities, outputs, and immediate outcomes under the climate-friendly industries and services priority.

Figure 5

Strategic Actions on Climate-Smart Industries and Services for 2011-2028



Note. One of the expected outputs and immediate outcomes is the creation of sustainable, green jobs through climate-smart industries, especially in the rural and most vulnerable areas. Adapted from https://climate.emb.gov.ph/wp-content/uploads/2016/06/NCCAP-1.pdf

Also, while it has been over a decade since the NCCAP was published, the Climate Change Act (RA 9729) itself has been amended through RA 10714 in 2015. The amendment established the People's Survival Fund (PSF), which granted funding to adaptation projects of local government units, communities, and organizations that could generate employment and livelihood for the local communities (CCC, 2017).

Green Jobs Act of 2016 (RA 10771)

The Green Jobs Act is primarily aimed at the creation of green jobs in the country. The law defines green jobs as employment that contributes to preserving or restoring the quality of the environment and aims to support the transition to a low-carbon economy that promotes sustainable and inclusive economic growth. It recognizes green jobs as "decent work" wherein workers' rights, fair income, workplace security, and social protection for families are upheld – an affirmation of support to the ILO's Just Transition guidelines.

The law mandates the Department of Labor and Employment (DOLE) to create the National Green Jobs Human Resource Development Program, which aims to promote the creation of green jobs through various activities such as capacity-building, research and development, and integration of green skills (both technical and core) and knowledge into the curriculum of basic and higher education institutions, as well as technical and vocational education and training (TVET) institutions. The Technical Education and Skills Development Authority (TESDA) is responsible for creating training regulations and facilitating skills training assessments and certifications in coordination with other government agencies and private stakeholders.

Other mandates include the creation of a database dedicated to green jobs, skills, and businesses, in partnership with the Philippine Statistics Authority (PSA). Similar to the Renewable Energy Act, incentives and support services are also provided to green enterprises, such as tax breaks and access to financing. In this regard, the Department of Finance (DOF) coordinates with relevant agencies in facilitating and administering fiscal and non-fiscal incentives to business enterprises participating, investing, and creating green jobs certified by the Climate Change Commission.

Philippine Development Plan (PDP) 2023-2028

The Philippine Development Plan (PDP) serves as a comprehensive roadmap for the government's development planning, spanning six years equivalent to the President's

term. These plans encompass socioeconomic policies, strategies, and programs that align with the President's development agenda. Under the current administration, the overarching goal is poverty reduction and employment revitalization, which can be realized by one of the PDP's targets: to enhance the country's resilience to the adverse effects of climate change and natural hazards (NEDA, 2022). Cognizant of its threats and risks across different sectors and to the overall effort of transitioning to a low carbon economy, the PDP devises a "cross-cutting," multisectoral approach to achieving this.

Outlining the necessary actions and roles of both government and non-government stakeholders mirrors the whole-of-government and whole-of-society approach articulated in the NDCs. "Cross-cutting" strategies such as developing the capacity of LGUs and communities in climate and disaster risk resilience, mobilizing and boosting their access to sustainable and climate finance (both public and private), rehabilitation of ecosystems, attracting more private investments in green technologies, and circular business models – all of which have the potential to generate green jobs. Furthermore, it also prioritizes mainstreaming the National Green Jobs Human Resource Development Plan into national, regional, and local development plans to effectively make reskilling, upskilling, and retooling opportunities accessible for workers of entities and organizations highly impacted by the transition to a low-carbon economy.

In further reference to human resource development, it aims to intensify partnerships with industries, educational institutions, academia, and the international community in increasing Science and Technology research and development (R&D) activities. The purpose is to drive the creation and innovation of sustainable technology, adoption, utilization, and eventual commercialization.

Government and non-government stakeholder collaboration

The private sector plays an equally important role both in achieving climate goals and generating green jobs. Progress will be stalled without investments, for example, in research and development in green technologies or transforming business practices to be

more environment-friendly. This has been repeatedly endorsed in the country's legislation and development plans, and reiterated in its NDC.

In the Philippines, the private sector is increasingly recognizing the importance of climate action for sustainable business practices. There are businesses that have implemented initiatives to reduce their carbon footprint, promote renewable energy, and adopt environmentally friendly technologies. Additionally, business associations and chambers of commerce often engage in advocacy efforts, support climate-smart investments, and collaborate with government and non-governmental organizations on climate-related projects. Although not many, there are already several companies that partnered with local government units (LGUs) and non-profit organizations in facilitating programs to enhance vulnerable communities' disaster resilience as well as strengthening the local economy through capacity development and financial means (DENR, 2023; The Philippine Star, 2023). The emergence of social enterprises and entrepreneurship networks has opened an avenue for job opportunities and mentoring on sustainable and eco-friendly practices.

On the other hand, skills development specific to green jobs has not yet achieved the same level of visibility, organization, and collaboration with the government compared to other industries. There are business and industry membership groups that have launched initiatives and partnerships to address the skills gap, mismatch, and relevant human resource issues (ASEAN, 2021). One of the most recent is the establishment of Sector Skills Councils (SSC) in three sectors: agribusiness, semiconductor and electronics, and analytics and AI (PBeD, n.d.). For example, the IT-Business Process Management (IT-BPM) industry in the country has a well-established organization of private companies called the IT & Business Process Association (IBPAP), whose members have expanded even to non-industry sectors. It has official partnerships with the government and educational institutions programs for human resource development, policy research, and business development within the sector (IBPAP, n.d.).

The country also has several civil society (CSOs), non-governmental organizations (NGOs), and labor unions, advocating for sustainable development,

environmental protection, and workforce development. Government agencies have their respective multistakeholder engagement mechanisms that are routinely carried out as it formulates and implements policies or programs. The NEDA, for example, conducts Stakeholder's Chambers meetings specifically on the SDG matters (NEDA, n.d.). On the other hand, the DENR implemented an Environment and Natural Resources (ENR) for Multistakeholder Engagement framework where different sectors, including representatives from vulnerable communities, convene in one platform to address environmental challenges, generation of livelihood opportunities, capacity development for businesses on decarbonization activities, etc. (DENR, 2023). These organizations are funded through various sources, such as membership dues, donations, subsidies, and income-generating activities. Additionally, their projects receive support from overseas development assistance or local and multinational corporations (ADB, 2007).

The country's vulnerability to disasters and extreme weather events has also driven the need to integrate climate education into its education system. As mandated by the Climate Change Act (2009), the K12 (basic compulsory education) curriculum already has climate change concepts in several subjects, such as Science, Social Sciences, and Health. The Department of Education (DepEd) is doing its part in developing the youth's awareness by taking measures to reinforce climate change education such as updating the course lineup, featuring topics specific to the country's context. For example, Senior High School students can now take Disaster Readiness and Risk Reduction to fulfill one of their core requirements (DepEd, n.d.). Furthermore, there are efforts to teach climate education through activities outside the classroom. In select secondary public schools, climate-smart rice agriculture lessons are offered at the secondary level, where students are engaged as information providers, interact and share new and sustainable knowledge, practices, and technologies with farmers in the community (Manalo et al., 2016).

The country's higher education institutions (HEIs) serve as hubs for research and innovation. They have been offering programs and activities covering different areas, such as environmental literacy, training, and capacity-building programs relevant to adaptation, mitigation, and sustainability. For instance, initiatives such as climate-smart

farm schools have been established in some parts of the country where the local community participates in the teaching-learning process running through a whole cropping cycle (APAARI, 2018; Espaldon et al., 2010). Recently, the DOE and Commission on Higher Education launched campaigns on energy efficiency and conservation (EEC) at the local government level and enacted legislation, such as the "Advanced Energy and Green Building Technologies Act," which mandates HEIs to develop and implement curriculums to incorporate advanced EEC practices and in green building design and construction (DOE, 2022a; Neil, 2019).

Also, the Philippines' commitment to international agreements such as the SDGs and the Paris Agreement on Climate Change significantly contributed to developing its sustainability, climate, and employment policies. Being a party to these international organizations and conventions ushered the government to integrate just transition into its goal of greening the economy. This is evident in its submission of Intended Nationally Determined Contributions (INDC) in 2015 and the first NDC in 2021. The international community has also been instrumental in developing the country's capacity and providing technical and financial assistance to its climate actions.

4. Advancing human resource development in the current landscape: Challenges and opportunities

Several studies have noted the comprehensive list of laws, greening policies, and programs the Philippine government enacted to accelerate the shift to a sustainable, low-carbon future (Abrigo et al., 2021; ILS, 2019; Pablico, 2021). Even before the SDG Agenda was launched, several major environmental legislations were already enacted. For example, the Clean Air Act of 1999 was one of the first few laws to reduce greenhouse gases. This shows that the country does not lack awareness of these global concerns. In fact, it is the first ASEAN country to pass a law in support of green jobs (Sharpe, 2021). Yet despite having policies in place, the country continues to face challenges in implementing them, consequently impeding human resource development initiatives and activities.

4.1 Challenges

First, there are persistent concerns for workers in the carbon-intensive industries. The transportation sector, for instance, still relies heavily on fossil fuels. There have been initiatives such as the Public Utility Jeepney (PUJ) Modernization program, launched initially in 2017 by the Department of Transportation (DOTr). The program aimed to upgrade the jeepney fleet to improve safety, reduce emissions, and enhance the overall quality of public transportation in the country (Viado, 2023). However, it was deemed too costly as it required replacing old units, all while financing options are limited. Studies have also pointed out that the program could result in the displacement and loss of livelihood for operators and drivers who mostly come from low-income backgrounds, and cause a domino effect, such as increased passenger fares, cost of living, and commodity prices (Mendoza, 2021).

The modernization program has faced opposition for a long time – from transportation groups, and worker organizations to legislators. In response, stakeholder consultations have been conducted, and as a support mechanism, a skills training program has been offered to drivers and other stakeholders affected (French, 2023). Meanwhile, there are also transport groups in favor of the program, as it requires individual operators to form a cooperative (Yu, 2023). Consolidation implies benefits – drivers can share operational costs, gain access to loans, and individually, they can avail of social security benefits, health insurance, and a more stable income. This is especially important for those who are considered as informal workers. It can be recalled that PUJs belong to the informal spectrum of the transport sector, meaning they are not necessarily covered by any mandatory social benefit available to formal workers. However, they cannot be disregarded as they hold enormous significance in the transport sector as they have filled the demand gap that formal public transport cannot accommodate (Mateo-Babiano et al., 2020).

The lack of social safety nets has long been a concern in the Philippines, particularly in light of the shift towards a green economy. Literature on just transition

(JT) emphasizes the importance of providing safety nets, particularly for those who may lose their jobs during this transition. For one, the country does not have any form of unemployment insurance, which has been noted in various reports and has hindered the government's ability to fully implement JT. This has had repercussions for the country's readiness for green jobs policy within the ASEAN region, despite being the first to enact a legislation on this matter. Indeed, the government's increased support for renewable energy adoption create a promising job market in the sector. While this is a welcome prospect, the jobs generated may also be temporary in nature – which again deviates from what constitutes decent work; therefore, what truly a green job is (Siciliano et al., 2021).

Another significant challenge is the absence of comprehensive data on the country's labor market, particularly the existing and potential green jobs, despite efforts to further identify and map these jobs. The ILO released a report intended to serve as a springboard for the country's green jobs program and future policies (ILO, 2014). Among the sectors with green employment potential are agriculture, construction, transport, energy, forestry, and fisheries. Abrigo et al. (2019) conducted a similar study to identify sectors with the highest potential to generate jobs in the green economy scenario, yet the results are still not straightforward. The authors proposed that a study be conducted at the industry-occupation level, which would provide both the government and business stakeholders with more reliable and valuable data for future policy formulation (particularly on skills development and training) on green jobs. The plan to create a database for green jobs, skills, and industries, as well as data on skills shortage and displaced workers until now, has not been implemented (ILS, 2020). Moreover, DOLE's latest Jobs and Labor Market Forecast 2022-2025 points out the need to intensify campaigns on green jobs as there is still an evident lack of knowledge on such in the country (BLE, 2022).

Regarding education and training, there are still gaps in the policies and availability of resources. Although Environmental Education (EE) and Energy Efficiency and Consumption (EEC) education are legally mandated, there is a lack of qualified faculty and personnel to conduct and facilitate relevant courses at the tertiary level, especially in public universities (ILS, 2020). On technical-vocational skills development,

TESDA's training programs also remain supply-driven and concentrated in the more urbanized regions of the country. Furthermore, facilities and quality of training provided also continue to lag due to limited resources within the organization (ADB, 2021).

Additionally, policy coherence and consistency remain another challenge due to the fact that green jobs encompass a wide range of sectors and stakeholders. While government agencies and non-government stakeholders play significant roles in speeding up the transition to a green economy, implementation may be hampered without robust monitoring and systematic coordination. The Green Jobs Act has taken the whole-of-government approach – designating fifteen government entities in total. Yet, since its enactment in 2016, the Climate Change Commission has yet to finalize the guidelines and standards for assessing and certifying green goods and services, technologies, and practices to facilitate the incentives (Medenilla, 2022). The application of the incentives is claimed to overlap with provisions of another law with a similar mechanism for incentivizing innovation.

In terms of financing, several studies report that enterprises are averse to the financial implications of adopting green practices and skills training (Abrigo et al., 2021; ILS, 2019, 2020). Additionally, the micro, small and medium enterprises (MSME) are also restricted due to the limited green financing products available in the market. Availability of financing mechanisms is crucial as the MSMEs comprise 99.58% of the total number of enterprises in the country (DTI, 2021). Furthermore, consumer behavior and preference for cheaper products persist as there is an underlying assumption that environment-friendly products are more expensive.

4.2 Opportunities

The Philippines' NDC and development plans continually affirm the private sector as a key driver of economic growth. Therefore, it strives to "enable a market signal to support local and foreign direct green investments" (UNFCCC, 2021). And the efforts to live up to this declaration are gradually becoming visible.

In 2019, the Securities and Exchange Commission (SEC) started urging publicly-listed companies in the Philippine Stock Exchange to submit environmental, social, and governance (ESG) reports on a "comply or explain" basis in 2019. Furthermore, the SEC recently announced that ESG reporting will soon become mandatory (Cruz, 2021). This requirement aligns with the country's commitment to sustainability and aims to make the business landscape more competitive, making it more attractive for foreign investments and financing that value this feature (SEC, 2019).

In relation to its commitment to increase power generation through RE capacity, the government continues to streamline and clarify guidelines of renewable energy projects in the country, including the much-debated rules on foreign ownership. This was considered a positive development, particularly as energy security became a global concern. Streamlining policies within the sector will help facilitate more RE development projects, leading to employment opportunities in the project development, construction, and installation stages (ILS, 2020). Moreover, introducing imported RE technology will require professionals and experts with the skills and knowledge to operate such technology.

Although such opportunities (i.e., ESG reporting and RE policy alignment) do not explicitly pinpoint skills development or capacity building, the flourishing of green enterprises in the country is what fosters employment opportunities itself. This same scenario highlights the importance of skilling, reskilling, upskilling, and retooling the country's human resources to maximize and sustain the green economy.

In terms of the country's educational landscape, the Universal Access to Quality Tertiary Education Act of 2017 is a critical piece of legislation promising inclusive human capital development in the country. The law institutionalizes free tuition, school fees exemption, student loans, and subsidy programs in State and Local Universities and Colleges and TVET facilities in TESDA-registered institutions (CHED, n.d.). Because the law provides increased access to tertiary education for a broader segment of the population (especially those from low-income families and in rural areas), it ensures that more individuals will have the opportunity to acquire the knowledge and skills required

by the green economy. This expanded access to higher education can contribute to the development and fill the demand for a skilled workforce capable of driving sustainable initiatives and decarbonization efforts.

Exploring the Philippines' current policy landscape gave us an insight into how much attention and importance the government has directed on human resource development. This paper finds that, at the very least, the government fully recognizes that HRD can promote and support the transition to a sustainable green economy. However, implementing the policy instruments and interventions has been less stellar (Abrigo et al., 2021). This is evident in the breadth of awareness and participation in the green transition of the stakeholders: it remains varied. As Snell (2018) notes, identifying the best balance between social and environmental equity is challenging as stakeholders have different perceptions. In the case of the PUJ modernization program, HRD activities that the government initiated for the affected drivers are not yielding the desired results. Moreover, harnessing HRD as a tool for decarbonization has primarily been a top-down approach, as observed in the society-wide action (or lack thereof). The evidence of participation and interactions from the local government level, worker organizations, and the labor force itself is inadequate (Määttä, 2021).

Now remains the most critical question: *Can human resource development accelerate the Philippines' path to a low-carbon future?* The simple answer is yes; the more complicated question is how. The Philippines is relatively at the early stages of greening its economy, nevertheless, it is happening. The challenges and opportunities identified in this section essentially inform us of what is required to sustain the transition.

5. Key takeaways and a glimpse of what is next for the Philippines

The Philippines has indeed internalized the importance of human resource development in the transition to a low-carbon future. This is evident through its presence in legal frameworks, policies, and programs supporting sustainable development, promotion of green jobs, and adherence to just transition – all of which have been integrated not just in its climate policies but also in its national development plans. However, challenges persist in fully maximizing human resource development for a green economy, including difficulties in achieving a just transition for workers in carbon-intensive sectors, incomplete data on green jobs, a shortage of qualified faculty and appropriate skills development programs, policy coherence and coordination issues, and limited access to green financing for MSMEs. Despite these hurdles, there are opportunities for the country to achieve decarbonization. Mandating ESG reporting, streamlining renewable energy policies, and expanding access to tertiary education are among those that can effectively support the transition.

While the policy landscape is considerably poised to enable decarbonization through a human-centered approach, further efforts are clearly still needed. Legally defining the concept of green jobs is already a great start (La Vina & Gamboa, 2022). However, it is crucial to maintain the momentum and follow through on the next steps, such as fully implementing the provisions in the law. For example, the monitoring and evaluation system has not yet materialized since the Green Job Act's implementing rules and regulations were released in 2017. This system, which includes creating a database of green careers, skills, and existing and emerging enterprises (not only in the energy and transport sectors), will help provide comprehensive empirical data necessary for sound and concrete policies in the future. Evaluating the outcomes and their effectiveness is another hurdle, as some policies have either overlapping elements, are relatively new, or are still undergoing clarifications and amendments. And lastly, leadership from the government is vital, yet the complexity of this endeavor will ultimately require the extensive collaboration of the whole of society.

In 2025, the Philippines and all the countries party to the Paris Agreement will again have the opportunity to communicate their new or revised NDCs. The UN recommends that the Nationally Determined Contributions should "aim high and reach far" (UN, n.d.). However, critics have already called out the country's current NDC as too ambitious and vague (La Vina & Gamboa, 2022). As it is, the country's path to a low-carbon future is already challenging due to competing national development priorities, limited funds, and other exogenous shocks. Nevertheless, this will be an excellent avenue to gauge the country's progress and trajectory towards a sustainable, low-carbon future: *Have the laws and policies worked? Are they enough? What else needs to be done?* It will undoubtedly be interesting to find out the answers to these questions and to see how the country can further elevate its efforts and sustain its commitments – and ultimately be translated into clearer, more actionable goals in its next NDC.

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