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Skills for Green Jobs in **Philippines**



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Skills for Green Jobs in Philippines

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Abbreviations and Acronyms

ACEF	Asia Clean Energy Forum
AIL	Academe-Industry Linkage
ALMP	Active Labor Market Programs
ASHRAE	Refrigerating and Air-Conditioning Engineers
ASSIST WELL	Welfare, Employment, Legal, Livelihood
BERDE	Building Environmentally Resilient Designs for the Environment
BFAR	Bureau of Fisheries and Aquatic Resources (BFAR) DENR,
BMZ	Federal Ministry for Economic Cooperation and Development
CALABARZON	Cavite, Laguna, Batangas and Rizal Zone
CBA	Collective Bargaining Agreement
CEDEFOP	European Centre for the Development of Vocational Training
CHED	Commission on Higher Education
CPSC	Colombo Plan Staff College
CRE	Commercial Refrigeration
CSC	Civil Service Commission
DA	Department of Agriculture
DBM	Department of Budget and Management
DBP	Development Bank of the Philippines
DepEd	Department of Education
DOE	Department of Energy
DOLE	Department of Labor and Employment
DOST	Department of Science and Technology
DoT	Department of Tourism
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
ECOP	Employers Confederation of the Philippines
EDGE	Excellence in Design for Greater Efficiencies
EMB	Environmental Management Bureau
EO	Executive Order
ESDP	Emergency Skills Development Program
FFW	Federation of Free Workers
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GSP	Geological Society of the Philippines.
GTC	Green Technology Center
GREAT	Gender Responsive Economic Action for the Transformation of Women
HCS	Heritage Conservation Society
HRD	Human Resource Development
ICOMOS	International Council of Monuments and Sites
IFC	International Finance Corporation
IIRR	International Institute of Rural Reconstruction
ILO	International Labor Organization
ILS	International Labor Studies
IIEE	Integrated Electrical Engineers of the Philippines
IT	Information Technology
LGU	Local Government Units
LMI	Labor Market Information
LOAM-C	League of Organic Agriculture Municipalities plus one city
MAC	Machine Air Conditioning
Mimaropa	Mindoro, Masbate, Romblon, Palawan region

MRA	Mutual Recognition Agreement
NEDA	National Economic Development Authority
NEET	Not in Education and Employment
NC	National Certification
NDC	Nationally Determined Contribution
NGP	National Greening Program
NIPA	National Integrated Protected Areas
NICERT	Negros Island Certification Services
NCST	National College of Science and Technology
NGOs	Non-government Organizations
NTDP	National Tourism Development Plan
NTESDP	National Technical Education and Skills Development Plan
NUWHRAIN	National Union of Workers in Hotel and Restaurant Industries
NWPC	National Wage and Productivity Council
OA	Organic Agriculture
OCCP	Organic Certification Center of the Philippines
OF	Overseas Filipinos
PACC	Paris Agreement on Climate Change
PACU	Package Air Conditioning Unit
PAMALAKAYA	Pambansang Kilusang Mamalakaya ng Pilipinas
PCCC	Philippine Climate Change Commission
PCCI	Philippine Chamber of Commerce and Industry
PCW	Philippine Commission on Women
PDI	Philippine Daily Inquirer
PDP	Philippine Development Plan
PESO	Public Employment Service Office
PGBI	Philippine Green Building Initiative
PICTourism	Philippine Improving Competitiveness in Tourism
PIID	Philippine Institute of Interior Designers
PCASH	Philippine Chapter of the American Society of Heating
PSVARE	Philippine Society of Ventilating, Air Conditions and Refrigerating Engineers
PIDS	Philippine Institute for Development Studies
PGJA	Philippine Green Jobs Act
PLEP	Philippine Labor and Employment Plan
PROGeD	Projects for Green Economic Development
PRC	Professional Regulation Commission
PRRM	Philippine Rural Reconstruction Movement
RA	Republic Act
RAC	Refrigeration and Air Conditioning
SLF	Sanitary Land Fill
SPIK	Samahan sa Pilipinas ng mga Industriyang Kimika or Chemical Industry Association of the Philippines
TESDA	Technical Education and Skills Development Authority
TIPC	Tripartite Industry Productivity Council
TISDP	Tourism Industry Skills Development Program
TTIs	Technical Training Institutions
TR	Training Regulations
TUCP	Trade Union Congress of the Philippine
TVET	Technical and Vocational Education and Training
TVIs	Technical and Vocational Institutions
TWSP	Training for Work Scholarship Program
UNESCO	United Nations Education, Scientific and Cultural Organization Commission/UN Education
UNEVOC	International Center for Technical Education and Vocational Training
UAP	United Architects of the Philippines

Abstract

This study on Skills for Green Jobs (2017) provides an update on progress with the Philippine green transition that was first studied in 2010. Since then and until now the Philippine economy and employment has been dominated by the service sector, largely because the country's industrial sector has stagnated and agriculture has been declining. It is acknowledged, however, that industry and agriculture could be well-springs of green jobs. Restoring the economic vibrancy of industry and agriculture is therefore the development imperative.

The green shift in the Philippines is set against an economy, which has grown but in which the economic gains have not been felt by the population owing to the slow growth of jobs. As a result, there is a large group of unemployed Filipinos, especially among the youth. However, the green shift is expected to create more and better jobs in the future if the relevant enabling policies are fully implemented and just transition measures are put in place. Since 2010 there has been some degree of progress in the promulgation of policies and regulations that foster the growth of green jobs and green skills.

From 2015 until now Philippine measures on skills development for the green economy have consisted of the following: mainstreaming of green technical vocational education and training (TVET) in the national development plan and the national employment plan; the National Technical Education and Skills Development Plan (NTESDP); and legislation that explicitly provides for greening of education and skills development system, including TVET, through the Philippine Green Jobs Act of 2016 (PGJA 2016). The Technical Education and Skills Development Authority (TESDA) has put in place measures, including setting up the Green Technology Centre (GTC) and started the process of greening the training regulations and orienting TESDA regional offices on greening TVET. Most recently, TESDA has developed its framework on Greening the TVET System and institutionalized with a policy issuance.

The Philippines passed the Green Jobs Act in 2016, and thus far it is the first country in Asia to have legislation on green jobs or on jobs that contribute to preserving and restoring the quality of the environment, including low carbon development. The Green Jobs Act stipulated that for a job to be considered green, the job must meet two criteria: first, it promotes environmental sustainability; and second, it complies with decent work standards. As mandated by the law, the Department of Labor and Employment is leading the formulation of the National Green Jobs Human Resource Development Plan, which has integrated the Just Transition framework. The law also provides for incentives to encourage investment on skills development, research and capital equipment that would directly contribute to generating and sustaining green jobs across sectors.

The Philippines is well poised to pursue the greening of jobs and skills considering that it has robust policies on environment and decent work, combined with the immense opportunities for green jobs across sectors in the country. Moreover, there are existing active labour market policies (ALMPs), which can be harnessed for green jobs creation and green skills development. But the TVET sector would need to be more proactive in responding to the requirements of the green economy and green jobs. The PGJA of 2016 could be the platform for creating more and better jobs and addressing employment challenges and poverty, while pursuing an environmentally sustainable pathway.

Greening jobs and skills is a huge job but it can be systematically tackled through mainstreaming of green values at all levels, that is households, communities, institutions, public and private institutions. Green skills is more than just knowledge and skills – it is a value, an attitude and a world-view.

Government is strategically positioned to produce green jobs in the public sector and it can spur

on the greening of existing jobs and creation of green jobs. It has a distinct role in ensuring policy coherence, facilitating implementation and fostering convergence of policies pertaining to green jobs and green skills. The government is duty-bound to spearhead the greening of jobs and skills at all levels, national and local. Local government units (LGUs) have a special role to play in propagating green jobs and skills in their respective jurisdictions. Government can stimulate, motivate, orient, and educate the bureaucracy towards green jobs and create an enabling environment that encourages and supports the private sector in investing and venturing into products, services and processes that foster green jobs.

Key recommendations for fast-tracking the green shift in the Philippines are as follows: mind-setting across the entire population towards a green environment, economy, jobs and skills; and intensifying the mainstreaming of the green agenda across all levels of education, including TVET. It is noted that the Philippines' Climate Change Commission is in the process of integrating green jobs and green skills in the updating of the country's Nationally Determined Contribution (NDC) or the commitments in implementing the Paris Agreement on climate change. The Department of Labor and Employment (DOLE) is aligning the formulation of the National Green Jobs Human Resource Development Plan with the NDC along with other national and sectoral policies and targets. Improving existing skills development measures by integrating environmental competencies and portable skills can be prioritized, while new green jobs and skills needs are being identified and developed. Strengthening the enabling environment for green skills, bolstering social dialogue and engagement of workers and employers' organizations in making skills measures more responsive and effective, and promoting greening initiatives at the enterprise and local level could accelerate the green transformation that can lead to significant boost in green jobs creation across the country.

Acknowledgment

This study was conducted by Ms. Lucita S. Lazo, Ms. Mary Ann Fernandez Mendoza, as a part of set of national studies on skills for green jobs conducted in some thirty countries globally. The set of studies is the result of collaboration between the ILO and the European Centre for the Development of Vocational Training (Cedefop). Overall methodological guidance was provided by Olga Strietska-Illina (ILO Employment Policy Department, Skills and Employability Branch). Coordination of country studies and technical backstopping was provided by a team led by Catherine Saget (ILO Research Department), Tahmina Mahmud (ILO Skills and Employability Branch) and Takaaki Kizu (ILO Research Department). Moustapha Kamal Gueye and Marek Harsdorff (ILO Enterprises Department) contributed to the studies' implementation on behalf of the ILO Green Jobs Programme. Alena Zukersteinova and Stelina Chatzichristou from Cedefop's Department for Skills and Labour Market coordinated studies among the participating EU countries. Valuable inputs were provided by the ILO colleagues: Christine Hoffmann, Laura Brewer, Maria Ilca Lima Webster, Alvaro Ramirez Bogantes, Hassan Ndahi, Fernando Vargas Zuñiga, Patrick Daru, Akiko Sakamoto, Mikhail Pouchkin, Gabriel Bordado, Julien Magnat, Kanae Tada, Tendy Gunawan, Bolotbek Orovov, Gwyneth Anne Pamos, Georginia Pascual, Badiane Cheikh and Kishore Kumar Singh. Massimiliano Leone, Ana Buzdugan (International Training Centre ILO Turin), Mariela Dyrberg and Annette Brandstätter (ILO Employment Policy Department) Solveig Boyer (ILO Green Jobs Programme) and Manuela Flamini (Edizioni Retrò s.r.l.) were responsible for editing and design.

1. Introduction¹

The Philippines is endeavouring to transition to a green economy and expects to generate green jobs in the process. The term “green economy”² refers to an economy that is low-carbon and resource-efficient, and results in the generation of green jobs and in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

In 2010 the ILO commissioned a study to take stock of and analyse the situation from the standpoint of developing green jobs. Since then, the need to develop green skills to enable Filipinos to perform green jobs has unfolded. Hence the thrust of the present study is to review the current situation on green skills development. It is expected that the findings of the green skills assessment will serve as an input to the ongoing preparation of the National Green Human Resource Plan as required by the Philippine Green Jobs Act.

The specific objectives of the study are listed below.

1.1 Overall Objective

To update the Philippine country study on the developments that have occurred since 2009/10 and any planned in the future; more specifically:

- 1) to identify major challenges and priorities related to climate change as defined in Nationally Determined Contributions and the subsequent greening policies and strategies;
- 2) to identify major sectors with a greening potential in the country and those particularly affected by green stimulus packages and programmes;
- 3) to analyse how skills response strategies are incorporated into wider greening policies and programmes;

¹ This report was prepared by Mary Ann Fernandez-Mendoza, former Commissioner of the Civil Service Commission, Philippines and Lucita S. Lazo, former Director General of TESDA.

² Green economy as defined by UN Environment.

- 4) to analyse skills needs for new occupations, new skills for greening existing occupations and retraining needs in sectors undergoing structural changes as a result of policy implementation, and introduction of greening technologies and practices;
- 5) to identify which methods and tools, systems and institutional frameworks for skills anticipation and assessment are in use, so as to ensure that skills provision corresponds to current and future labor market demand for workers in transition to a greener economy, both quantitatively and qualitatively and at different levels, i.e. national, sector, regional, company, training providers;
- 6) to analyse how the skills response is organized to meet the challenge of greening the economy effectively, paying specific attention to planning initial and continuing training, institutional frameworks, systemic provisions, delivery channels, *ad hoc versus* anticipated skills responses, and skills responses by different actors and providers;
- 7) to draw conclusions and policy recommendations on skills policies and strategies, skills provision at national, sector, local or enterprise levels, and further research needs to meet the demand of greening the economy in the country.

1.2 Definitions

The discourse on the concept of green jobs started early in the Philippines, which eventually led to the enactment of the Philippine Green Jobs Act or Republic Act 10771 in 2016.

The National Climate Change Action Plan (NCCAP) for the period 2011-2028 includes a reference to green jobs as a means to climate-smart industries and services. While the Philippine Development Plan 2011-2016 referred to greening of jobs, viewing it as a strategy for inclusive and sustainable growth.

This study adopts the statutory definitions of relevant concepts as contained in the Philippine Green Jobs Act of 2016.

Under the law, green jobs is defined as “employment that contributes to preserving or restoring the quality of the environment, be it in the agriculture, industry or services sector. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity, reduce energy, materials and waste consumption through high efficiency strategies, decarbonize the economy, and minimize or altogether avoid generation of all forms of waste and pollution. Green jobs are decent jobs that are productive, respect the rights of workers, deliver a fair income, provide security in the workplace and social protection for families, and promote social dialogue.” Adaptation to climate change and disaster resilience are additional elements being considered as part of its definition.

and green TVET, in particular those that have evolved since the background study of 2010³. Section 4 presents the measures pertaining to the development of green skills and actions to advance the green TVET agenda. Section 5 presents three case studies with lessons learned that are relevant to the greening of skills. Section 6 compiles the Conclusions and lists some recommendations.

1.3 Methods

The key research questions are contained in the ILO Terms of Reference (see Annex 1). Data were collected from primary sources through focus group discussions and key informant interviews and secondary sources, including relevant publications and reports from Government, ILO, academe, private sector and other development organizations. Key informants include representatives from national and Government institutions, workers and employers' organizations, companies, non-government institutions, and the ILO Country Office in Manila. 78 Members of the Tripartite Project Advisory Committee and Technical Working Group of the ILO Just Transition to a Green Economy Project were among those consulted and provided valuable inputs to the report.

1.4 Structure of the Report

This study is structured in seven key sections. Section 1 defines the context and objectives of the study. Section 2 presents the economic and employment situation of the Philippines that serves as the backdrop for the evolution of green jobs and green skills. Section 3 narrates the key policies and regulations pertaining to green jobs

³ Rene Ofreneo, Green Jobs and Green Skills for a Brown Philippine Economy, Background Country Study. ILO, 2010.

2. Major changes in the economy and employment shifts in the green transition since 2009/10

Since 2010, the Philippine economy has sustained robust economic growth, making it one of the fastest growing economies in the region. From 2010-2016, it posted an annual average of 6.3 per cent growth in its gross domestic product (GDP). However, the impressive economic performance did not translate to significant improvements in employment and income. As of 2017, there were 5.7 per cent (2.4 million) unemployed Filipinos, where almost half are young people. While those underemployed reached 16 per cent (6.5 million) in 2017, indicating the concerning quality of employment in the country. In 2015, there were about 21.6 per cent of Filipinos who live below the poverty line, a slight improvement from 25.2 per cent poverty incidence recorded in 2012. Higher underemployment rate is also observed in regions that have higher poverty incidence, signalling the likely correlation.

The Philippines has a fast-growing population reaching 100.9 million in 2015, almost two-thirds of which comprise the working population at around 69.9 million in 2017. The population is evenly distributed between sexes and is relatively young, where 51 per cent are below 25 years old and 32 per cent below 15 years. Between 2005 and 2030 the labor force is expected increase from about 32 million to 52 million,⁴ indicating the need to step up job creation.

From 2001 to 2010 employment growth followed a boom and bust pattern owing to extreme weather events that negatively affected agricultural employment, which contributes to 25.4 per cent of labour force.

Most affected by unemployment are: 1) *laborers and unskilled workers who remained the largest*

occupational group during the decade 2001-2010. In 2010 they comprised one-third of the jobless; 2) farmers, forestry workers and fishery workers, who were the second largest group of jobless; 3) workers in trades occupations; plant and machine operators and assemblers were also observed to have lower employment shares in 2010 compared to 2001; and 4) the youth, among whom a distinct group that is causing concern are those who are in neither employment, education nor training (NEET).

Furthermore many Filipinos find themselves engaged in informal employment or are self-employed in micro-enterprises to enable them to subsist and survive. Jobs in these sectors are usually unprotected, unstable and uncertain. Moreover the 2017 Philippines Decent Work Country Diagnostics (DWCD) noted the need to abolish forced labor and child labor, to address non-discrimination and equality, access and treatment, pay gaps and to promote rights such as freedom of association and collective bargaining at the workplace, and enhance health and safety measures at the workplace, among other things.⁵

Female labor force participation (LFPR, 50 per cent) is lower than that for men (77 per cent). According to the 2017 DWCD, this wide gap in sex-based LFPR has persisted despite many women attending college and the many gender equality laws on access to employment and training. This gender-based gap in LFPR is also found among the employed.

The majority of those in precarious employment were in the agriculture sector, followed by industry and services, a trend that persisted during the period 2000-2015⁶ During the decade employment shifted away from industry and

4 Philippine Institute for Development Studies (PIDS) press release quoting Asian Development Bank (ADB) principal economist Dr. Jesus Felipe, author of *Inclusive Growth, Full Employment, and Structural Change: Implications and Policies for Developing Asia*, April 20, 2010.

5 ILO Decent Work Country Diagnostics (DWCD): Philippines 2017. Executive Summary, 2017:16.

6 Based on Table 12 of DWCD 2017.

agriculture towards services (PLEP 2011-2016:3-5.). In particular the Information Technology and Business Process Outsourcing (IT-BPO) services has expanded rapidly, employing more than 1 million Filipinos. Many of them are young, English-speaking, and willing to work shifts during the day and overnight.

Massive infrastructure spending will be the key job generator under the current administration. One thrust of the current president's economic agenda is an acceleration of spending on infrastructure for which five per cent of the country's GDP is being set aside.⁷ Major strategies in job creation include the revival of manufacturing and fostering of industrial growth and of the transformation of agriculture. Enhancement of agricultural productivity through numerous interventions and the reconstruction and rehabilitation of damaged areas following armed conflict and natural disasters offer opportunities for job creation. These development thrusts suggest that jobs in the next five years are to be expected from 1) infrastructure construction; 2) reconstruction and rehabilitation; 3) agriculture; 4) tourism; and 5) the priority industries identified by Department Trade and Industry (DTI) identified in Section 3.

In December 2016 the Government's blueprint for Decent Employment in 2017-2022 (also known as *Trabaho, Negosyo at Kabuhayan*) was adopted at the Employment and Livelihood Summit. According to the DTI, the blueprint outlines the aim to achieve full employment at five per cent unemployment rate by creating 7.5 million jobs, mainly in key employment generating sectors (KEGS) such as manufacturing including food processing, construction, tourism, Information Technology-Business Process Management (IT-BPM), transportation and logistics, and retail trade by 2022.⁸ Further, the blueprint prioritizes "decent job creation, entrepreneurship, creativity and innovation, formalization and growth of micro, small, and medium-sized

enterprises (MSMEs), youth unemployment reduction, education and training. The commitment is in line with the 2030 Agenda for Sustainable Development, particularly Goals 8 and 9, on the provision of decent work and economic growth, and on building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation, respectively." It also reiterates the implementation of the Comprehensive National Industrial Strategy to upgrade selected industries that generate employment, integrate manufacturing, agriculture and services, address supply chain gaps, and deepen industry's participation in global value chains. Meanwhile, the 2017-2022 National Livelihood Agenda envisions the transition of informal economic units to the formal economy with full respect for fundamental rights and principles at work.

To achieve the employment target, the country would need to overcome the prevailing demand-supply mismatch. The existence of hard-to-fill vacancies is largely due to lack of skills and competencies of applicants. The unemployment rate among those with tertiary and post-secondary education is relatively higher than those with lower education, indicating that jobs being created are not of the kind or quality that match their qualifications. The increasing skills mismatch among occupational groups reflect the disconnect between education and training outputs and labour market demands.

The Philippines is an archipelagic country composed of more than 1,000 islands and is among the richest in natural resources. However, it continues to experience environmental challenges, including degraded environment, denuded forests, air and water pollution, loss of biodiversity, poor solid waste management, land erosion and fossil fuel dependence. The Philippines consistently ranked as the third most at risk country to disasters, based on the World Risk Report. It also ranked number four among countries most affected by climate risks from 1995 to 2014, according to the 2016 Global Climate Risk Index. The country is visited by an average of twenty typhoons every year, five of which are often destructive. The Philippines' location and physical environment has been contributing to its vulnerability to natural hazards, such as

7 CNN Ph. LIST: Duterte's 8-point economic agenda. <http://cnnphilippines.com/news/2016/05/12/rodrigo-duterte-eight-point-economic-agenda.html>

8 <http://www.dti.gov.ph/media/latest-news/9958-new-govt-blueprint-for-decent-employment-envisions-7-5m-jobs-by-2022>

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earthquakes, volcanic eruptions, tsunamis, rising of sea levels, storm surges, landslides, flooding and drought.

Disasters and impacts of climate change have led to economic and job losses.

Typhoon Haiyan, which happened in November 2013, dramatized the vulnerability of the country to climate change. The typhoon was one of the strongest tropical cyclones and deadliest Philippine typhoon ever recorded, killing at least 6,300 people in the Philippines. On 3 July 2017 an earthquake of 6.5 magnitude struck Ormoc, Leyte and wrought destruction. More such calamities are expected to occur.

The positive side to these challenges is that they present opportunities for job creation. Post-disaster reconstruction, restoration and preservation of the physical environment, and adapting and mitigating climate change require numerous jobs. The Philippine Climate Change Commission (CCC) states that “low emission power generation and renewable energy produce the greatest number of jobs per megawatt. By aiming for 1.5°C reduction in global warming and investing in renewable energy and energy efficiency, there could be 70 per cent more jobs by 2030.”⁹

Thus job creation gives good reason for the Philippines to make a green shift, which is necessary in the context of the worldwide effort to reduce global warming and to sustain development. A green shift also implies the need for green skills to perform green jobs. Furthermore, the global campaign for sustainable development necessitates the modernization of Philippine industries being in line with this green transition.

For example, the manufacturing industry of the Philippines is being challenged to be responsive to this worldwide trend. Overuse of natural resources and overcoming the adverse impacts of climate change are challenges in doing business and ensuring long-term economic growth. Companies have now begun responding

to the following challenges: “how to make more efficient use of energy and input of material and natural resources respectively, how to increase resource productivity in order to improve cost performance; how to ensure reliable provision of energy and clean water for production processes; how to improve environmental performance of production and service delivery in order to ensure the ‘license to operate’ in society; how to meet environmental standards of international markets; how to integrate upcoming trends as to the application of life cycle analysis, ecological, carbon and water footprint into the business practice and how to make production sites, logistics, etc. resilient against extreme weather events and impacts of climate change.”¹⁰

9 Senator Loren Legarda. Power Point Presentation at the Multi-stakeholder Forum on NDC Targets, 18 July 2017, Senate of the Philippines.

10 Promotion of Green Economic Development (ProGED), Greening the Philippine Manufacturing Industry Roadmap, DTI, 2015:3-4.

3. Key policies and regulations

Since the 1970s the Philippines has made major advances in passing laws to safeguard the environment, that is reforestation, solid waste management, biodiversity conservation, climate change mitigation, air and water quality regulation, and renewable energy development. The Philippine Institute for Development Studies (PIDS) completed a mapping of such national policies related to green jobs in 2017 as part of the ILO Just Transition to a Green Economy Project. These policies have been translated into national and sectoral development plans and programmes. A milestone is the greening of industry road maps led by the Department of Trade and Industry in 2016.

Supported by GIZ, the Greening the Industry Roadmap is an offshoot project of the Promotion of Green Economic Development (ProGED). It aims to integrate Green Economic Development (GED) in the industry sector policies of the Philippines. It also seeks to propel climate-smart, environment-friendly and globally-competitive industries, particularly in the following six manufacturing sectors: Automotive Manufacturers, Auto Parts Industry, Pulp and Paper Industry, Plastics Industry, Housing Industry, and Furniture Industry.

In cooperation with other government entities, DTI is tasked with contributing to the setting of framework conditions and for building up capacities that support a paradigm shift towards an innovation process that results in competitiveness, good environmental performance, climate change resilience and job creation.¹¹

It must be mentioned that greening the environment and the economy is in line with the Philippine Development Plan 2017-2022, anchored on the 2030 Sustainable Development Agenda, has a strong focus on growth that is inclusive, resilient and sustainable.¹²

The Philippines has ratified international treaties and conventions pertaining to decent work. Furthermore the national resolve to green the environment was affirmed when the Philippines signed the Paris Agreement on climate change in March 2017. This enables the country to access possible additional sources of financing to support adaptation and mitigation needs. At the same time, the country may access the Green Climate Fund as member of the UN Framework Convention on Climate Change (UNFCCC).

Under the 2015 Paris Agreement, the government has put forward its Intended Nationally Determined Contribution (INDC) to lowering greenhouse gas emissions (GHG) by 70 per cent in 2030 relative to the country's business-as-usual scenario in 2000-2030. This is despite the country's insignificant contribution to GHG emissions at 0.33 per cent. In the Philippines, 54 per cent of GHG emissions came from the energy sector, followed by the agriculture, industrial processes, waste, and land-use change and forestry sectors which contributed 33 per cent, eight per cent, seven per cent and -1 per cent respectively to GHG emissions.¹³ For the Philippines, mitigation is being pursued as

The reduction will come from climate change mitigation measures in the *energy, transport, waste, forestry and industry* sectors. The greenhouse emissions by sector are shown in Figure 1¹⁴ and the mitigation targets by sector are shown in Figure 2. However, this commitment is conditional on financial resources being made available.

The INDC is now being revisited in the formulation of the Nationally Determined Contributions (NDC), which will pursue mitigation efforts as a function of adaptation – the country's anchor climate action strategy

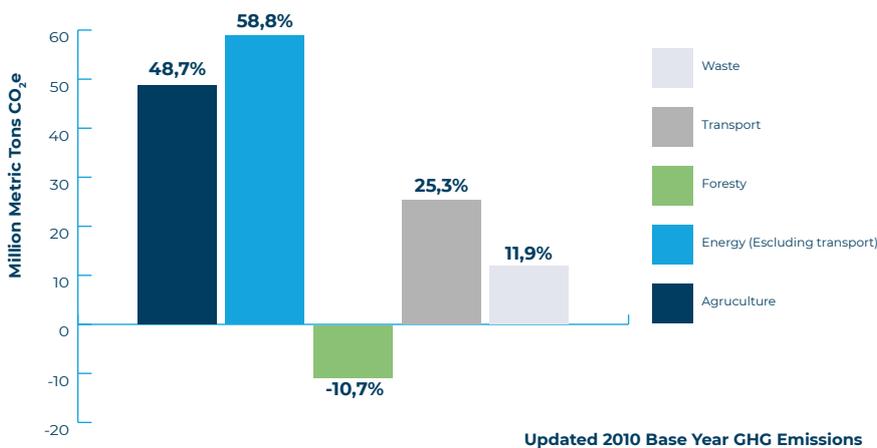
11 Comments of DTI to the Draft Report on Skills for Green Jobs: Updates, 26 September 2017.

12 Comments of ILS Deputy Director Brena Peji, September 2017.

13 Greenhouse Gas Emissions Factsheet: Philippines. <https://www.climatelinks.org/resources/greenhouse-gas-emissions-factsheet-philippines>

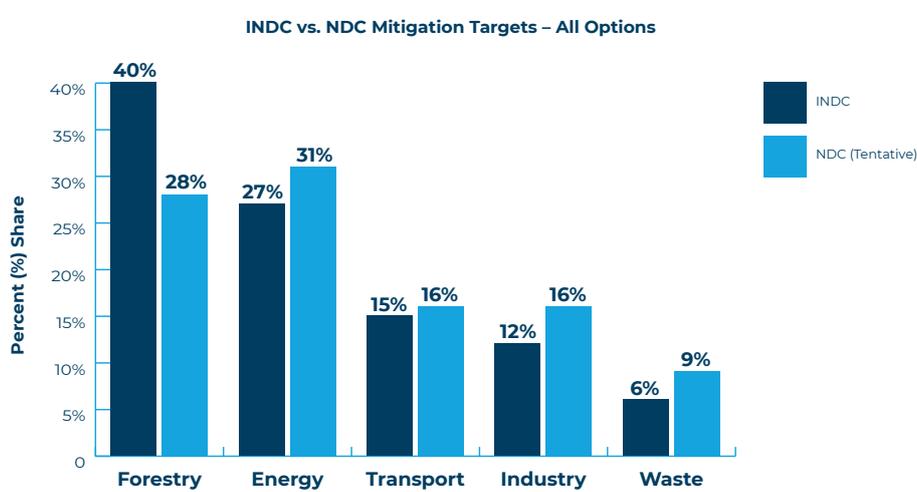
14 Sectoral Contribution to the NDC Waste Sector, Energy Management Bureau, Department of Agriculture and Natural Resources. Power point presentation at the Senate, 18 July 2017.

Figure 1. Greenhouse Gas Emissions by Sector



Source: USAID B-LEADERS Cost Benefit Analysis Study (unpublished).

Figure 2. Mitigation Targets by Sector. Estimates based on NDC Consultation study



Source: INDC: Phil. INDC, 2015; NDC (Tentative): CCC/USAID Study, 2015.

– while strengthening communities’ resilience against the impacts of climate change. The NDC will include mitigation and adaptation targets and to be finalized by 2019. Green jobs and just transition is expected to be integrated in the NDC development.

The CCC¹⁵ is in the process of reviewing the

15 In 2009, the Climate Change Act (RA 10174) created the Climate Change Commission under the Office of the President. It is the government’s lead policy-making body “mandated to coordinate, monitor and evaluate state programs and ensure mainstreaming of climate change in national, local and sector development plans toward a climate-resilient and climate-smart Philippines.” <http://www.bworldonline.com/content.php?section=Economy&title=climate-change-commission-starts-review-of-energy-policy-covering-coal-fired-plants&id=129138>

Box 1. The Philippine Green Jobs Act

In April 2016, the Green Jobs Act (GJA) was passed into law to accelerate the promotion of sustainable growth and decent job creation, while building resilience against impacts of climate change, by providing fiscal and non-fiscal incentives to enterprises generating green jobs across all economic sectors and requires a whole-of-government approach in its implementation. The law plays a vital role in driving the needed transformation to a greener economy by harnessing the potential of workers and enterprises, to drive the path towards a climate-resilient and environmentally sustainable development.

The Act, a pioneering approach in institutionalizing labour and employment dimensions in the policy framework for addressing climate change and environmental issues, provides for the development of the human capital to enable and sustain the transition to a green economy. The law defined green jobs as decent jobs¹ that contribute to preserving and restoring the quality of the environment, be it in the agriculture, industry or services sector.

The Act contains specific clauses promoting skills for green jobs through initiatives such as identifying skills needs, maintaining a database of green careers, formulating training regulations, skills assessment and certification, curriculum development, and the implementation of skills training programmes and fiscal incentives to encourage the provision of training by enterprises. The Implementing Rules and Regulations (IRR) of the GJA, adopted in 2017, were based on extensive consultation and the involvement of the tripartite constituents. The IRR recognizes the need to pursue a just transition in the promotion of a green economy, including ensuring “job security for workers affected by the transition process and driving economic prosperity, decent job creation, sustainable and resilient livelihoods and communities, poverty reduction and social justice, anchored on social dialogue and tripartism at all levels”. The Act mandates the Technical Education and Skills Development Authority (TESDA and its Green Technology Center (GTC), established in 2015) and the Professional Regulation Commission (PRC) to develop training regulations and a qualifications framework, respectively. Department of Education and Commission on Higher Education play an important role in ensuring knowledge and skills requirements in a green economy are integrated into the educational system. The Climate Change Commission issues certification for the accessing of incentives, in collaboration with other bodies. The GTC is a new training centre created in 2015 and offering training courses in green skills to cater for the needs for emerging green jobs. It is responsible for developing and delivering quality green TVET programmes; developing models of a green working environment and workplaces; facilitates process of developing greener training regulations² in collaboration with TESDA units responsible for qualification and standards and curriculum development; promoting green technology research and adaptation through the establishment of networks of institutions and researchers and the hosting of green events, while serving as a hub for entrepreneurs in green sectors. The Centre provides TVET training in such areas as photovoltaic systems, hydroponics, vertical gardening, landscaping, inverter technology and e-trike (an electric three-wheeled vehicle) servicing (Usman, 2015).

Government’s energy policy that is expected to reshape the country’s power development plans and replace coal with renewable sources of energy. The policy review is crucial in fulfilling the country’s commitments under the Paris climate accord.

At the same time, the National Adaptation Plan is a means of identifying medium- and long-term adaptation needs as well as developing

and implementing strategies and programmes that will address these necessities and will aid the Philippines in seeking funding for its climate initiatives, including the Green Climate Fund. As yet an emphasis on green skills remains to be advocated.

The most recent policy addition is the Republic Act 10771 or the Philippine Green Jobs Act

(PGJA), enacted in April 2016. The passage of the Green Jobs Act is a timely policy that can support the adoption of the Paris Agreement at the country level. The PGJA encourages business enterprises in all sectors to partake in efforts to prevent global warming and at the same time generate more sustainable jobs for Filipinos by giving incentives. In addition to fiscal and non-fiscal incentives already granted or provided under existing laws, orders, issuances and regulations, the PGJA enumerates the following financial incentives to encourage business enterprises to further create green jobs: (1) a “special deduction from the taxable income equivalent to 50 per cent of the total expenses for skills training and research development expenses...” and (2) tax- and duty-free imports of capital equipment used directly and exclusively in the promotion of green jobs. Based on these incentives, business enterprises are encouraged not only to hire employees skilled in preserving the environment, but also train or educate their current employees. Business enterprises are also encouraged to conduct research so as to reduce the environmental impact of their operations. In this regard the PGJA could lead to a redefinition of many jobs across a range of sectors and in turn encourage employment growth, skills development and worker training within an ever-increasing green economy.

Ongoing consultations towards implementing the Green Jobs Act covered key sectors, based on key employment generators and priority sectors for climate action. This include agriculture, forestry, fisheries, energy, manufacturing, transport, construction, solid waste and wastewater management, tourism, information and communications technology, academe, finance, health. Mining and quarrying sector was also included as among those sectors that need to be transitioned. Most of these sectors were reviewed and characterized for green jobs in the 2014 Green Jobs Mapping study.

Prior to the PGJA, relevant policies that support the green transition, including providing incentives, have been passed, including the Organic Agriculture Act of 2010 (R.A. No. 10068) and Renewable Energy Act of 2008 (R.A. No. 9513), among others.

In order to ensure that green jobs become instrumental in the greening of the Philippine economy, the PGJA adds the Secretary of the Department of Labor and Employment (DoLE) as a member of the Philippine Climate Change Commission. The DOLE is tasked to formulate a National Green Jobs Human Resource Development (HRD) Plan in coordination with other government agencies. Furthermore, the PGJA also mandates the DOLE, together with the Philippine Statistics Authority (PSA), to maintain a database of green careers, professions and skills, as well as a list of emerging business enterprises that generate and sustain green jobs.

The National Green Jobs Human Resource Development Plan, which is under development, serves as roadmap for Government, employers, workers and other stakeholders towards a collective and coherent action to enable the shift to a greener economy and society through the existing and future workforce. The Green Jobs HRD plan, which integrates the Just Transition framework, includes measures on education and skills development, labour market interventions, social protection, enterprise development, social dialogue, policy coherence, and financing.

The definitions of green growth, green jobs and green skills are by no means settled; the debates have not been completely resolved. “As there is no uniform definition of green skills, they cannot easily be integrated into existing occupational and industrial classification systems. As a consequence, forecasting employment trends and corresponding skills requirements creates difficulties.”¹⁶

The notion of green jobs has evolved in the Philippines since the ground-breaking DOLE Institute for Labor Studies (DOLE-ILS) study in 2009. It added compliance with decent work standards as a second criterion in categorizing jobs as green. As yet there is no systematically-assembled compendium of green jobs in the country.

Without a clear-cut classification, projecting the precise number of green jobs requires further work. In this regard the Philippine Institute

¹⁶ Dr. Klaus Dieter Martineit, TVET for a Green Economy. GIZ, Bonn, Germany. June 2013, p.36.

Box 2. TESDA's Greening the TVET System

The TESDA and ILO collaboration under the Just Transition to a Green Economy Project has resulted to the development of TESDA's Greening the TVET System Framework. This was institutionalized with the issuance of TESDA Circular Number 58 Series of 2018, which aims to promote economic, social environmental, and political strategies towards sustainable development.

It intends to achieve the following objectives:

- To support the implementation of the Philippine Green Jobs Act through training and re-training of workers in jobs that are sustainable and decent;
- To establish common understanding and appreciation of laws, policies and concepts of greening the TVET system;
- To integrate sustainability in the Training Regulations, competency standards and curricula applying research philosophies;
- To guide employees, students and other persons to implement sustainability practices within TVET institutions and/or offices; and
- To partner with "green" enterprises in implementing sustainability practices in the TVET sector;
- To support in ensuring a just transition towards a greener economy and society through skills development.

for Development Studies (PIDS) is engaged in projecting the number of green jobs using a modeling tool developed by the ILO in 2015 in collaboration with the DOLE.

The ongoing initiative of the Climate Change Commission, together with ILO, in developing the Green Jobs Act Assessment and Certification System for granting the incentives, provides some of the greening standards that cover both environmental and decent work parameters at the enterprise level, can serve as basis for identifying the skills needs for green enterprises.

The ILO has been providing support in the implementation of the Philippine Green Jobs Act through its project on the Pilot Application of the ILO Policy Guidelines on Just Transition towards Environmentally Sustainable Economies and Societies for All (Just Transition to a Green Economy).

This includes support to the formulation of the Green Jobs HRD Plan, the development of the Assessment and Certification System and establishing the statistical system for green jobs.

In the area of skills, the ILO has been working with TESDA in developing its framework in

greening the TVET system. As a result of the TESDA-ILO Green TVET Forum and Strategic Planning on Greening the TVET System held in March 2018, TESDA adopted a framework that would enable them to operationalize the mainstreaming of sustainable development in the entire TVET system. In August 2018, TESDA issued Circular Number 58 Series of 2018 on Implementing Guidelines for Greening the TVET System.

Some gaps in the PGJA were noted, as follows: 1) The law does not define the role of social dialogue partners, e.g. labor and employers. 2) No specific amount is provided for carrying out the requirements of this act save for the statement that "an amount shall be included in the General Appropriations Act" but there is no mention as to which agency will manage the budget. This may pose difficulties if the said budget will be subsumed under the DOLE Budget; the risk is that the actual use of the budget will compete with other equally important programmes within the department and will be subject to budgetary ceilings set by the Development Budget Coordinating Committee. 3) The accountabilities of the DOLE and the CCA in certifying agencies applying for the incentives needs to be clarified

(this was partially addressed in the IRR). 4) The incentives system needs to be tightened and the procedures streamlined to avoid business establishments taking advantage of certain incentives. 5) The roles of the DILG needs to be further elucidated given the centrality of their mandates and their network of constituencies. 6) Notwithstanding the fact that all the agencies mentioned in the law have been mandated with specific roles in green jobs promotion, at the meeting with TESDA officials (3 August 2017, GTC) they raised concern about the weak coordination of activities towards completion of the IRR and jumpstarting preparation of the HRD Plan. They noted the need for a strong orchestrator of the various components of the PGJA.

Despite the lack of mention of the role of social partners in the Green Jobs Act, the process of its implementation, led by the Government, ensures that tripartite partners play an active role throughout and that social dialogue is strengthened.

The Implementing Rules and Regulations (IRR) of the PGJA were signed by the Secretary of Labor on 7 September 2017. The IRR was drawn with extensive consultation with tripartite partners.

In line with the Green Jobs Act, the DENR issued in March 2017 Administrative Order 2017-08 to “operationalize the transition of the Department’s programmes and projects into Green Economy Models (GEM) in the Environment and Natural Resources (ENR) Sector, anchored on the principles of Social Justice and Ecosystems Integrity. The Order shall cover all development and rehabilitation activities executed in all the forest, mining and coastal areas of otherwise ridge-to-reef ecosystems under the Department. This will also involve the organization of Community Enterprises in the following activities and programmes implemented by the Department, namely: the Enhanced National Greening, Biochar, Bamboo Plantation, Mangrove Rehabilitation, Mining Rehabilitation, Ecotourism Activities, Pollution Mitigation, Sustainable Coral Reef Ecosystem Management, Coastal and Marine Environment Management,

Bioremediation, and National Ecosystem program.”¹⁷

From 2010 to 2017 key policies, programmes and regulations pertaining to green jobs and skills consisted of those relating to the *greening of the environment, renewable energy, and greening of the economic sectors, i.e. agriculture, industry and services.*

3.1 Greening of the environment

The key policy measures during the study period were the Expanded National Greening Programme 2018-2028 and the Forest Restoration Program, prior to which Executive Order 23 (Feb 2011) declared a moratorium on the cutting and harvesting of timber in natural and residual forests.

The National Greening Programme and the Reforestation Programme led by DENR sought to plant 1.5 billion trees in 1.5 million hectares during the period 2011-2016. It was expanded to cover all remaining unproductive, denuded and degraded forestlands and its period of implementation has been extended from 2016 to 2028. Implementation of the NGP was declared through Executive Order 26 (February 2011) as a government priority for reducing poverty; promoting food security, environmental stability and biodiversity conservation; and enhancing climate change mitigation and adaptation. Three key national agencies, namely DENR, DA and DAR were instructed to converge their activities towards focused and unified interventions for sustainable rural development. The NGP needs Filipinos to change the way they think about trees and forests by valuing forests as precious national resources.¹⁸

The extension of the NGP merited the Philippines a 5th ranking worldwide in terms of greatest forest area gain from 2010 to 2015. This

¹⁷ DAO 2017-08 Sections 1 & 3.

¹⁸ National Greening Program Visioning a Green Renaissance in the Philippines. <http://www.denr.gov.ph/news-and-features/features/254-national-greening-program-visioning-a-green-renaissance-in-the-philippines.html>

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information is contained in the Global Forest Resources Assessment for 2015.¹⁹

The DENR Forest Management Bureau drew up a Forest Industry Roadmap as a step toward reviving the ailing forestry industry. The focus of the roadmap is on the plantations established from 2011 to 2016 and it will be implemented between 2018 and 2028.²⁰ The types of landscape requiring restoration efforts at country level in the Philippines are open and degraded forest ecosystems, wooded lands, mangrove ecosystems, and existing forest that risks degradation and deforestation.²¹

There is evidence that the NGP has led to increases in income and employment²² but there are administrative and technical challenges. Feedback from the ground indicates that the NGP is now focused on maintenance of existing tree plantations and has downgraded the salaries of foresters. Moreover the issue of ownership of the tree plantations in the first phase remains to be resolved: would ownership be in the hands of the groups who undertook planting or of government?²³

3.2) *Renewable Energy* is an essential part of the country's low emissions development strategy and is vital to addressing the challenges of climate change, energy security, and access to energy. Pursuant to the various laws on renewable energy, the Department of Energy has embarked on a National Renewable Energy Programme (NREP). The development

and optimal use of the country's renewable energy resources, including wind, bioenergy, hydro and geothermal resources, are central to the Philippine's sustainable energy agenda.

The NREP sets out an ambitious renewable energy target of 15.3 gigawatts (GW) by 2030, almost triple the 5,438 MW installed capacity in 2010.²⁴ Among other financing schemes, the World Bank has provided a facility totalling US\$44m that will provide credit guarantees to commercial banks in the Philippines which will make term loans to electricity cooperatives.²⁵

Senator Juan Miguel Zubiri, who authored the Renewable Energy Act of 2008, reported that 406 renewable energy projects are now already built or being constructed compared to just 22 in 2008. And that "(I) n the last four years, we produced about 3 million jobs for engineers, construction workers all over the country. It's a booming industry. Long reliant on fossil fuels the Philippines now meets over a third of its energy needs through renewable sources."²⁶

Additionally, the National Power Corporation (NaPoCor) has identified the need for several green jobs for its three renewable energy projects, such as a renewable energy expert, a hydrologist, and experts on wind, solar and biomass energy and environmental and allied fields (e.g. biologists, chemists, and disposal expertise). In relation to this, several training programmes were conducted for NaPoCor staff such as coordination between power systems and renewable energy, management aspects of renewable energy grid integration, and the bankability of renewable energy projects.²⁷

A CCC resolution in May 2017 urged the DENR and the DoE to "initiate and coordinate discussions" on coal power plants to arrive at a low-carbon development plan for the energy sector. The resolution called on the DENR, DoE and the NEDA to participate in the review of the government's energy policy.

19 Government extends National Green Program until 2028. http://www.sunstar.com.ph/manila/local_news/2015/11/26/government_extends-national_green_program_until_2028.

20 Mailene Laviña, planning and programming section chief of the National Greening Program.

21 Forest landscape restoration mechanism. <http://www.fao.org/in-action/forest-landscape-restoration-mechanism/activities/national/philippines/en/>

22 Arvin Vista, et. al. Impact Assessment of the NGP of the DENR: Scoping or Process Evaluation Pains (Economic Component) Discussion Paper Series No. 2016-27, PIDS, June 2016; Maria Paz Luna. Impact Assessment of the NGP of the DENR: Scoping or Process Evaluation Pains (Institutional Component) Discussion Paper Series 2016-29, July 2016; and Tony Balangue. National Greening Program Assessment Project: Environmental Component-Process Evaluation Phase. Discussion Paper Series No. 2016-11, April 2016.

23 <http://www.bworldonline.com/content.php?section=Economy&title=climate-change-commission-starts-review-of-energy-policy-covering-coal-fired-plants&id=129138>

24 ClimateActionprogramme.org, 3 April 2017.

25 projects.worldbank.org

26 CNBC.com Aug 9, 2016.

27 Interview with Lorna Dy, Vice-president, NaPoCor, 4 August 2017.

Between now and 2019 a number of coal-fired power plants are expected to start operating in the country's main island groups, the biggest concentration of which will be in Mindanao, which has long suffered from rotating power interruptions because of inadequate power supply.²⁸ The CCC's resolution No to Fossil Fuel is a bold move to forestall more coal-fired power plants. The enforcement of the resolution is crucial to achieving the country's contribution to climate change mitigation.

Current concerns of environmental advocates highlight policy conflicts that the government needs to arbitrate on and resolve to ensure policy coherence in environmental laws. For example, if the government pushes through with its waste-to-energy projects to comply with the Solid Waste Management Law, a policy conflict could arise. In his 1st SONA President Duterte announced the final closure and rehabilitation of the Carmona Landfill to provide adequate disposal facilities for Metro-Manila garbage. And he enjoined Local Government Units to adopt waste-to-energy facilities. Again various environmentalist groups, especially Zero Waste advocates, expressed the view that incinerating waste will have many negative environmental health and social consequences.

A "shift to thermal (waste-to-energy) will undermine the nation's efforts to sustainably deal with its garbage through recycling, composting, and other zero waste strategies that are embedded in RA 9003. They also called for the inclusion of informal waste workers into the formal waste management programmes where they can enjoy decent and secure employment."²⁹ Similar policy contradictions can be cited.³⁰

28 <http://www.bworldonline.com/content.php?section=Economy&title=climate-change-commission-starts-review-of-energy-policy-covering-coal-fired-plants&id=129138>

29 Jee Y. Geronimo, Rappler, July 26, 2016.

30 Examples of policy conflicts: Destructive and reclamation activities in Manila Bay run counter to the government mandate to protect the marine environment and the welfare of fisher folk. The incumbent mayor of Manila Joseph Estrada approved another reclamation project in Manila Bay, the Horizon project touted as Manila's biggest land reclamation project covering 417 hectares of water. A real estate firm proposed the project and costs 100 billion pesos. Thus, the national fisherfolk alliance *Pambansang Lakas ng Kilusang Mamalakaya ng Pilipinas* (PAMALAKAYA-Pilipinas) is challenging the Bureau of

Regarding waste management, TESDA has approved three Training Regulations on garbage collection and sanitary landfill. Other training is also being conducted, including the "Training on Solid Waste Management and Technology: Best Available Technology and Best Environmental Practice (BAT/BEP) to Reduce the Emissions of Dioxins and Furans from Solid Waste. This capacity-building activity is being conducted in partnership with the Environment Management Bureau (EMB) of the DENR as part of the agency's assistance to LGUs in complying with the law (RA 9003). This training was planned for March-June 2017 in Legazpi City. The training aims to equip participants with the tools and knowledge regarding safe closure and rehabilitation of disposal facilities, operation of sanitary landfills, and proper solid waste management in communities. It also aims to share lessons from local government units that are currently at different stages of preparation and implementation of their Action Plans address the concern on open burning in local communities and in disposal sites. The training also includes a site visit to a dumpsite facility undergoing closure. This training is particularly useful to project engineers, environmental and social safeguard focal persons involved in solid waste management in their respective local government units (e.g., Environmental and Natural Resources Officer, solid waste management focal person)."³¹

Fisheries and Aquatic Resources (BFAR) to oppose the mayor's approval. There is a petition to the Supreme Court by the Philippine Movement for Climate Justice, a group of environmental advocates, the Philippine Earth Justice Center, Inc. and residents of Limay, Bataan, to stop new "dirty coal" power plants and penalize plants violating the environmental law and country's international commitments to lower GHG.. They also asked the Court to issue a temporary environmental protection order against new permits for coal-fired power plant projects. They raised their concern against the government's "total disregard of the laws of the land". They accused the DENR for not implementing the Clean Air Act to curb pollution and sanction coal-fired power plants not equipped with monitoring system and the DOE for not doing its duty under the Renewable Energy Act to promote renewable energy. The residents of the community complained about bad effects on their health and damages to plants and water sources. (PDI, July 1, 2017).

31 Solid-waste-management-and-technology-best-available-technology-best-environmental-practice-batbep/ <http://www.upnec.com/trainingprograms/>

3.2 Greening the economy

The economic sectors (e.g. industry and manufacturing, services and agriculture) vary in the extent of their “greenness”. In the industry and services sector, an explicit intent to green processes, products and services is stated in the Green Industry Road Maps of selected industries. The road maps were drawn up in collaboration with the industry associations and DTI served as the project leader with technical and financial support from the donor (Government of Germany). A detailed description of the policies and programmes for greening the environment and the economy are in Annex 1.

a) Agriculture

The Organic Agricultural Act of 2010 was passed to promote the practice of organic agriculture in the country. It is expected that organic agriculture will cumulatively result in enriched soil fertility, improved farm productivity, reduced pollution and destruction of the environment and prevention of depletion of natural resources. In particular, Section 13 emphasized the connection between organic agriculture and the environment and highlighted the need for local government units to be advised on collection and disposal of waste in such a way as to provide raw materials for the production of organic fertilizers and farm inputs.

“Agriculture ... has one of the highest potentials for reducing carbon emissions and helping vulnerable people adapt to climate change.”³² This implies the need to return to natural methods of farming without chemicals, that is organic farming. Encouraging farmers to engage in organic farming is a challenge. Hence, the DA is implementing specific interventions to encourage more farmers to become organic farmers, covering production support, marketing, extension and development services and training.³³

The Philippines ranks fourth among the leading countries in Asia in terms of land devoted to

organic agriculture, according to the DA. The DA reported there are close to 43,470 organic farming practitioners in the country, compared with 8,980 in 2011.³⁴ Furthermore, a study of farmers in upland areas of the Philippine observed the favourable effects of organic agriculture in terms of - among other things - ensuring food safety and health, improvement of crop growth, and environmentally-friendly benefits. Noteworthy is that there is now a directory of Philippine organic farms on the Internet. The same study also indicated a growing demand for organic food products and identified the following challenges to the expansion of organic agriculture: lack of the financial and technical capability of small farm owners, problems with marketing and labelling of organic products, and the quality of the organically-produced agricultural products.³⁵

The ASEAN GAP (*Good Agricultural Practices*) was disseminated in 2006 in all ASEAN countries and was acknowledged as the common standard with only minor national differences. Further enhancements to the standards for food quality are ongoing. But one current bottleneck in organic farming is the lack of certification bodies and the high cost of certification, which costs between P25,000 to P40,000 per organic commodity, with annual renewal, plus related expenses for the whole process of drawing up the document.

In 2014 the first small landholders in the Philippines were certified by the Bureau of Agriculture and Food Production Standards (BAFPS).³⁶ The latter was tasked under RA 10068 “to grant official accreditation to an organic certifying body or entity.” At present the only authorized certification bodies are the Organic Certification Center of the Philippines (OCCP)

³² Farming First, 2015

³³ <http://www.sunstar.com.ph/bagui/local-news/2016/01/16/organic-farming-rise-452181>

³⁴ <http://www.sunstar.com.ph/bagui/local-news/2016/01/16/organic-farming-rise-452181>

³⁵ Leila Landicho, Prospects and Challenges in Promoting Organic Agriculture in Upland Communities in the Philippines: Implications to Food Security and Nutrition. Institute of Agro-forestry, College of Forestry and Natural Resources University of the Philippines, Los Banos, Laguna. 2014.

³⁶ Katharina Baumgarten and Stephen Kunz, Re-thinking greening TVET for traditional industries in Asia - the integration of a less-skilled labour force into green supply chains. In: TVET@Asia, issue 6, 1-17. Online: http://www.tvet-online.asia/issue6/baumgarten_kunz_tv26.pdf (retrieved 30.01.2016).

and the Negros Island Certification Services (NICERT). OCCP has offices in Metro Manila and Davao City, while NICERT is located in Bacolod City. If the applicant is located in a remote area, a representative needs to go there and undertake the certification.

For the Philippines, organic agriculture gains more urgency in the light of the potential influx of agricultural products from outside due to tariff liberalization. Up to 75 per cent of fresh food sold at retail level is imported, according to the Retail Association of the Philippines. Dwindling food supply, dependence on food imports and the looming tariff liberalization make it necessary for the Philippines to improve its agricultural production and gain more value from it. But the greening process in farming is still marginalized in the ASEAN countries, including the Philippines, although it is the source of livelihoods of the majority of the population.³⁷

Recently the organic farming movement seems to have gained some momentum with the help of people's organizations. A group of some 200 mayors belonging to the League of Organic Agriculture Municipalities and Cities (LOAM-C) is advocating and practising organic agriculture. The same group is passing ordinances for the creation of local food councils. Another positive result is that green jobs are emerging in agriculture. For example, an NGO advocate of organic agriculture named MASIPAG has advertised a job vacancy for a programme coordinator on climate change resilience.³⁸

“(P)olitical motivation will remain a driver for farms to comply with agricultural or environmental policies. Otherwise, there are no incentives gained by the private sector from the government in complying with standards. Regulatory standards such as the use of chemical inputs and other agricultural practices in the commercial agricultural sector continue to be set by importing countries and this has a direct influence on the environmental performance of the exporting agricultural sector in the Philippines, making it compliant with international standards. Key challenges

that were identified are issues in land use planning, environmental standards, governance, incentive mechanisms for better adoption of environmentally friendly agricultural practices, technology and information and advocacy.”³⁹

b) Industry

A major step was taken to promote greening of the economy by formulating Greening the Industry Roadmaps, Greening the MSME Sector, and Green Public Procurement (2016). The green industry roadmaps were initiated in six priority industries, namely *automotive, auto parts, paper and pulp, plastic, housing and furniture industries, and copper manufacturing*. These industries pose threats to the environment and energy in the form of high consumption of water, intensive use of fossil energy in their production processes, massive production of waste, emission of water and air pollutants, and so forth. The road maps consciously take into account measures to address these environmental concerns, a process referred to as “greening the sector.” In the course of implementing the greening steps, green jobs would be created but the road maps do not yet use the term green jobs. However, **the road map explicitly states the need for capacity-building on eco-friendly industrial processes and integration of environmental measures into the curricula of vocational training**. For example, the plastics industry road map states: “*The industry seeks to strengthen the capacities of management and in well-developed skills at the shop floor level*”. This implies the need to green existing jobs in the industry. Furthermore, the roadmap seeks cooperation with universities and with technical and vocational training institutes to integrate environment into their curricula and to promote acquisition of the “green skills” through in-house training or internships.

A green manufacturing zone to be known as the Leyte Ecological Industrial Zone (LEIZ) is being planned. The project will boost manufacturing activities in the province of Leyte and aims to promote the integrated development and competitiveness of copper and other related

³⁷ Ibid, 2016: section 3.

³⁸ www.masipag.org 23- May 2017.

³⁹ Marietta Tiongco, et al. Green Agriculture in the Philippines: Old Wine in a New Bottle?, March 2015, Abstract.

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industries in the Eastern Visayan region. Leyte is home to one of the biggest geothermal power plants in the country. The LEIZ is expected to complement the 425-hectare Leyte Industrial Development Estate which is home to the Philippine Associated Smelting and Refining Corp. (Pasar), the country's only copper smelting and refining firm and one of the largest in Asia.⁴⁰

Greening the MSME Sector. In 2016 the DTI/ ProGED project conducted an analysis of the readiness of SMEs in the food manufacturing sector to go green and prepared for the conduct of the Case Study on Green SME Best Practices in the Philippines. The study was to focus on the cacao, coffee, and processed fruits and nuts sectors and was commissioned to a consulting group. Meetings were held in October 2016 to discuss the business case study and agree on the way forward. The group agreed that the focus sectors would be *coffee, cacao, pili nuts, and processed fruit (banana)*. Each sector would have three representative firms, totalling 12 firms, so as to reflect all analysis for low, medium, high interventions with low or zero cost greening practices.

In 2013-2016 the DTI, in partnership with GIZ, implemented the Promotion of Green Economic Development (ProGED) project which is aimed at improving the competitiveness of MSMEs while coping with climate change adaptation and mitigation requirements through implementation of environment-friendly, climate-smart, and inclusive strategies and measures.

Some major accomplishments of the project also include: 466 greening sensitization and GED learning events conducted with 23,157 MSME participants; 132 MSMEs being awarded or publicly recognized; 97 business matching events conducted or participated in by 2,993 MSMEs; 434 MSMEs undergoing green business development or adoption of green technologies; and 645 MSMEs greening their operations. 62 green financing events were organized and participated in by 2,645 MSMEs. The integration of green approaches to DTI's plans, programmes

and projects at provincial level was undertaken, including the Building Entrepreneurs thru Advocacy and Mentoring Services (BEAMS) in Laguna, MSME Week celebration in Occidental Mindoro, Tourism Green Awards in Camarines Norte, and 79 industry clusters and roadmaps integrating green approaches (e.g. wearable and home accessories in Cavite and Region 5, coco coir in Aklan, cacao in Iloilo, processed fruits and nuts in Negros Oriental, gifts/decors and housewares, and tourism).

As a complement, the Green Growth Cooperation initiative (2015-2017) also underpins the initiative on greening the MSME sector. Together with the programme's development partner the Global Green Growth Institute (GGGI), it is expected to "promote programmes, research, and joint activities in support of capacity building and development of green economic growth options to strengthen the business case for greening the MSME sector and boost its contribution to the national economy."⁴¹ Areas of collaboration are primarily focused on business case preparation, mainstreaming green growth in the planning process, and capacity-building for DTI green growth advocates. In particular the programme's business case component for greening the operations of MSMEs has conducted an analysis on the current degree of readiness to go green on the part of SMEs in the food manufacturing sector, and is now finalizing the Case Study on Green SME Best Practices in the Philippines which focuses on the cacao, coffee, and processed fruits and nuts sectors. Field-scoping visits among MSMEs in Palawan and Oriental Mindoro to document their existing greening practices, recommend other greening options, and link these MSMEs to possible funding entities, were also conducted.

Auxiliary to greening the MSME sectors are the modules integrated in the SME Roving Academy (SMERA) programme—a capacity-building programme for MSMEs through continuous learning courses from start-up (Level 1), sustaining (Level 2), and growing businesses (Level 3). The topic on "Greening the Business Performance of MSMEs", at the second level, is

40 <http://www.philstar.com:8080/business/2017/08/27/1732951/masterplan-leyte-industrial-zone-underway>

41 <http://www.dti.gov.ph/programs-projects/faps/green-growth-cooperation>

designed to provide MSMEs with information and knowledge on how the adoption of greening approaches could counter the adverse impact of climate change, especially on their supply chain and production processes, while enhancing their competitiveness. Likewise, a third level topic on “Introduction to Green Procurement Requirement” is meant to provide awareness and training to prospective suppliers and manufacturers to improve their capacity to supply products and render services compliant with the Green Public Procurement criteria.⁴²

Greening Public Procurement. The Green Public Procurement project (2013-2016), a PHP169.2 million project, seeks to provide incentives for government contractors to produce ecologically-certified products. The project aimed to create and pilot a replicable and workable innovation in the procurement systems to promote sustainable development in the country. DTI leads this project in collaboration with the Procurement Service, Department of Budget and Management (DBM-PS), EU-SWITCH,⁴³ Government Procurement Policy Board – Technical Support Office (GPPB-TSO), National Economic Development Authority (NEDA), and Philippine Economic Zone Authority (PEZA). EU Asia funds the project through SWITCH. In 2016 the project formulated policy recommendations for incorporation of GPP criteria into RA 9184 (Government Procurement Reform Act); drafted a module on green criteria development, formulation of bid documents, and evaluation of tenders; and conducted suppliers’ fora on green public procurement. This reform is still underway.⁴⁴

42 Comments of DTI to the Draft Report, 26 September 2017.

43 The European Union (EU) launched SWITCH-Asia as a grant program funded through its Development Cooperation Instrument. SWITCH-Asia builds on a progression of former grant programs that dealt with trade and sustainability in Asia, including the Asia-ProEco and Asia-Invest programs. SWITCH-Asia is centrally managed by the Development Cooperation Office (DevCo), the Commission’s arm for implementing external assistance. DevCo oversees the launching of Calls for Proposals and the selection of successful applications. Once awarded, the grants are then managed by representative offices, EU Delegations, in the Asian countries that are eligible under the program.

44 The project also conducted a Workshop on Priority Product Selection and Technical Specifications for the Mainstreaming of Green Public Procurement with Implementing Partners (i.e. DBM-PS, DTI, EU-SWITCH, GPPB-TSO, NEDA, PEZA) and held consultations with EU SWITCH technical experts about the following industry associations: Semiconductor and Electronics Industries in

c) Services

This section will focus on the tourism and construction sectors because of their job generation potential. Employment in tourism industries was estimated at 5.2 million in 2016, representing 12.8 per cent of total employment,⁴⁵ while the construction sector employed 3.37 million in 2016 according to the Construction Industry Association of the Philippines.⁴⁶

Major policies to promote greening of the service sector are the Farm Tourism Act of 2016, Executive Order 111 (Creation of the National Tourism Council), the DENR Administrative Order RA 10629 2013-19, and the Green Building Code. In aid of the latter are practical tools such as BERDE and EDGE. Moreover incentives for Green Hotel Operations have been introduced in the Philippines.

The Department of Tourism (DOT) aimed to reach 6 million tourist arrivals in 2016 and recognized *ecotourism* as one sector that is poised to drive tourism’s success. The Philippine National Ecotourism Strategy (NES) and Action Plan (2013–2022) has identified a potential market size of 1.5 million to 14.2 million ecotourists. Ecotourism, as defined by NES, is a form of sustainable tourism within a natural and cultural heritage area in which community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics, and economic benefits, are fostered and pursued for the enrichment of host communities and for the satisfaction of visitors.

The DENR Administrative Order of 2013-19 officially recognized and operationalized

the Philippines (SEIPI), Concepcion Industries Corporation (on air-conditioning products), Philippine Plastic Industry Association, Inc. (PPIA) and the Chemical Industries Association of the Philippines (SPIK).

The project also conducted workshops to evolve the list of Commonly Supplied Equipment (CSE) and non-CSE for inclusion in the development of green specifications for public procurement, engaged with the private sector on the provision of technical assistance and accessing government procurement processes. (GIZ. Greening the Manufacturing Industry Roadmap, April 2015).

45 <https://psa.gov.ph/content/contribution-tourism-economy-86-percent-2016>

46 http://ciap.dti.gov.ph/sites/default/files/publications/2016%20CIPP_rev.pdf

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ecotourism in protected areas and provided guidelines for ecotourism planning and management. It also stipulated that ecotourism requires skills and competencies which necessitate a capacity-building programme. The latter would need to include concerned government agencies, LGUs, local communities, and other stakeholders.⁴⁷ In relation to this, a gender-responsive ecotourism training programme was launched in 2013 in collaboration with the Philippine Commission on Women. A training toolkit was produced which contained training sessions on ecotourism planning, trail resources and monitoring for protected area officers and ecotourism guides, and marine resources monitoring for ecotourism.⁴⁸

Republic Act 10629 amends the National Integrated Protected Areas System (NIPAS) Act of 1992 which previously directed that 100 per cent of income generated by the protected area goes straight to the national treasury. The revenue only goes back to the Protected Areas Management Board (PAMB) when it is released by the DENR. The funds are meant for the maintenance of the protected area. RA 10629 was signed into law on 26 September 2013 and stipulates that 75 per cent of income generated by protected areas (PAs) should be retained by the (PAMB), an administrative body composed of all the local government units and tribal communities in charge of regulating the protected area.⁴⁹ Also, the law empowers local governing bodies to provide specific rules, regulations, tours, and managers for specific areas. For the people of rural Philippines, this has been a major economic boon since many of these local governing bodies require that tourists hire local guides to take them into protected local areas. This is not necessarily true for all areas in the Philippines, but there are some areas that engage in this practice.⁵⁰

Executive Order 111 provides a definite framework

47 <http://server2.denr.gov.ph/uploads/rmdd/dao-2013-19.pdf>

48 http://library.pcw.gov.ph/sites/default/files/gender_responsive_toolkit_ecotourism.pdf

49 <http://www.rappler.com/nation/40553-protected-areas-ipaf-ecotourism>

50 http://www.internationalwildlifelaw.org/phil_animal_act.html

for the creation of a regulated ecotourism state in the Philippines, of the National Ecotourism Development Council, and of various national and local ecotourism steering committees.

These bodies are responsible for the design of sustainable, long-term business practices in Philippine ecotourism, for the implementation of these plans and for the enforcement of the regulations they set.

R.A. No. 10816 (Farm Tourism Development Act of 2016) was signed into law on 23 May 2016. Farm tourism, as defined by the law, is the practice of attracting visitors and tourists to farm areas for production, educational, and recreational purposes, which may involve any agriculture- or fishery-based operation or activity, and may also provide a venue for outdoor recreation and accessible family outings. The Act recognizes that combining tourism with agriculture can disseminate the value of agriculture in the economic and cultural development of the country, serve as a catalyst for the development of agriculture and fishery communities, and provide additional income for farmers, farmworkers and fishery workers. It seeks to promote environment-friendly, efficient and sustainable farm practices; provide alternative recreation facilities and farm tourism activities for families, students and other clientele; and promote health and wellness with high-quality farm-produced food. It created the Farm Tourism Development Board under the Department of Tourism (DoT) with the secretaries of the DoT and Department of Agriculture at the helm, acting as chair and vice-chair respectively.

The Farm Tourism Development Board will formulate and set the overall direction for the implementation of a Farm Tourism Strategic Action Plan (the “Plan”), which is a comprehensive set of programmes, projects, and activities for the growth of farm tourism in the country. It will cover various areas of concern, such as investment promotion and financing; market research, trends, innovations and information; accreditation of farm tourism camps; market promotion and development; agriculture and fishery research, development and extension; institutional and human resource development; and infrastructure support. It would likewise define the roles and responsibilities of national government agencies, local government units (LGUs), farm

tourism operators, tour operators, educational institutions, and other industry stakeholders in its implementation. The Plan will be integrated and be made consistent with the National Tourism Development Plan.

In terms of investment promotion and financing, the DoT, the DA and the DTI will develop programmes linking stakeholders in the farm tourism industry, government financial institutions, government-owned or controlled corporations, private banks, financial cooperatives and other lending institutions to increase access to credit for farm tourism. Moreover, under the Act incentives under the Organic Agriculture Act of 2010 (RA 10068) may also apply to farm tourism activities.

The Philippines is an ecotourism destination yet only a few eco-lodges, eco-guides and eco-tours are accredited with DOT. This area of concern provided an impetus to *review ecotourism rules and regulations promulgated in 2008*. The review aims to assess ecotourism standards under the Regulatory Impact Assessment (RIA) framework and provide policy options to ensure that ecotourism regulations are efficient and relevant to the industry. The Philippines Improving Competitiveness in Tourism (PICTourism) programme, a technical assistance project for DOT administered by the Asian Development Bank and funded by the Government of Canada, is reviewing the current ecotourism standards and regulations. Such a review will facilitate identification of challenges and steps to move ecotourism forward.⁵¹

The trend towards green tourism operations has begun in the Philippines. In fact two Philippine hotels received the ASEAN Green Hotel Recognition Award at a ceremony held in Indonesia in January 2012. Some of the criteria for this award include environmental policy and measures for hotel operations, use of green products, collaboration with community and local organizations, human resource development, solid waste management, energy efficiency, water efficiency, air quality management (indoor and outdoor), noise

pollution control, waste water treatment and management, and management of disposal of toxic and chemical substances.⁵²

Significantly, the new policies, ecotourism and farm tourism, are showing the way towards interfacing two sectors, namely agriculture and tourism, and may contribute to the creation of green jobs. Farm tourism promotion awaits DOT action. However, an NGO named International School of Sustainable Tourism (ISST) has been conducting farm tourism seminars for LGUs that have expressed interest. Its president, a former Secretary of Tourism, designs the training programmes. Endeavours of this kind could be supported by the DOT as it has multiplier effects in green job creation. In this case the environmental aspect is well covered but the issue of decent work has yet to be included.

The tourism sector's compliance with decent work will determine whether the jobs created can be categorized as green. But documented accounts of child labor, health and safety issues and human trafficking in the tourism sector could be a block to the fulfilment of green jobs. DOLE could look into this and ascertain which of the jobs fall into the green category. Moreover, this aspect can be included in the Tourism HRD Plan.

In the construction sector the housing industry road map acknowledges its potential for job creation and the types of job created in green building, and the retrofitting process includes green designers, architects, auditors, engineers, estimators, project managers and various jobs in construction such as pipe fitting, sheet metal working, and general construction work, among others. These jobs are created during the initial construction or investment periods and are likely to be local jobs, which is especially beneficial for developing regions and areas of high unemployment.⁵³

Many of the occupations in green building design, such as architects and civil engineers, require at least a bachelor's degree, while many of the construction and trade occupations can be learned through on-the-job training or an

51 <http://www.pictourism.ph/index.php/press-updates/134-sustainable-and-vibrant-ecotourism-a-vital-component-for-philippine-tourism-growth-says-dot>

52 <http://www.sgv.ph/the-greening-of-the-hotel-industry-by-jose-pepito-e-zabat-iii-december-10-2012/>

53 DTI Greening the Industry Road map, 2016:16.

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apprenticeship. Training in green practices is more important for some occupations than for others. For example, although the work of construction laborers might be different on a green construction site, these workers usually do not require much specialized training. Speciality trade workers—who need to be proficient in installing energy- and water-efficient appliances and who might use new techniques - usually require more. Those in design occupations, such as architects and engineers, require a considerable amount of education and training specific to green construction.⁵⁴ Both PGBI and the PGBC have conducted green skills training.⁵⁵ The housing roadmap acknowledges the role of BERDE, a tool adopted by the Philippine Green Building Council that sets green standards including optimal site location, structural design efficiency, water efficiency, materials efficiency, indoor environment quality such as ventilation, operations and maintenance optimization, waste reduction or prevention, reduction or elimination of virgin material requirements, recycling of materials, and use of environmentally preferred products and their ultimate disposal.

The standards for green construction services have been stipulated in the Green Building Code, now a part of the National Building Code, currently in the process of revision in order to factor in the impacts of climate change. For example, it is proposed that the design of buildings should now be able to withstand a wind velocity of 270 kilometers per hour instead of the old standard of 250 kilometers per hour.

A *certification system* is now in place to show compliance with green standards. The IFC, a member of the World Bank group, has licensed the Philippine Green Building Initiative (PGBI) - a non-profit group of professional associations that promotes energy-efficient and environment-friendly design and construction - to be the exclusive certification provider for *Excellence in Design for Greater Efficiencies* (EDGE) projects in the Philippines. To qualify for EDGE design certification, companies must use the EDGE software to prove that their building design will reduce resource consumption by at least 20 per cent compared to that of a conventional building. The online software is available free at www.edgebuildings.com. EDGE is an IFC

Box 3. The Tourism Skills Development Plan Needs Greening

The Department of Tourism (DOT) held a Tourism Skills Forum in January 2017 where updates were presented on the Tourism Industry Skills Development Programme (TISDP), a key component of the Philippine Improving Competitiveness in Tourism (PICTourism) project. It focuses on improving quality standards of tourism through interventions in the areas of quality assurance and accreditation of hotels and resorts, skills development, and regulatory review of the sector. An important output of the TISDP is the Tourism Human Resource Development Strategy that mirrors the details of the strategic direction on human resource development of the National Tourism Development Plan (NTDP), the industry's roadmap for tourism development. Specifically, it supports the direction towards developing a more competent, well-motivated and productive workforce that is at par with international standards, such as the ASEAN. It also seeks to support the certification process in consonance with the ASEAN Mutual Recognition Agreement (MRA) for Tourism Professionals to provide opportunities for cooperation and capacity-building and facilitate mobility within the tourism sector in the country and in ASEAN. "It is the NTDP's vision for the Philippines to become the major source for highly trained workforce and center for tourism and hospitality training and education in the region."⁵⁶ The TESDA Certification and its relevance to the Association of Southeast Asian Nations (ASEAN) Mutual Recognition Arrangement (MRA) were discussed in the Tourism Skills Forum but there was no mention of the inclusion of green jobs or green skills.⁵⁷

54 <https://www.bls.gov/green/construction/>

55 <http://www.philgbc.org/images/berde/berde%20training%201st%20quarter.pdf>

56 <http://www.malaya.com.ph/business-news/special-features/towards-building-more-competitive-tourism-work-force>

57 <http://www.malaya.com.ph/business-news/special-features/towards-building-more-competitive-tourism-work-force>

innovation that was funded by Austria, Canada, Denmark, ESMAP, the EU, Finland, GEF, Japan and Switzerland. **IFC's green building programme is expected to cut 1.9 million metric tons of greenhouse gas emissions in the Philippines.**⁵⁸

Worthy of note is that ILO and DOLE have launched an initiative called “environmentally sustainable construction in the Philippine social housing sector” under the Green Jobs Project in Asia, 2010-2012.⁵⁹ There are two essential components of the initiative, namely: 1) modified concrete hollow blocks (mCHB) made from recyclable materials including polyethylene terephthalate (PET) plastic for reinforcement, and 2) soil erosion nets made of coconut fibre (coco coir nets) for the protection of river banks. The production of these eco-friendly products was promoted through community-based enterprises. An important part of this initiative is the skills training at various levels such as: 1) lower-skilled on-the-job training for workers and potential entrepreneurs to produce mCHB and coco coir nets in the communities in the social housing sector; 2) multi-skilling of workers, in partnership with TESDA through curriculum development in green masonry; and 3) training of private developers, architects and staff of the National Housing Authority (NHA) through the development of the “green socialized housing guide.” In addition, training on occupational safety and health was given to private developers and the NHA staff. Overall 40 per cent of the training participants were women.

Summary. Clearly there has been progress in evolving the policy and regulatory framework pertaining to green jobs since the 2010 baseline study. The Green Jobs Act has officially defined green jobs as denoting compliance with environmental and decent work standards. This provides a clear anchor for the construction and analysis of green jobs and green skills. It is noted that decent work as a criterion makes the definition restrictive. Considering the decent

work deficits (i.e. pay gaps, lack of security of tenure, long hours of work, workers' rights violations, health and safety violations, etc.) in the country, many jobs are unlikely to pass the decent work criterion. That the definition of green jobs emerged only in 2016 means that green skills training was not a conscious objective of the earlier policies. As a result, data on training in green skills are hard to come by.

But the DOLE has produced a Labor Market Information Report 2013-2020, entitled JobsFit, which analyzed employment trends and prospects, and identified priority skills aspects including skills demand, hard-to-fill occupations, skills shortages and industrial surpluses. Significantly it contains a list of occupations that are potentially green jobs and suggests the need for green skills. This initial edition was produced prior to the Green Jobs Act. According to the Bureau of Local Employment the next edition of JobsFit will include green jobs and green skills.⁶⁰

Policy initiatives to green the economy, particularly in industry, are in progress and respond to the recommendation of the baseline study in 2010. In agriculture and services the main challenge is to implement and enforce the laws and tools for greening tourism and farm tourism as well as green building. These policies did not make explicit reference to the development of green skills but they have encouraged energy efficiency, resource conservation, waste management, and environmental protection. Certainly these policies and regulations have implications for green skills training that need to be spelled out. In general, the intersections between environmental policies and skills development policies need to be defined and clarified. Moreover the wide array of environmental and labor policies suffer two major drawbacks: policy contradictions and the inadequacy of implementation and enforcement.⁶¹

58 <http://news.pia.gov.ph/article/view/1141471050810/ifc-and-pgbi-drive-green-building-growth-in-the-philippines>

59 Environmentally sustainable construction in the Philippine social housing sector. http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_216956.pdf

60 Interview with Director Dominique Tutay, Bureau of Local Employment, 8 September 2017, BLE Director's Office.

61 Rene Ofreneo. Toward an Inclusive, Sustainable and Green Economy. Institutions and Economies. Volume 1, Issue 1, April 2015: 110-111.

4. Skills development measures for the green economy

Asia Pacific countries, including the Philippines, have taken measures to green TVET since 2012.⁶² A range of skill development measures for the green economy have been pursued in the Asia-Pacific region such as: *introducing training to promote sustainability in the workplace, integrating sustainable development principles into entrepreneurship training, involving local communities and businesses in green TVET activities, greening TVET learning environments, and formulating national development plans to support green transitions.*⁶³

Since 2015 Philippine skill development measures for the green economy have consisted of: 1) mainstreaming green TVET in the national development plan, the national employment plan, and the National Technical Education and Skills Development Plan (NTESDP); 2) legislation that explicitly provides for greening TVET (i.e. the PGJA of 2016); 3) setting up the Green Technology Centre (GTC) at TESDA; 4) greening the Training Regulations; and 5) TESDA initiatives to orient its regional offices into green TVET. This is work in progress.

The Philippine Development Plan (PDP) 2017-2022 states that the national policy to increase economic opportunities in the industry and services sector includes the provision of incentives for green manufacturing to encourage the shift towards energy efficiency and full implementation of the Green Jobs Act, blue economy, and innovation, among other things⁶⁴. The Plan noted the need to prepare the faculty, facilities and curriculum for a green economy and this implies the need to allocate resources for these emerging needs.⁶⁵ Related to this is the provision to invest in human capital development

based on the transformation of jobs, facilities, processes and future skills requirements.⁶⁶

The National Technical Education and Skills Development Plan (NTESDP) provides for the development and implementation of programmes intended for green jobs through the following: *Developing new training regulations or amendment/review of existing training regulations needed for green jobs and sustainable development, including agro-forestry; capacity-building of trainers and administrators to facilitate implementation of “green skills” programmes and linking-up with local and international agencies in the design, implementation and monitoring of “green skills” programmes.*⁶⁷

Within the PDP 2017-2022, the DOLE's own labor and employment agenda consists of eight points, namely: “1) effective policies to address unemployment and underemployment, 2) full respect of labor standards, and 3) fundamental principles and rights at work, 4) strengthened protection and security of OFWs, 5) enhanced workers' social protection and welfare programmes to be pursued with the 6) workers' and employers' participation, 7) tripartism and 8) social dialogue.”⁶⁸

The Philippine Employment Plan 2011-2016 stated that the “(e)nhancement of productivity and efficiency will be undertaken through the development and implementation of green programmes and promotion of sustainable consumption and production patterns. These programmes will entail public and private initiatives and will also entail investments promotion. Government agencies will also harmonize their green programmes toward the promotion of green jobs. Initiatives to promote green jobs and industries will be pursued particularly in *automotive, manufacturing,*

62 UNESCO UNEVOC, Enhancing the Relevance of TVET. 2016:31.

63 UNESCO-UNEVOC, Executive Summary, Enhancing the Relevance of TVET, 2016:X.

64 Philippine Development Plan (PDP) 9-7:112.

65 Philippine Development Plan (PDP) 10-8:124

66 Philippine Development Plan (PDP) 9-8:113.

67 NTESDP 2011-2016, p. 29.

68 Decent Work Country Diagnostics: Philippines. 2017:7.

MSMEs, construction, housing, shipbuilding, mining, solid waste management, community contracting for employment-intensive green infrastructure, natural resource management and renewable energy. Local value added of renewable energy, such as local manufacturing of supply and materials and infrastructure development, will be promoted to ensure local employment generation. Alternative fuel industries will also be promoted, consistent with the goals of food security, protection of land tenure rights and environmental protection and conservation. Measures to reduce pollution and waste generation through the promotion of green jobs and green industries will be promoted.”⁶⁹

By the end of 2016, DOLE reported significant achievements in facilitating citizens' access to labor market information, facilitating employment and enhancing employability, among other things, viz.:⁷⁰

- ▶ Job facilitation through an enhanced PhilJobnet, a portal that contains job vacancies and registers job applicants. DOLE engaged more private sector partners to gather labor market information (LMI) and was able to post seven million job vacancies from July 2010 to 2016 as compared to 4 million from 2005 to June 2010. Jobseekers anywhere in the Philippines could access the LMI provided they have a mobile phone and Internet connection.
- ▶ TVET scholarships were opened up for poor students to obtain technical and vocational training (see discussion of TWSP below). More TVET graduates were assessed and certified. Of those assessed, 80 per cent were certified, an improvement over the certification rate of 75 per cent in previous years. A total of 5.7 million TVET graduates were certified.
- ▶ DOLE also reported facilitation of youth employment through its active labor market programmes (see section 4.3). It reported 65 per cent employment rates for TVET graduates and 67 per cent for TWSP graduates.

- ▶ Green Jobs have come to the fore in nine Career Information Materials (out of 166) developed by the DOLE's Bureau of Local Employment in 2014. This is one concrete measure to promote green jobs. With the passage of the Green Jobs Act, more “greening” is expected in DOLE's employment promotion efforts.⁷¹

Another interesting “green” measure of the DOLE is the proclamation of Siargao as a labor-laws-compliant tourist destination, which enhances its distinction as an ecological sanctuary. This implies that jobs in the island are compliant with the two greening criteria: environmental sustainability and decent work. “Siargao is famous for its “Cloud 9” surfing waves and certified as a protected biodiversity area in the country.”⁷²

4.1 Skills needs identification/anticipation: Which skills are needed and how they are identified

This section explores how TVET skills for the green economy are identified and what these skills are. Previous studies have divided the skills into basic green skills and core skills for green jobs. These notions of green skills serve as reference points for analyzing the process and content of TVET skills for a green economy.

Green TVET requires more than merely technical skills; it also means developing “soft” green skills that include education for enhancing *problem-solving skills* in everyday situations (life skills education), *education for sustainable consumption and lifestyles and entrepreneurial learning*.⁷³ In the same vein, an analyst pointed out that, in the context of promoting green building, there would be a need for *development of strategic skills, increased environmental awareness and sustainable development*,

⁷¹ Ibid, p.12.

⁷² Ibid, p.45.

⁷³ Conversation with J. Gacutan, GTC Technical Staff, ILO Meeting on the Just Transition Project, Pan-pacific Hotel, 29 June 2017.

⁶⁹ PLEP, 2011-2016:27-28.

⁷⁰ Ulat sa mga Boss na Manggagawang Pilipino, DOLE Performance Report July 2010-June 2016. Draft as of Oct 2016: 11-13.

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coordination, management and business skills and innovation. “A significant number of skilled and semi-skilled workers are self-trained, with knowledge on tasks learned largely from experience. Expanding the trained pool of skills and semi-skilled workers is needed. An increasing amount of the local workforce is now working abroad and there is a need to continuously train new workers, especially with expertise in the above mentioned soft/generic skills.”⁷⁴ Similarly, in a UNESCO survey it was found that “(i)n the Philippines, employers rank *environmental awareness and sustainable development* as the second most important soft skill required for tradesmen, and identified *green building certifiers and green material suppliers* as among the top-five most in-demand occupations over the next five years.”⁷⁵

Which green jobs have been anticipated in the Philippines? As early as the Pollution Control Law of 1977, the government established the need for pollution control officers. More recently, the NTESDP has identified *building and construction, energy, transport and agriculture* as sectors with high demand for green skills.⁷⁶

The Greening the Industry Roadmap, initiated in 2016, provides a good starting point for determining the green jobs in the industry sub-sectors. DOLE, with ILO support, initiated the preparation of HRD road maps in 22 industries which have industry roadmaps prepared by the DTI, namely: *aerospace, automotive, automotive parts, biodiesel, cement, ceramic tiles, chemicals, copper and copper products, electric vehicles, electronics, furniture, iron and steel, IT-BPM, manufacturing, metal casting, motorcycles, natural health products, petrochemicals, plastic, rubber products, jewellery, and tool and die* (See Table 1 for a summary of jobs anticipated over time). It is notable that HRD roadmaps for these 22 industries have been drafted by the DOLE’s Bureau of Local Employment (BLE). In general, the HRD Roadmap 2017-2022 contains a detailed description of the industry sector, with information on labor supply and demand,

occupations in the industry, occupational imbalances, shortages and surpluses, skills requirements, training programmes needed by the industry, and suggested actions and recommendations. The HRD roadmap identifies human resource constraints and solutions for improving human resource competitiveness in the industries.

In 2009, Senator Manuel Villar authored Senate Bill 3144 – Promoting Green Collar Jobs in the Philippines Act of 2009. The proposed bill identified the priorities in green jobs development: 1) *Coastal clean-up and bay watch projects*; 2) *Reforestation efforts and tree planting*; 3) *Construction and designation of bicycle lanes and installation of solar-powered street lights and other clean energy initiatives*; 4) *Planting and replanting of coconut trees to ensure bio-fuel feed stock*; 5) *Opportunities in refitting public utility vehicles with liquefied petroleum gas (LPG)*; and 6) *Re-electrification of barangays using solar panels and hydro-electric grids*.⁷⁷ Although the bill did not pass, most of these jobs are in place in the coastal clean-up, reforestation, replanting of coconut trees, refitting of public utility vehicles with LPG, and so forth. These jobs exist in varying degrees in various communities.

The recent thrust towards ecotourism and farm tourism would require that tourist guides, hotel managers, resort operators, souvenir shop assistants, clerks in tourist offices and so forth be knowledgeable of environmental concerns and be able to incorporate issues such as biodiversity, forest rehabilitation, and climate change adaptation and mitigation measures into their daily business.

How to determine and identify green jobs

The plethora of environmental laws makes it possible to identify the emerging green jobs. These laws influence the market for green jobs by: a) setting environmental quality standards, and defining prohibited acts along with corresponding penalties for violations; b)

⁷⁴ C. dela Cruz, BERDE Study Series, March 2011:27.

⁷⁵ UNESCO-UNEVOC, 2015e:33.

⁷⁶ National Technical Education and Skills Development Plan. (NTESDP) 2016:17.

⁷⁷ Cristopher Cruz de la Cruz. Occupational and Skills Needs in the Green Building Sector in the Philippines, March 2011, BERDE Study Series.

promoting the continuous upgrading of skills through research and training, including the mainstreaming and transferring of technology; and c) establishing systems of compensation or incentives in specific sectors.

For example, the Solid Waste Management Act already indicates that waste management in public institutions such as hospitals and LGUs have vast potential for creating green jobs. An indicative figure of 34,000 jobs was cited in a TESDA labor market information report⁷⁸. Another example is the case of the National Integrated Protected Areas Act of 1992 (RA7586) which defines protected areas as the identified portions of land or water set aside by reason of their unique physical and biological significance. They are managed to enhance biological diversity and protected against destructive human exploration. The establishment and management of protected areas are part of the international commitments signed by the Philippine Government such as the Convention on Biological Diversity, World Heritage Convention, Convention on Migratory Species, and the ASEAN Agreement on the Conservation of Nature and Natural Resources. As a result of the NIPA, the Protected Areas and Wildlife Bureau was created to implement the law. These initiatives created green jobs.

Beyond legislation, is there a systematic procedure for identifying green jobs? The ILO Green Jobs Mapping Study (2014) endeavoured to develop a methodology for identifying green jobs. The study explored the qualification and quantification of green jobs in selected sectors by developing screening criteria on two aspects, namely 1) environmental sustainability and 2) decent work.

Environmental sustainability. A job is considered green if it protects the environment from adverse impacts through resource efficiency - reducing the resource use per unit of output; energy efficiency – abatement and mitigation of wastes and emissions; adaptation and resilience – sustainable adaptation to environmental risks including disease, and welfare improvement

and enhancement or protection of ecosystem services and biodiversity conservation, including coastal and marine resources. For a job to qualify as green, a five-step sequential process was used in screening jobs: 1) compliance with international or national environmental laws; 2) implementation of environmental standards associated with management systems; 3) existence of government or private strategic plans and targets for environmental management; 4) performance benchmarks or minimum performance thresholds for industries or sectors established by the government or private sector; and 5) activity-based approaches in which activities are considered as providing environmental jobs because of their low resource use or positive environmental impacts (e.g. bee-keeping, honey production, climate change adaptation).

The *minimum requirements for decent work* are rules and regulations on the minimum wage where these are applied (i.e. in the formal economy); freedom of association and effective recognition of the right to collective bargaining; elimination of all forms of forced or compulsory labor; effective abolition of child labor; and elimination of discrimination in employment and occupations.

Using this method the study attempted to quantify the number of green jobs in ten selected sectors based on the priorities of the Philippine Development Plan, namely agriculture, forestry, fisheries, energy, transport, construction, manufacturing, tourism, services, and solid waste and waste water management. Given the available data, the mapping study endeavoured to estimate the number of green jobs in each sector. For example, in agriculture it estimated that there were between 14,160 and 118,000 green jobs based on 2006 figures; in forestry, 35,125; in fisheries, 113,096; in energy, 14,604; and in transport, 163,249 out of 2.3 million - that is, only seven per cent are green jobs. However, owing to a severe lack of data the number of green jobs could not be quantified in other sectors such as solid waste and waste water management. In tourism there was a need to verify through focus group discussions if jobs met decent work criteria. Moreover the mapping study did not yet include data on and analysis of green skills.

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The identification process requires data but the relevant data are sorely lacking at present. The Green Jobs Mapping Study (2014: section 1.8) pointed to the lack of information on what has been implemented on the ground, the lack of data on actual job estimates, and the inadequacy of data disaggregation. For example, “jobs in forestry are put under agriculture and hunting; jobs in transport are included in storage and communications.” While there are many greening projects there is very little information on the green jobs generated. Significantly, the ILO Green Initiative and Just Transition Project is assisting the DOLE in developing the database on green jobs. As of 2017 work is still in progress.

To identify green TVET skills, the Green Technology Center (GTC) of TESDA partners with various stakeholders including industry, national and local government agencies and government-owned and -controlled corporations. For example, on 30 May 2016 the GTC formalized partnership with different institutions and companies during its Green Stakeholders Partnership Forum. These partners could either be sources or recipients of green TVET. The Filipino-Chinese Chamber of Commerce and Industry, the Colombo Plan Staff College, State colleges and universities and TVET training institutions were among those attending the forum.⁷⁹

Social dialogue at sector or grassroots level is a method that the ILO strongly endorses for anticipating and monitoring needs for green skills, as pointed out in the ILO-CEDEFOP study. The same study also emphasises that there is a need for greater coordination across economic sectors.⁸⁰ In the Philippines social dialogue takes the form of stakeholder consultations conducted for crafting legislation and policy as well as for development planning. For instance, in drawing up the Industry Road Maps DTI consulted industry associations and representatives, but workers' representatives were not prominent in the consultations. On the other hand the DOLE has institutionalized consultations with social

partners, that is employers and workers, in its policy-making processes such as the Tripartite Industry Peace Councils (TIPC).

4.2 TVET provision for new green occupations and for greening established jobs / occupations

TESDA spearheads the greening of the TVET sector by redefining certifiable occupations and adopting green procedures in competency development. This means giving the trainees the right knowledge to ensure the safety of workers and customers, the correct use of tools and equipment, and protection of the environment.

To illustrate, TESDA conducted the assessment of RAC and MAC technicians, developed training curricula and modules for a CFC (chlorofluorocarbon) phase-out plan, and developed competency requirement for technician certification and conduct of the trainers' course. It provides accreditation for regional and provincial training centres in RAC and MAC, supports DENR-EMB-POD in a public awareness and outreach programme, and assists DENR-EMB-POD in the formulation and development of guidelines on Code of Practice in RAC/MAC. In fact, TESDA developed a competency-based curriculum⁸¹ that incorporates the recovery or recycling of refrigerant for re-use and retrofitting of RAC and MAC systems using ozone-friendly refrigerants. This curriculum was developed in consultation with the industry sectors concerned and with the help of practitioners and technicians in the field. It also conducts the assessors' course for motor vehicle emission control technician III.⁸²

In 2015 the TESDA Green Technology Center (GTC) participated in research on Greening TVET Skills in the Asia-Pacific Region. Through this research TESDA established that various TVET

⁷⁹ Conversation with J. Gacutan, GTC Technical Staff, ILO Meeting on the Just Transition Project, Pan-pacific Hotel, 29 June 2017).

⁸⁰ Dr. Klaus Dieter Martineit, TVET for a Green Economy. GIZ, Bonn, Germany. June 2013:36.

⁸¹ As a matter of standard operating procedure, curricula are developed in consultation with the industry sector concerned.

⁸² Elmer Talavera, Executive Director, TESDA- NITVET, Power Point, n.d.

and training institutions in the Philippines are implementing a number of Training Regulations with Green Competencies. These trades are producing green jobs, namely: *photovoltaic (PV) System Design III, PV Systems Installation NC II, PV Systems Servicing NC III, RAC (PACU/CRE) Servicing NC II, RAC (Window Airconditioning/ Domestic Ref) Servicing NC I, Ice plant Refrigeration Servicing NC III, Transport RAC Servicing NC III, First Management (Vegetables) NC II, Automotive Servicing NC II, Landscape Installation and Maintenance (Soft scape) NC 8, Organic Agriculture Production NC II, Deck Seafaring NC I, Deck Seafaring NC II, Deck Seafaring NC III, Engine Seafaring NC I, Engine Seafaring NC II, Engine Seafaring NC II.*⁸³

At a TVET Forum at Davao City, TESDA reported that there were **246 existing TRs** and that **33** were being updated or being developed for 2016 and beyond. Existing TRs for green jobs include *pest management, photovoltaic techniques, hydroponics, vertical gardening, carbon emission technicians, seaweed farming,* and others. Examples of **new skills for existing jobs** are shown in the table below. This retrofitting of the jobs is intended to teach workers to practise low-carbon use in their trades.

How systematic are the revisions and what are the underlying mechanisms? TESDA is undertaking parallel measures to move forward the revision and greening of the TVET system. Thus the GTC is in the process of making the

essential revisions which include a number of steps such as greening the TRs, training green TVET trainers, creation of a green campus, and sustained advocacy. TESDA is adding, updating, merging, and embedding environmental concerns, green skills and climate change issues in the promulgated TRs.

In an effort to build up its own internal capacity, the TESDA/GTC acquainted 115 TESDA Administrators with the 17 Sustainable Development Goals and took steps to align technical vocational training with these goals in February 2016. The administrators were asked to prepare a plan of action that they would implement in their respective training institutions. Then GTC conducted technical sessions along with the product and technology exhibits. These learning sessions covered alternative energy, organic agriculture, and solid waste management. In addition the GTC conducted 13 green induction training events to introduce the TTI/TVIs into the notion of green jobs and green skills (see Annex 2 for details).

TESDA has course offers relating to farming, and graduates can be certified accordingly. For example, TESDA has an Organic Farming Course NC II that trains participants in organic farm production and in producing farm supplements such as fertilizers. Among the skills that the course teaches are: applying safety measures in farm operations, using farm tools and equipment, producing organic

Current Job	Core training needed	New low carbon skills needed	New Job
Electrician	Apprenticeship BTEQ/ SVQ, NVQ	Working on roofs Installation of solar panels	Solar PV Fitter
Offshore oil/wind maintenance technician	Apprenticeship BTEQ/ SVQ, NVQ	Offshore wind technology	Offshore Maintenance Technician
Aerospace technician	Apprenticeship BTEQ/ SVQ, NVQ	Technology-specific knowledge	Wind turbine technician

Source: Elmer Talavera, TESDA GTC, Power Point, 2016.

⁸³ Conversation with J. Gacutan, GTC Technical Staff, ILO Meeting on the Just Transition Project, Pan-pacific Hotel, 29 June 2017.

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vegetables, chicken, developing and updating industry knowledge, performing estimations and calculations. A minimum of 232 hours is required to complete the course and a graduate can find a job as an organic agriculture farmer, organic chicken raiser, or organic vegetable farmer, among others.⁸⁴

As yet there is no comprehensive listing of green occupations. A database on green jobs is in fact one of the tasks being carried out under ILO's Just Transition Project. Nonetheless, the new green occupations are likely to be in the alternative and renewable energy sector such as wind turbine technician, solar PV fitter, and similar. The current focus on renewable and alternative energy lends great importance to these new green jobs.

The criteria for designing a new green competency standard are yet to come. Current efforts are moving towards clarifying and operationalizing the concepts attendant on green jobs and green skills. In previous ILS studies the two criteria: 1) promotion of environmental sustainability and 2) decent work were established. However, when one speaks of decent work, there is a need to specify the parameters to be used. Decent work includes wage standards, hours of work, overtime, occupational health and safety, and welfare benefits. One has to ascertain which of these standards will comprise the parameters for establishing whether a job is green.

4.3 Active Labor Market Programmes (ALMPs) and retraining measures

ALMPs in the Philippine labor market have been spurred by labor market pressures. For example, many nursing graduates had to transition to other jobs because demand zeroed out in the USA, Europe and the Middle East. Consequently, many nursing schools had to close down. Then, in 2008 during the financial crisis, the government

set up the Training for Work Scholarship Programme (TWSP) through the TESDA. At about this time the Business Process Outsourcing (BPO) was emerging and skills demand was high. At this point the TWSP was mobilized to undertake massive training and retooling of IT personnel and call centre agents. Thus the TWSP successfully bridged the skills gaps in the BPO sectors. The TWSP continues to be a programme until today.

Among the population segments that need training are unemployed youth, out-of-school youth, retrenched workers, indigenous groups, and migrant workers returning home as a result of nationalization policies abroad, civil war as in Syria, or displacement by natural or man-made disasters. The PSA reported that almost half (48.2 per cent) of unemployed persons were from the 18-24 age group. Furthermore a survey found that college graduates took about a year to find work, and high school graduates took up to three years. Many drift into informal work, often part-time and poorly paid, or remain unemployed. One in four young people is neither working nor pursuing education or training.⁸⁵

Active labor market programmes in the Philippines vary in scale. Some have existed for some time while others are fairly new. There are existing ALMPs which have been on the ground for some time. These include the TWSP, the PESO, JobStart, PhilJobNet, and the Job Fairs. There is also the ASSIST WELL (Welfare, Employment, Legal, Livelihood) begun in 2014 for repatriated workers. OFWs receive a once-for-all grant of 10,000 pesos to help them reintegrate into their communities and cushion the impact of unemployment. In 2015 6,500 workers received training under the programme (PDP 2017-2022, 11-7:148). There are also various training modalities such as the apprenticeship and dual training systems but employers do not greatly avail themselves of them, as impact studies on TVET have demonstrated.⁸⁶

TWSP. Through various TESDA programmes industries can seek assistance for training or retraining workers to match their needs. For

84 <http://www.courses.com.ph/organic-agriculture-production-nc-ii-tesda-course-philippines/>

85 ADB Asian Development Outlook 2016.

86 TESDA Impact Evaluation Studies, 2008-2013.

example, the Training for Work Scholarship Programme was designed to enhance the employability of out-of-school youth. Through the skills training programme under TWSP, employers partner with TVIs on their skills needs and TESDA provides training grants as long as the employers commit themselves to employing at least 60 per cent of the trainees. From 2006 to 2015 the government spent almost 15 billion pesos on the programme and graduated 2,231,650 youth. “There is evidence to show that the TWSP graduates were better employed than the other TVET graduates. The employment rates, apart from a dip in 2010, increased from 55 per cent in 2008 to 61.5 per cent in 2011, 68.5 per cent in 2013, and 71.9 per cent in 2014. It is noted that these are higher than the average national employment rate of 62 per cent for all TVET graduates covering the same period.”⁸⁷

The number of OFWs reached a high of 12 million from the inception of the overseas employment programme in the 1980s. Government created the Overseas Workers Welfare Administration (OWWA) to take care of the varied concerns of OFWs. The OWWA administers a trust fund from fees paid by registered migrant workers and provides a host of welfare services for OFWs and their families. Fees collected and investment earnings provide the government with the resources needed to respond to various contingencies involving OFWs. Through the OWWA the government provides training and retooling of OFWs when they are displaced or repatriated or when there are unexpected contingencies at their workplaces.

An **Emergency Skills Training Programme (ESTP) under the TWSP** was launched by the TESDA on 1 June 2017. According to Deputy-Director General Rosanna Urdaneta, the programme will retool and upgrade the skills of returning OFWs. According to her, the project idea was born when President Duterte returned from the Middle East with a number of repatriated OFWs. This programme will also cater for immediate relatives of policemen and soldiers who died or were wounded in the line of duty,

rehabilitated drug dependents and their families, persons with disabilities (PWDs), indigenous people, informal settlers, traffic enforcers and their families, and women. The training courses available include traditional skills training such as motorcycle and small engine servicing, carpentry, masonry, food processing, welding, plumbing, electrical installation and maintenance, among others. The ESTP will be a component of the TWSP.⁸⁸

PESO. There are Public Employment Services Offices (PESOs) that are spread nationwide in each of the 75 provinces, 140 cities and 1,374 municipalities which may be collectively credited with 4.5 million placements from 2010 to 2013.⁸⁹ PESOs in all provincial governments were created by a 2015 law that institutionalized a labor market mechanism to facilitate access to jobs and access to training of the workforce. At the LGUs a local person is appointed as a PESO who facilitates linkages with the private or business sector and compiles the local industry’s human resource requirements. The afore-mentioned law revised the PESO Act of 1999 to **institutionalize the National Employment Facilitation Service Network in order to provide integrated, collaborative and systematic delivery of employment services to clients. The Network is composed of DOLE, Regional Offices, attached agencies, PESOs, other employment offices, and other public entities.**

The PESO is the physical hub and job exchange where job seekers can file their applications for jobs. The law that established the PESO envisioned its transformation into a “modern public employment service intermediary providing multi-dimensional employment facilitation services”. They are provided with a budget and personnel. As the PESOs are organic personnel of LGUs, information on new businesses and demand for skills can now be regularly anticipated and monitored by the PESOs.

⁸⁸ Martin A. Sadongdong, news.mb.com.ph, June 3, 2017.

⁸⁹ PNoy to sign law increasing public service employment offices. <http://www.philstar.com/headlines/2015/10/26/1515006/pnoy-sign-law-increasing-public-employment-service-offices>.

⁸⁷ Mary Ann Mendoza. Engaging Employers in Skills Development and Utilization Through the Training for Work Scholarship Program (TWSP), ILO Commissioned Study. 2015.

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JobStart. Launched by the DOLE in 2014, JobStart is a programme designed to enhance the employability of the youth by giving them job search assistance, free technical and life skills training, placement in internships, and job referrals. To qualify for the JobStart programme one must be 18-24 years old, have at least reached high school level, not be employed, studying, or undergoing training; have no work experience or have less than one year of accumulated work experience. Under the programme, qualified beneficiaries are provided with knowledge of conducting job searches, access to career guidance and employment coaching, access to the relevant labor market information and Public Employment Services Office infrastructure, and referral to potential employers. Once selected, an applicant will undergo the following stages: assessment of the participant's job readiness and enhanced career guidance; selection of beneficiaries; life skills training; job matching; interview and selection by employers; training plan preparation; signing of internship contract; technical training; and internship with employers.

JobStart will be expanded to all regions and at least 4,200 slots were due to be opened in 2017 to train jobless 18-24-year-olds who have spent at least a year in high school. The Canadian embassy, one of the partners of the labor department, has pledged 15 million Canadian dollars to extend the programme for another five years.⁹⁰ Furthermore, the Republic Act 10869, or the Jobstart Act, institutionalized nationwide implementation of the JobStart Philippines Programme.⁹¹

Significantly, in 2018 JobStart will focus on agriculture-based industries which, according to the Director of the DOLE Bureau of Local Employment, have potential for green jobs.

The PhilJobNet is a facility of the DOLE that aims to fast-track jobseekers' search for jobs and employers' search for workforce. It is an internet-based job and applicant matching system. Complementing this mechanism are

the Job Fairs regularly conducted by the DOLE in many venues and events where recruitment and placement of workers can be undertaken by several employers. The PhilJobNet is a virtual space where labor demand and supply meet.

The **Job Fairs** are periodically organized to facilitate the actual "meeting" of demand and supply in the labor market. It was initially convened by the DOLE. Private firms were invited to set up booths and kiosks where job applicants can approach them and inquire about job vacancies. Depending on the match of the applicants' profile and the company requirements, the applicant may be hired there and then. Currently the private firms initiate and organize Job Fairs.

All these ALMPs present opportunities for green jobs creation and green skills development. However it is important that the efforts of all concerned (e.g. PESO Manager, DOLE Regional Director, TESDA Provincial Director, and Training Center Administrator) be properly orchestrated, coordinated and synergized.

4.4 The role of the private sector in skills training

In this section the roles of the business sector, workers' sector, NGOs and academia are discussed. The private or business sector is key to ensuring that skills training is industry-compliant. Private sector representatives on TESDA's Board consult industry associations in the preparation of labor market intelligence (LMI) reports. TESDA regional and provincial offices link with local chambers of commerce and industry to obtain data on skills requirements. This enables them to formulate the LMI for their respective areas. At national level information is compiled and collated to produce a national skills development plan.

TESDA consults with the ECOP, Philippine Chamber of Commerce and Industry (PCCI) and specific industry associations. For example, on 21 January 2014 TESDA and the PCCI signed a three-year memorandum of agreement covering the PCCI-TESDA TechVoc Project to

⁹⁰ <http://news.abs-cbn.com/business/03/14/17/labor-dept-to-expand-jobs-training-program>

⁹¹ Republic Act No. 10869 – JobStart Philippines Act. <https://www.teacherph.com/republi-act-no-10869-jobstart-philippines-act/>

promote technical vocational skills training. The agreement also calls for promoting and facilitating the Dual Training System (DTS) and helping industries, enterprises, business chambers and trade associations promote and implement TVET programmes. The DTS is an enterprise-based skills development approach in which participants learn alternately while working in schools or training centres.

PCCI is ensuring that business associations have the capacity to conduct training, and PCCI and TESDA renewed the partnership for developing a world-class workforce in which both entrepreneurs and workers would be involved. The PCCI also established the PCCI-Human Resource Development Foundation Inc.⁹² Both TESDA and PCCI seek to create a pool of qualified, competent, and job-ready workers to contribute to the productivity and sustainability of enterprises and to the employment generation and poverty reduction goals of the government.⁹³

One notable illustration of the private sector's role in skills development is the establishment of the TESDA Green Training Centre (see Section 5.2 below). TESDA and the Federation of Filipino-Chinese Chamber of Commerce and Industry, Inc. (FCCCII) unveiled the GTC on 20 March 2015.⁹⁴

In a similar vein TESDA collaborated with the *Samahan sa Pilipinas ng mga Industriyang Kimika* (SPIK) or Chemical Industry Association of the Philippines in formulating training regulations. Industry experts, partners and organizations involved in the Chemical Process Operations Project have developed the training regulations with the assistance of the Qualifications and Standards Office (QSO) of TESDA. This is in line with Strategic Priority Goal 3 of the short-term timeline for a "Strong Philippines (2016)" of the Philippine Chemical Industry Roadmap. The roadmap seeks to promote a high level of workforce productivity

through the creation of government training programmes to support manpower skills and professionalize occupations that support domestic employment for the chemical industry.⁹⁵

Resolution 2016-06 NC III was approved and promulgated by the TESDA Board. The regulations enable persons who have graduated in the Chemical Process Operations TVET Programme to acquire NC III as Chemical Process Operators after undergoing mandatory assessment under the national assessment and certification programme. SPIK also announced that the Training Regulations (TR) for QA/QC Services have been elevated to NC IV from NC III, which was approved at TESDA. The TR for QA/QC Services has been scheduled for TESDA Board presentation.⁹⁶

The government is also updating its three-year-old chemicals industry roadmap, with the target of becoming the country's third largest export totalling \$30 billion by 2030, to focus more on R & D and produce environment-friendly products. The current master plan needs to be revisited to clearly define the strategies and identify which action agendas will be prioritized, especially those that have valuable impact on the industry. The updated version will have separate roadmaps for each sub-sector and will also specify R&D programmes in collaboration with the Department of Science and Technology, along with a more focused and strategic investment promotion plan, and capacity-building for the Chemicals Technical Working Group members. This detailed Master plan will enable the industry to sustain growth and generate quality job opportunities for Filipinos.⁹⁷

A Global Value Chain (GVC) Study prepared by the Duke Center on Globalization, Governance and Competitiveness in May 2016 identified oleo-chemicals' potential in the GVC, recognizing that oleo-chemicals are among the top ten chemical export products of the Philippines. Coconut oil, one of the country's vital assets, is considered

92 President Alberto Fenix Jr. in Ted Cordero/VS, GMA News PCCI are raising the bar for skilled workers Published January 17, 2017.

93 <http://www.gmanetwork.com/news/money/companies/596102/tesda-pcci-are-raising-the-bar-for-skilled-workers/story/>

94 (<http://legitipines.com/blog/tesda-now-pushing-green-vocational-technical-training>).

95 Manila Bulletin 26 Sep 2016. <https://www.pressreader.com/philippines/manilabulletin/20160926/282063391448803TESDA>

96 Ibid.

97 Ibid.

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as the backbone of the oleo-chemicals industry; but since palm kernel oil is cheaper, it is currently widely used as a substitute. The Philippine oleo-chemical industry is regaining its status as a recognized source of natural, renewable and sustainable coconut-derived oleo-chemicals.⁹⁸

As the demand for environmentally-friendly chemical products increases over time, the Master plan will also include the industry's initiative in creating a Philippine Chemical Branding Strategy incorporating green chemicals. Meanwhile, the industry observed that palm plantations in Indonesia and Malaysia can only produce about 30 per cent of the required sustainable materials. Thus there is a potential for the Philippines to supply the missing 70 per cent of sustainable feedstock but at present the industry is not yet ready owing to insufficient production capacity, possibly due to a shortage of skills. "In order to increase productivity for coconut production, coconut tree planting should be done aggressively but the viability of palm kernel oil as a cheaper alternative should also be explored further."⁹⁹

Workers' sector. Workers' participation and involvement in skills development are in general well laid out in laws, policies and programmes. Workers are represented by trade union representatives who are appointed as members of the TESDA Board; six out of 22 Board members represent workers' interests. At this level they are part of the process of greening TVET by participating in the approval of Training Regulations incorporating green skills.

Private and public sector unions participated in consultations during the drafting of the Green Jobs Act and its Implementing Rules and Regulations in 2016 and 2017. They were also involved in the technical working groups on the Modelling of Green Jobs Projections being undertaken by PIDS under the ILO Just Transition project in June 2017.

Workers are also represented in other tripartite

bodies administered by the DOLE such as the National Wages and Productivity Commission and the boards of the Overseas Workers' Welfare Administration (OWWA) and Employees Compensation Commission (ECC). The principles and processes for tripartism and social dialogue are well institutionalized in the afore-mentioned tripartite bodies. There are also DOLE and TESDA programmes for workers which provide financial grants and scholarships to undertake skills development.

The experience of workers' organization in implementing skills development has not been strong, although it must be said that there are some good practices in which labor unions have implemented skills development programmes on their own or through partnership arrangements with TESDA. On the whole workers' organization have not been proactive in pursuing skills development and it is not yet considered a workplace issue. In a study of Collective Bargaining Agreements (CBAs) filed with the DOLE from 2008 to 2012, a major finding is that only a few CBAs included or mentioned "skills development" "skills training" or "job enhancement" (Mendoza, 2016).

There are reasons for this low level of involvement. First there is a perception that skills development is the responsibility of employers. Workers organizations are also more preoccupied with compensation and working conditions issues. It may be noted here that up until now the government has not resolved the issue of labor contractualization. While workers value training, they are focused more on developing skills in organization and negotiation than on upgrading the occupational skills of their members. Most workers may not have the resources to undertake skills upgrading on their own. There may be scholarship programmes offered by the government, but there is as yet no policy on "study leave with pay."

An example of a workers' organization's involvement in green jobs was the Green Masonry Training NC II undertaken in 2012. This entailed collaboration between the Association of Construction Informal Workers and the National Union of Building and Construction Workers, the DOLE, TESDA, and NHC, with guidance

⁹⁸ Ibid.

⁹⁹ TESDA, chemical industry collaborate for manpower training, Manila Bulletin 26 Sep 2016. <https://www.pressreader.com/philippines/manilabulletin/20160926/282063391448803TESDA>

from the Philippine Green Building Council and support from Holcim Ltd. The training was done in collaboration with the Municipal Social Welfare Development Office and the LGU of Barangay Matictic in Bulacan where the green training was conducted.

The training programme aimed to integrate “Green Masonry” concepts into the existing NC II Masonry Training. It consists of competencies that persons must acquire and that will enable them to lay bricks for structures, and plaster concrete masonry or concrete surfaces. Integrating Green Masonry concepts will enable participants to a) appreciate climate change as a personal, social and construction issue; b) understand the possible effects as well as the direct and indirect impacts of climate change; c) identify the different concepts of Green Building; d) recognize the importance of different Green Masonry practices, e) understand the need for proper identification of building materials to protect and conserve the environment. The 42 participants that passed the training agreed to form and participate in a worker’s guild that was later registered with DOLE.¹⁰⁰

Current workers’ concerns are as follows: ensuring a just transition such that workers do not get displaced during the course of the green shift; the fact that some green TRs such as green masonry are not being used; the need to level out understanding of green jobs and skills within TESDA, the TVET sector and among other stakeholders, especially decent work aspects; the need for workers to optimize the use of scholarships such as the TWSP; and the slowness of the preparation of the National Human Resource Development Plan. The representative of teachers in the private sector stated that many universities still have to comply with decent work standards for teachers and faculty members.

The closure of the Payatas landfill in Quezon City is a case in point. DENR’s decision to close the landfill has resulted in the displacement of workers involved in waste segregation. Most of these waste pickers are women, highlighting the gender dimension of green jobs.¹⁰¹ Furthermore,

while the primary concern is to have jobs, a deeper concern has to do with the decency of these jobs.

FFW noted that large multinational corporations have included environmental sustainability in their programmes since this is driven by customer demand and corporate commitment to global standards. The private sector representatives (i.e. worker and industry representatives) are keen to grasp a common understanding of green skills and to observe good practices in greening skills in other countries such as Singapore and Taiwan.¹⁰²

Academia. In general, academia’s participation in greening TVET is an area for development. There is a seminal effort to enhance the role of academia in TVET as a whole. The NEDA Regional Development Council (RDC) approved the creation of the Academia-Industry Linkage (AIL) Special Committee in CALABARZON¹⁰³ in September 2015 to provide a platform to discuss the mismatch of skills produced by tertiary learning institutions with the needs of the industry and also identify possible partnerships. The TESDA is also a member of the AIL Committee. The Committee is initially composed of eight regional line agencies, six State universities and colleges (SUCs) and 12 private sector representatives and academics. The committee will identify industry representatives, as members of the Committee, through DTI Region IV-A. Considering his organization’s extensive partnership experience, the President of the National College of Science and Technology (NCST) was chosen as AIL Committee Chair.¹⁰⁴ The NCST’s experiences in partnership with different industries are in gathering of information on what the industry needs as a training partner, with a view to devising ways of continuously adapting through changing times

the National Anti-poverty Commission. Discussions at the Validation Meeting of Skills for Green Jobs. ILO Country Office, 14 September 2017.

¹⁰² Consultants’ Meeting with the Standards Setting and Systems Development Committee of the TESDA Board, 10 August 2017 at the TESDA Main Building.

¹⁰³ Represents a cluster of provinces consisting of Cavite, Laguna, Batangas, Rizal and Quezon provinces.

¹⁰⁴ President Emerson Atanacio is also an awardee of the Ten Outstanding Young Men in 2013 and current private sector representative of the RDC.

¹⁰⁰ Green Jobs Asia Project, June 2012.

¹⁰¹ Susan Tesiorna, Informal Sector Workers’ representative at

Box 4. Women and green skills

Grassroots women are now learning organic farming as they see it as a way out of poverty. For example, *Kasarian-Kalayaan, Inc. (SARILAYA)*, a group of grassroots women's organizations, aims to eliminate poverty and empower women to access information for the development of needed skills. These acquired skills can help them promote a healthy lifestyle not just for the family but for the whole community. By teaching organic agriculture to women, more people benefit from it. They also propagate this in their own communities, increase their income, and improve what they eat. SARILAYA is present in thirteen barangays spread in different provinces including La Union, Tarlac, Nueva Ecija, Bulacan, Cavite, Rizal, Laguna, & Northern and Eastern Samar. They also have members in Metro Manila.

SARILAYA believes that organic agriculture is an important key to elevating the lives of poverty-stricken families, especially in the rural areas. Women have a big role in ensuring the right nutrition for the family and community. Even if they often stay at home, they still have great responsibilities. By staying organic, potential environmental impacts – especially those brought about by climate change – of synthetic products can be prevented.¹⁰⁵

and technology, and measures to promote the common good.

The functions of the committee are as follows:

(a) propose policies and mechanisms on strengthening academia-industry linkages; (b) organize continuing dialogue between academia and industry; (c) facilitate the workings of the committee; and (d) monitor the implementation of established partnerships.

Producing the required manpower for the industry is important for the region because it has the biggest student population size, it is the second biggest economy as well as first in terms of industrial gross value added in the country. The RDC recently adopted a tagline for the region: "CALABARZON: The STAR Region of the Philippines." The Cavite Export Processing Zone, DOLE Region IV-A, DOST Region IV-A, PIA Region IV-A and TESDA Region IV-A expressed their support for the Committee.¹⁰⁶

Women and Green Skills

There are many initiatives that involve women in skills development, usually for income generation. For example, the National Network of Home-based Workers, a group of female home-based workers, has been organizing numerous

skills training events such as the production of powdered vegetables using technology that they learned from the Food and Nutritional Research Institute (FNRI) of the DOST as far back as 2001. This technology-based skill has enabled the women to establish bakeries using their powdered vegetables and has helped them earn some income. These women underwent training on environmental protection under the Gender Responsive Economic Action for the Transformation of Women or the GREAT Women Project of the Philippine Commission on Women (PCW).

Women's groups that participated in the GREAT Women Project had also skills training for livelihoods. The project was meant to promote women's economic empowerment as implemented by the Philippine Commission on Women (PCW) with support from the Canadian government. An important aspect of the project is the inclusion of the DENR to educate women on the impacts of their economic activities on the environment. Women were given guidelines to ensure that their processes and products are eco-friendly.

¹⁰⁵ Source: <http://en.wikipilipinas.org/index.php/Sarilaya>

¹⁰⁶ <http://www.neda.gov.ph/2015/09/30/calabarzon-rdc-pioneers-academe-industry-linkages/>

4.5 The role of institutional set up

The Green Jobs Act, Section 6, identifies and defines the roles of various government agencies (see Box 2; and see Annex 3 on the specific roles of government agencies). DOLE and TESDA are the key agencies responsible for promoting green jobs.

By law, TESDA is the oversight agency and the regulator of the TVET sector. It sets directions, promulgates quality standards and provides technical support to the TVET sector. TESDA produces industry-specific Labor Market Intelligence (LMI) Reports to document employment projections and the corresponding skills requirements of industry. Additionally, labor market studies by academia serve as inputs into the government's labor market intelligence reports. However, **the academia-industry linkage is an area for strengthening to ensure systematic use of scientific findings.**

TESDA consults the employers and industry associations to systematically identify skills needs. It is also guided by the national development policies and industry development plans. For example, DOLE consulted its social dialogue partners, that is employers, workers and trade unions in drawing up the National Human Resource Development Plan.

Institutional set up for greening skills in the private sector

The TESDA drives the greening of skills in the private sector through the promulgation of Training Regulations (TRs). In 2004 the TESDA Board promulgated a policy that required that all TESDA training programmes should have a Training Regulation (TR). This assures quality training as TRs are competencies-based and outcomes-based and contain minimum standards for trainers, training tools, equipment and facilities. The competencies cover three areas: basic (such as work values, communication and analytical skills), common (skills specific across the industry), and core (qualifications that are distinct to the trade). The Philippine TRs are benchmarked with the Australian competency-

based training and education framework. The composition of the working group for the development of the TR is tripartite. The TR System is ISO-certified. But as emphasized by the TESDA Director of QSO, the rationale for the importance of industry or private sector involvement is that they know best the skills needs and work processes of the industry. It is important that establishments recognize the value of TRs and commit themselves to using them. Industry associations are actively involved in the development of TRs. For example the Information Industry Business Processing Association of the Philippines (IBPAP) was involved in formulating nineteen (19) TRs for the industry. The Philippine Society of Plumbing Engineers (PSPE) was actively involved in formulating three TRs on plumbing. The Semiconductor and Electronics Industry in the Philippines (SEIPI) was instrumental in completing five new TRs for the semi-conductor industry. The Director also highlighted the importance of regularly reviewing and updating these TRs so that they are aligned with new technologies and industry processes, and so that they can be good starting points for skills standards that will be established in the ASEAN region as their economies start to be integrated. Given the trend towards green jobs, the existing TRs can be the starting point.

In the case of DOLE, safeguarding the health and safety of workers is a joint responsibility of the Occupational Safety and Health Centre, the Bureau of Working Conditions and its cadre of Labor Compliance officers that monitor establishments' compliance with labor laws. But the labor inspection system is hampered by the small number of inspection officers *vis-à-vis* 900,000 establishments. There is a National Wages and Productivity Commission and its regional offices, all tripartite in membership, which are responsible for compensation and productivity concerns.

Advocacy for green skills is driven by the TESDA Central Office; the Green Technology Center (GTC) has been holding fora and discussions to roll out the green TVET agenda in 2016 and this is continuing (see Annex 2). As part of the green movement, TESDA trainees are required

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to plant one tree, avoid the use of plastics and practise reuse and recycling.

For greening skills in agriculture, TESDA ties up with the DA and has in fact promulgated TRs pertaining to farming. Advocacy for greening skills in agriculture is aided by the NGO sector's campaign for organic farming. Owing to the looming food insecurity in the Philippines, there is renewed interest in organic farming. NGOs and LGUs continue to pursue the advocacy and practice of organic farming at the grassroots. For example, the LOAM-C, consisting of nearly two hundred LGUs in different parts of the country, promotes organic agriculture. Then there are NGOs such as the PRRM, IIRR, and Greenpeace Philippines engaged in the same OA advocacy.¹⁰⁷

Sectoral bodies have played vital roles in setting the qualifications and standards for jobs and establishing skills requirements. In 2012 TESDA consulted with the solid waste management stakeholders, specifically the National Solid Waste Management Commission, Solid Waste Association of the Philippines and other landfill operators, regarding the development of qualifications and standards for specific skills requirements for solid waste management. Based on the results of these consultations, the TESDA Board Direction Setting Committee approved as priority qualifications the roles of spotter (*tumbalero*), site foreman and garbage collector or *palero*. These jobs were vital in the proper operation and maintenance of a sanitary landfill (SLF) and in preventing adverse effects on health and the environment. The target clientele for skills upgrading are the LGU SLF operators and personnel, privately operated SLFs and informal waste reclaimers at SLFs.¹⁰⁸ In the case of tourism, aside from setting of standards, TESDA collaborated with the DOT in implementation of the ASEAN Mutual Recognition Agreement (MRA) for Tourism Professionals. This was done in cooperation with the Tourism Industry Board Foundation Inc. TESDA also sought industry participation in

strengthening the integrity of its assessment and certification processes.¹⁰⁹

The Philippine Green Building Initiative (PGBI) is a non-profit group of professional associations and a leader in the promotion of energy-efficient and environment-friendly design and construction. PGBI independently recognizes excellence in green business industry performance and practice, serving as the sole certifying body for EDGE projects in the Philippines. It was formed in the first quarter of 2010 as a professional group that promotes sustainability in the built environment. It is composed of professional associations accredited by the Professional Regulation Commission (PRC). Among its members are the United Architects of the Philippines, Philippine Society of Ventilating, Air Conditioning and Refrigerating Engineers (PSVARE), Philippine Chapter of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Integrated Electrical Engineers of the Philippines (IIEE), Geological Society of the Philippines, Philippine Institute of Interior Designers (PIID), Heritage Conservation Society (HCS), and the International Council of Monuments and Sites (ICOMOS).

The PGBI aims 1) to provide an objective non-partisan approach to the study and assessment of buildings and communities incorporating internationally-recognized best practices in building design, construction performance and energy efficiency; 2) to promote environmental responsibility and cultural responsiveness in order to be locally responsible and globally relevant; and 3) to write and adopt design and constructions standards to guide the built environment in its efforts to promote sustainability.

Institutional set-up for green skills in the public sector

The DENR is the primary agency responsible for the conservation, management, development and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources including

¹⁰⁷ Multi-stakeholder Consultation, Greenpeace Philippines, Bayview Hotel, Manila, 22 June 2017.

¹⁰⁸ TESDA LMI Report, Solid Waste Management, Office of the Deputy Director General for Sectoral TVET Planning Office, Taguig, Metro Manila, 2012:IV.

¹⁰⁹ LMI Report, Tourism, Office of the Deputy Director General for Sectoral TVET Planning Office, Taguig, Metro Manila, 2012: section V.

those in reservation and watershed areas, and lands in the public domain. The Environment Management Bureau of the DENR is tasked with implementing national environment laws and monitoring compliance with international commitments.

Technical training and education in agriculture is a field divided between the Department of Agriculture (DA) and TESDA. Training regulations for farming occupations have been issued by TESDA. The DA has an Agriculture Training Institute (ATI) that offers training courses such as a basic course on urban gardening, cultivating specific crops such as sweet potato. But “there is no comprehensive or modular training covering the whole spectrum of farming. Small-landholders’ activities to improve farming on a more sustainable level are mostly supported by NGO initiatives.”¹¹⁰

In the last two years the Department of Education had introduced the K-12 in basic education so that high school students are able to acquire technical-vocational skills training. Essentially the K-12 system expanded basic education to twelve years of schooling from elementary to high school in order to amply prepare students for employability even if they do not proceed to acquire a college education, that is a bachelor’s degree. The programme will allow specialization in science and technology, music and arts, agriculture and fisheries, sports, and business and entrepreneurship. The K-12 programme gives students the opportunity to acquire vocational skills in the last two years of high school that could aid job placement in the students’ near future. This is a window for greening the skills of high school students. In fact, DepEd is organizing a workshop in October 2017 for teachers, principals and division chiefs to mainstream green jobs in the basic education curriculum.

4.6 Analysis

It has transpired that TESDA had already been greening TRs but the support environment

at the time was not yet equal to it. The Qualification Standards Office of TESDA raised concerns regarding the preparedness of other stakeholders in the greening TVET agenda. For example, two years ago the DoE entered into a MOA with TESDA and DOE gave funds to develop TRs for the maintenance of electric-powered vehicles. While the TRs were being developed, the actual skills training was stymied by the absence of charging stations that should have been installed by DoE. As a consequence, TESDA had to return the funds to DoE.

In another case TESDA developed TRs for various competencies in solid waste management at the request of DILG and DENR, on the understanding that DENR would set up training and assessment centres. But DENR did not deliver on this commitment and the LGUs were delayed in their solid waste management projects.

In the construction sector, TESDA had wanted the pertinent provisions of the Green Building Code to be incorporated in the TRs. But it appeared that the mainstream builders, Philippine Contractors Association, were not yet familiar with the green building standards.

Role of government in greening jobs and skills

Active labor market programmes such as the TWSP, JobStart, Job Fairs and so forth show that there are existing mechanisms through which green job creation and green skills development can be channelled and facilitated. These ALMPs can be leveraged to facilitate the propagation of green skills.

In its design the PGJA was intended for the private sector. But the public sector is one of the largest employers in the country and certainly there is scope for greening the existing positions in the bureaucracy at all levels. Even LGUs are now being required to establish solid waste management systems, as mentioned earlier. In general it is the government that is expected to be proactive in greening jobs and in creating green jobs. It could do this through its standard-setting functions and enforce it in both the public and private sectors. A case

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in point is the Department of Public Works and Highways¹¹¹ which plays a key role in the Duterte administration's infrastructure thrust. More jobs are expected to emerge with the building of infrastructure. Within the sphere of DPWH influence there are two ways of greening jobs. First, the existing jobs in the DPWH occupational roster (plantilla) can be greened through a massive orientation and induction into environmental protection, use of energy-efficient designs and harnessing of low-carbon technologies in building roads, highways, buildings and homes. For example, DPWH now speaks of a green highway, one that is built and lined with trees provided they are not within right-of-way areas. The practical task is to incorporate the green agenda into the existing job descriptions and terms of reference and in the employee training conducted in-house.

In this regard the government also aims to cover the public sector. The latter will be taken into account in the formulation of the Green Jobs Human Resource Development Plan. The plan will include programmes, projects and activities pertaining to basic, higher and technical vocational education and training, a database that identifies and links green jobs opportunities with private and public entities, and information on knowledge and skills requirements for a green economy.¹¹²

Another track is for DPWH to influence the private sector through its contracting system. Construction projects are outsourced to private builders. There are some 3,000 contractors across the country that could be influenced to ensure that their staff, including the professionals (project managers, project architects, engineers) internalize and practice green values. More importantly, tradesmen - that is, carpenters, welders, roofers, tile setters, plumbers, pipefitters, and low-skilled construction workers - must be oriented to environmental protection and "greened" since they carry out tasks that directly impact on the environment such as installing solar roofs, installing water pipes, and

others. Before awarding a project DPWH could require that their contractors' staff undergo environmental orientation and that their workers are certified by TESDA. ILO could possibly consider providing technical assistance for such a massive effort.

Moreover, two government institutions that could play a role in greening the public sector are the Ombudsman and the Civil Service Commission. Cases pertaining to violation of environmental laws are filed with the Ombudsman. The Civil Service Commission defines the Qualification Standards (QS) for positions while the Department of Budget and Management allocates funds to support civil service jobs. For new jobs in the public sector, the task of greening can be done through the establishment of qualification standards in which green values are mainstreamed. The line agency that created the new jobs will recommend their proposed qualification standards to the CSC and DBM. Once adopted, the QS becomes the basis for recruitment. The Human Resource units of the line agency will then select candidates that have green values, knowledge and skills as specified in the QS. To date, there is no clear-cut role for the CSC and DBM in the area of green jobs and green skills.

But greening must begin with the bureaucracy. Greening public sector jobs entails a) qualification standards being adjusted to include environmental sustainability as a value; b) knowledge of environmental protection, conservation of natural resources, energy efficiency and alternative energy sources; and c) skills that can be applied on the job. This suggests the need to revisit employee induction, orientation and management development training courses and greening of staff development programmes as far as possible. Aside from course revision, this also means re-training of trainers for in-house staff development programmes for government agencies. Indeed the trainers in the Philippine Civil Service should also be trained. Furthermore the Civil Service Commission reported¹¹³ that basic questions on environmental awareness are

111 Interview with Rey Tagudando, Director, Bureau of Research and Standards, DPWH, 14 July 2015.

112 Comments of the Institute of Labor Studies (ILS) to the Draft Report, 17 September 2017.

113 Fernando Porio, Director, Civil Service Commission. Validation Meeting on Skills for Jobs, 14 September 2017, ILO Country Office, Makati, Metro Manila.

now contained in the Civil Service examination. Furthermore initial work is needed on mainstream greening jobs competencies into the existing core competency framework for civil servants.

In essence, the government must become the game changer and a major player in generating green jobs and this will require high levels of coordination, complementation and convergence of the government agencies concerned and social dialogue with stakeholders.

A systematic way of identifying the required green skills is still in the process of evolution. To this end TESDA is building its internal capacity through workshops and partnerships.

In fact the GTC plans to “collaborate with the Colombo Plan Staff College (CPSC) to get references in developing its own Frameworks and Models for Green TVET to enable the identification and production of green jobs. The CPSC had developed and adopted for itself a Framework that enabled them to implement a Green philosophy that underpinned their exercise of their institutional responsibility. It has come up with practical models that adopt climate-friendly operations and facilitate adaptation of pedagogical approaches that are oriented toward environmental sustainability.”¹¹⁴

Collaboration between DOLE and DTI would facilitate listing of green jobs and possibly estimating demand for green jobs. Whether these jobs are compliant with decent work standards is an aspect that needs to be ascertained if the jobs are to be categorized as green. The Greening the Industry Road Maps were in progress in 2016. **It would be timely and worthwhile for DOLE and TESDA to interface with DTI and DA to suggest that greening the industry road mapping entails incorporation of the “projection” of green jobs in the sub-sectors.**

It is noted that TESDA has been placed under the Cabinet Secretary (Office of the President). This arrangement can be leveraged to facilitate discussions on green jobs and green skills at the highest levels of decision-making.

To draw up a list of green jobs and the requisite green skills, one has to systematically obtain this data from the relevant sectors and subsectors of the economy, that is agriculture, industry and services. This process can be addressed in the ILO Just Transition Project as they build up the database of green jobs. If this were to be done, there would have to be a concurrent engagement of the different sectors to list the green skills requirements. DOLE and TESDA can spearhead this process in such a way that there is a whole-of-government approach. They should collaborate with sectoral agencies such as DTI, DA, DOT and DPWH, among others.

One lesson learned from the ILO 21-country study is the importance of social dialogue in identifying green jobs. The role of the concerned agencies, especially the DOLE in ensuring worker’s participation and supporting capacity-building on green jobs, should be strengthened. But workers’ organizations on their own should prepare themselves for green jobs. To borrow from the OECD, “skills have become the global currency of twenty-first century economies”. This will require change in their mindsets and perspectives on their role in skills development which has so far been assumed as “employer-led”, and an embracing of the concept of green jobs. More programmes such as the green masonry project can be pursued.

To ascertain whether the criteria for green jobs are being met, one can consult the DENR to validate that a job fosters environmental sustainability while the DOLE, through its labor law compliance officers, can verify if decent work standards are being met. In order to operationalize this intersection of functions, DENR and DOLE need to collaborate in thinking this through and working out a system.

The numerous environment-related initiatives have been absolutely silent on the matter of green jobs and skills, possibly because the notion of green jobs was defined only in 2016. This intersection between environmental laws and skills development can now be explored. The imperative now is to ensure that the jobs be greened and green skills be developed to perform these jobs. An important tool to

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jumpstart this intersection is the Philippine Green Building Code, published in June 2015.

Green Finance

In terms of resource support, funds are available for green projects, including green job creation. Aside from the CCC incentives, there is a green financing programme in government banks that can be tapped, including from the Development Bank of the Philippines (DBP) and the Land Bank of the Philippines (see Section 5.3).

The People's Survival Fund (PSF) was created by Republic Act 10174 to enable the government to address the problem of climate change. The law also mandates the creation of a Board to provide overall strategic guidance in the management and use of the fund. It is an annual fund intended to enable local government units and accredited local and community organizations to implement climate change adaptation projects that will better equip vulnerable communities to address the impacts of climate change. It supplements the annual appropriations allocated by relevant government agencies and local government units for climate-change-related programmes and projects. Specifically, the fund is intended for adaptation activities that include water resources management, land management, agriculture and fisheries, and health, among others, and also to serve as a guarantee for risk insurance needs for farmers, agricultural workers and other stakeholders. It will also be used for establishing regional centres and information networks and for enabling existing centres and networks to support climate change adaptation initiatives and projects, for setting-up of forecasting and early warning systems against climate-related hazards, and for supporting institutional development activities such as preventive measures, planning, preparedness and management of impacts relating to climate change, including contingency planning for droughts and floods.¹¹⁵

In sum, the policies, institutional mechanisms

and resources for a green transition are now available. The challenge is to make them work and produce the desired impact on the greening of jobs and skills.

¹¹⁵ Philippines: Government appropriates p1 billion in the people's survival fund – Opinion <http://www.preventionweb.net/go/46327>.

5. Analysis of case studies

This section analyzes three case studies that contribute to green jobs and green skills development. Details of the cases are in Annex 2. The first case on Human Nature is a business that illustrates that decent jobs, environmental sustainability, and business profitability can co-exist, despite these values usually being seen as mutually opposed. The second case is an institution-building initiative to meet the imperative of greening skills. The Green Technology Center was established through the partnership of the business sector and the government. The third case shows the availability of green finance to support projects that could influence the growth of green jobs and green skills.

5.1 The Case of Human Nature

Historically, Filipino entrepreneurs have perceived workers' benefits, that is decent conditions of work, as a burden that cuts into their profitability. Human Nature reverses this perception and requires a radical departure from the mainstream practice of reducing workers' benefits in order to maximize profits. This doctrine is not necessarily better, as shown by Human Nature.

Business profitability can co-exist with social values such as decent jobs and environmental protection, conservation of natural resources and sustainability. This is unambiguously shown in the case of Human Nature and builds the case for green jobs and green skills.

Therefore, green TVET is a common public good that can be pursued in practice. That it is achievable has been demonstrated by the story of Human Nature, a private enterprise founded on an ideology that views the environment and workers' welfare as values that do not run counter to business profitability. The question is whether other employers would pursue this radical reform in corporate governance, and

whether green jobs and green skills could provide the platform for such a reform to be spread and scaled-up across industries.

5.2 The TESDA Green Technology Center

The Green Jobs Act defines TESDA's role, which is to promote and advocate green skills. This implies that green skills must be mainstreamed in the entire organization including the TESDA Board. Currently, the Green Technology Center is at its seminal stage and is grappling with the concept of green TVET. Potentially the GTC could fill a major gap in Philippine TVET in which implementation of new green technologies is limited by the poor quality of training facilities and weak labor market intelligence. These weaknesses jeopardize the quality and relevance of TVET. Within its two years of existence the GTC has initiated the process of developing green TRs as well as rolling out the mainstreaming of green skills to the TESDA local offices. These developments are work in progress.

TESDA needs to define its strategic vision for the GTC and realize its potential as the engine that would drive the entire TVET sector towards eco-friendly and decent work. Such a task warrants a strategic visioning and planning exercise to collectively define and elucidate the direction and role of GTC. The process must involve TESDA's constituency – the TVET sector and the stakeholders (i.e. workers and employers).

To speed up the greening of TRs the GTC can develop the criteria and guidelines for greening skills and undertake massive dissemination. For now, the task of greening the competency standards awaits the establishment of criteria, parameters and a system for greening the competency development programme. If one accepts the premise that *all jobs should be green* then this implies strategic re-arrangements in the process of developing the competency standards since the task would be massive.

5.3 Development Bank of the Philippines, Pioneer in Green Financing

It is interesting to note that since 1991 the DBP has successfully implemented several environmental credit programmes on its own and in partnership with JICA, the German government and other ODA facilities. It has pioneered granting of loans to assist industries and local government units (LGUs) in the integration of environmentally-friendly processes and technologies such as cleaner production, water conservation, waste management, energy efficiency, air quality improvement, and pollution prevention and control, among others. These are all in line with Agenda 2030, the UN Sustainable Development Goals and the Paris Agreement.

Clearly the DBP has been forward-looking in mainstreaming environmental sustainability in the projects they have been funding. On 13 July 2017 DBP won the Outstanding Sustainable Project Award for its assistance to an integrated resource recovery management project during the Karlsruhe Sustainable Finance Awards 2017 ceremonies. The award recognizes DBP's support to the FDR Integrated Resource Recovery Management which offers an integrated, zero-waste and no-landfill approach to the management of municipal solid waste (MSW) in Naga City, Cebu.

Can the DBP model be replicated in other government and private banks? Could it be integrated even in the micro-financing programme that could reach micro, small and medium enterprises? If this could be done, then green jobs and green skills would emerge as the logical results of such projects. However, this requires verification of whether the eco-friendly jobs generated comply with decent work standards.

6. Conclusions and recommendations

6.1 Conclusions

There has been some degree of progress since 2010 when the baseline study on green skills in the Philippines was completed. At that time the study stated that “there was yet no detectable green shift”¹¹⁶ in the country. Major recommendations of the study were (i) to foster the greening of the Philippine economy, that is in agriculture, industry and services, (ii) to foster greening of human resource development in the private and non-government sector, and (iii) to promote dialogue on green jobs among stakeholders, particularly the tripartite sectors. In particular, a major recommendation is to mainstream environmental education at all levels which puts the responsibility on DepEd, TESDA and CHED to take appropriate action. For TESDA the main task is to integrate environmental education in the TVET sector.

Arguably, the discourse on green jobs and green skills has expanded since then. Milestones are the Green Jobs Act of 2016, the establishment of the Green Technology Center, and the initial initiatives of the DOLE towards formulation of the National Human Resource Development Plan based on the DTI’s Industry Road Maps and the PCCC to include green jobs and green skills in the NDCs. Notwithstanding the foregoing, the challenge presented by the need for sustained and coherent policy implementation still remains today.

6.1.1 Understanding, appreciation and ownership of the value of green jobs and green skills

Greening jobs and skills is a massive task but can be systematically tackled through mainstreaming of green values at all levels, i.e. households, communities, and public and private institutions.

The task of greening the environment and the economy is massive. It spans the entire society and requires a whole-of-government approach. Promotion of green environment, green economy, green jobs and green skills needs to be internalized at all levels of Philippine society, including both producers and consumers and especially those in the business sector.

Ownership of the concept of green jobs and skills is needed across the board, from national to local levels and social partners, that is employers, workers, government and NGOs. This study noted that the involvement of workers’ organizations and trade unions in skills development in general has been uneven and this is mirrored in the current green campaign.

If the TVET sector is to be a key driver of the greening process in Philippine society, then green jobs and green skills must be internalized within TESDA and its constituency, that is the technical and vocational training institutions. Furthermore, a whole-of-government approach to greening the economy necessitates a levelling of perspectives, especially among the stakeholders in green skills development.

While there appears to be an appreciation of environmental sustainability as a feature of green jobs, the aspect of decent work appears to be less appreciated and internalized. This idea has to take root in the minds of everyone. “Green jobs” denotes jobs that promote sustainable development and improve the quality of life, that is decent jobs. *Employers must embrace decent work as a vital element of green jobs.*

Green skills is more than just knowledge and skills – it is a value, an attitude and a world-view. What the Philippines needs is education for sustainable development.

Green jobs and green skills are relatively new in the Philippine scene. It represents a global value and attitude that has inter-generational impact apart from easing living conditions

¹¹⁶ Rene Ofreneo. 2010:77.

and improving the quality of life of the current inhabitants of Planet Earth. Green jobs and green skills combine and translate two contemporary national values – the value of ecological health and wealth and the value of decent jobs and decent lives – into practical terms that impact on day-to-day living.

“What is necessary is a systematically facilitated, large scale mental/psychological transformation. This doesn’t mean just raising awareness. Rather, every person must use the opportunity to acquire the special values and knowledge, abilities and skills that everyone will need to shape a future worth living. We have to learn sustainability – in school or out of school settings...”¹¹⁷

There is a need to mainstream the green agenda into the entire education system, alternatively named education for sustainable development. This implies integrating the green agenda in the DepEd and CHED. With the K-12, DepEd has introduced the technical and vocational track for senior high-school students. At that stage the notion of green skills should already be incorporated. In fact, the basic education programme should already incorporate the notion of green jobs and green skills so that children will acquire an understanding of the value of the environment and decent work. In this way the building blocks for inclusive growth and social justice will be laid out.

6.1.2 Leveraging and enhancing governance for Green Jobs and Green Skills

The government is duty-bound to spearhead the greening of jobs and skills at all levels, national and local. LGUs have a special role to play in propagating green jobs and skills in their respective jurisdictions. Government can stimulate, motivate, orient and educate the bureaucracy toward green jobs. It can create a friendly environment to encourage and assist the private sector in investing and venturing into projects that foster green jobs.

As an example, the young entrepreneur Leandro Legarda set up Solar Philippines, a firm that creates solar farms and rooftop panels for malls and in populated centres in capital cities. Legarda said “We built the Calatagan 63.3 MW Solar Farm in four months, with 2,500 people and a lot of hard work, and by the end, the team could be proud of completing the first and only 100 per cent Filipino solar farm.” His company has turned SM North into the biggest solar-powered mall in the world. Assuming the firm pays for decent jobs, the 2,500 jobs can be considered as green jobs.

In the private sector, entrepreneurs, firm owners, CEOs and top managers have the prerogative and responsibility to create green jobs to comply with the green requirements of the government or to optimize business profitability. The DOLE and DTI can play key roles here since they are responsible for overseeing and regulating jobs in the private sector.

Government is strategically positioned to produce green jobs in the public sector. It can play numerous roles to spur the greening of jobs and the creation of green jobs.

Government has the power to influence and regulate other sectors within the bureaucracy to ensure that they are dedicated to creating green jobs. It can leverage the mandates and resources, especially human resources in its various instrumentalities, agencies and administrative mechanisms, to create green jobs. The creation of Pollution Control Officers in all establishments illustrates this. Over the years the number of PCOs has grown and they are being professionalized through regular training and development activities undertaken by accredited providers.

In the public sector, the line agencies recommend creation of jobs, integrating them into their staff line-up, and having them approved by the Department of Budget and Management. The DENR provides technical assistance to ensure that such jobs are green. Once approved by DBM, budgets are appropriated for the positions, job descriptions and terms of reference for the green jobs submitted to the Civil Service Commission (CSC).

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Therefore the latter must be included in the government-wide campaign for greening jobs. Furthermore the CSC, as the central personnel agency of the government, can catalyse and intensify green jobs mainstreaming through its various human resource development systems, for example recruitment, selection, induction training programmes, performance monitoring, and so forth.

DOST's role in propagating innovation and technology that fosters green jobs and skills must be further reinforced. Likewise, the role of the Department of Agriculture must be strengthened and expanded, considering that the bulk of workers are in the agriculture sector and are mostly unskilled or semi-skilled, Farmers and fishery workers are among those who most feel the negative impacts of unsustainable production practices. In their workplaces they might be confronted with overuse of chemicals jeopardizing their health, or their livelihoods are threatened by soil erosion or recurring floods on their farms and fields.

Government has a distinct role in ensuring policy coherence, facilitating implementation and fostering convergence of policies pertaining to green jobs and green skills. NEDA has an important role to play in this regard.

National policies can drive the production of green jobs and green skills but local policies can obstruct this drive. For example, LGUs that permit private entities to mine natural resources without due regard for the impact on the community and its inhabitants and that tolerate exploitative conditions of work countervail the spirit of the Green Jobs Act. Similarly, mindless conversion of agricultural lands into real estate reduces productive lands for food production.

Inasmuch as the Philippines has ratified the Framework Convention on Tobacco Control, it is incumbent on the government to provide alternative livelihoods for tobacco farmers in the form of green jobs. Many studies have shown that tobacco farming exposes farmers to harmful chemicals and pesticides. Moreover farm workers, including their children, are at risk of green tobacco sickness (GTS) caused by dermal absorption of nicotine.

There are some examples of deliberate attempts to encourage convergence between sectors such as agriculture, tourism and energy. "In a bid to help educate farmers of various techniques in production and effective farm management, the TESDA has partnered with the DA to establish farm schools across the country. The two agencies have partnered for the establishment of the Agricultural Training Institute (ATI) Farm School in the Mimaropa¹¹⁸ region. The TESDA Director General has directed all its regional and provincial directors nationwide to promote farm school in their areas to increase the number of enrollees. The farm schools under the supervision of TESDA and the DA were based on the Farm Field Schools developed by the United Nation Food Agriculture Organization". "Farm schools aim to help farmers become more competitive, and also to enable them to take advantage of the market opportunities," TESDA noted.¹¹⁹

Senator Cynthia Villar, for example, is encouraging more farmers to convert farms into tourist destinations, which necessarily requires interfaces between the agriculture and tourism sectors. As Chair of the Senate Committee on Agriculture and Food, she is the principal author of the Farm Tourism Act. In line with this she has launched a farm school directory to guide farm enthusiasts and inspire farm owners to convert their farms into tourism destinations. The directory contains a list of farm tourism destinations all over the country. It also includes a list of TESDA-accredited courses on agriculture which farm schools and farmers can teach and of which students can avail themselves without cost in accredited learning sites nearby. The directory is a project of the Villar Social Institute for Poverty Alleviation and Governance (Villar SIPAG) in partnership with TESDA, the Department of Agriculture and the Department of Tourism.¹²⁰

Convergence of energy, agriculture and environment is now being called for in an endeavour to promote inclusive growth. Thus in

¹¹⁸ Mindanao, Masbate, Romblon and Palawan.

¹¹⁹ <https://insidemanila.ph/article/2080/TESDA-DA-to-create-Agricultural-Training-Institute>.

¹²⁰ "Villar launches farm school directory, encourages more farmers to convert into tourist destinations. Fieldwork, MARID Agribusiness Digest, 16 June 2017.

March 2017, for the first time in Philippine history, bioenergy experts, project developers, feedstock suppliers, farmers, investors and key government agencies from the energy, environment and agriculture sectors came together in a summit to discuss the issues, challenges and potential solutions surrounding bioenergy in the country. There were presentations on Biomass, Biofuels and Waste to Energy.¹²¹

6.1.3 Readiness for Massive Greening of Jobs and Skills in the Philippines

The Philippines is well-poised to pursue the greening of jobs and skills, given that it has robust policies on environment and decent work and there are opportunities for greening jobs and creating green jobs under the present political regime. But the education and training sector, i.e. DepEd, TESDA and CHED should be more proactive in responding to the requirements of the green economy and green jobs.

The movement to green the environment in the Philippines began as early as the 1970s, spanning some forty years. But the movement for green jobs and green skills is still at a nascent stage.

The ILO-supported ILS study series that began in 2008 broke ground and conceptualized the notion of green jobs. The green jobs and green skills effort is still work in progress and the ILO Just Transition Project for Sustainable Development in 2016 is giving more impetus to deliberate and systematic identification of green jobs and green skills. Since 2010 some progress in laying the ground for promoting green skills can be cited, namely: 1) the Green Jobs Act of 2016; 2) the setting up of the Green Technology Center in 2015; and 3) the Green Jobs Mapping Study of 2014. Methods and tools are being developed to facilitate systematic identification of green skills for green jobs. There are existing mechanisms and programmes such as the PESOs and the ALMPs that can be vital channels for greening jobs and skills. Employment facilitation staff must therefore be oriented to the notion of green jobs.

What is needed is to step up TESDA's efforts in greening skills. In general, the Philippine TVET sector has been criticized for its slow reaction time. Training centres are slow to respond to new requirements and higher standards for training and education. It can be expected that new green technologies will change the TVET scenario and new curricula and course offerings would have to adapt accordingly. The link between the TVET sector and industry needs also to adjust and "tighten".

For its part, CHED must review and mainstream green jobs in the tertiary education curriculum.

The institutional arrangements for the PGJA needs some review to ensure policy coherence and coordinated implementation and to foster convergence and synergy. The CSC, DBM must be brought on board in the campaign for green jobs, especially in the public sector.

Resources can be mobilized from the Green Financing facilities that are now available in the country such as the Development Bank of the Philippines and the Land Bank.

Currently there are many opportunities for greening jobs and skills. Green skills could be a gateway to tackling the chronic unemployment and underemployment in the Philippines. It could be the platform for creating more and better jobs in the near future that could save unemployed youth and marginalized groups from joblessness and poverty.

The current thrust toward the massive building of infrastructure with a budget of 8 trillion pesos in the next five years is an excellent window for creating green jobs. Most of these infrastructures are roads, airports and irrigation, among others. The government can mandate contractors and infrastructure project implementers to ensure that the jobs will preserve and protect the environment and provide decent work. In practice, DPWH employees could require temporary employees to undergo "green training" before the employees are granted tenure and become permanent employees. However, this will require collaboration with the Civil Service Commission and the DENR to modify qualification standards to integrate

environmental knowledge and related skills that every civil servant should have.

In Metro Manila the Department of Transportation has launched its modernization programme for public utility vehicles. PUVs will now use electric engines. There is scope for developing occupations; for example, drivers and maintenance workers should be trained on jobs that are green. The plan is to form cooperatives where drivers will be employed. There are national and local government hospitals which need to set up solid waste management processes. The positions of people doing this work are currently titled as administrative aid posts. Again there is scope for greening these solid waste management processes in these hospitals.

In line with the ecotourism policy, the Department of Tourism can certainly provide assistance to the local governments to make their tourist attractions practice ecotourism such as those in Palawan and Bohol. For example the local government is able to generate half-a-million pesos a day from the underground river in Palawan. However, they maintain a policy of limiting the number of tourists. The green workers will include maintenance workers and the tour guides, and these are certainly green jobs.

Key challenges include the green jobs and green skills transition pertaining to the need for deep internalization of green values; mainstreaming of green jobs and skills in development plans at all levels; ensuring that environmental policies intersect with skills development policies; accelerating the greening of barangays and local communities; consolidating the knowledge base and popularizing knowledge at all levels and setting up a support system for people who want to make the green shift; and making it affordable to engage in green transition. For example, information on where to obtain affordable solar panels can facilitate access by people who want to install them in their homes.

6.2 Recommendations

6.2.1 Mind-setting across the entire population toward a green environment, economy, jobs and skills

This entails advocacy to the general population as well as to specific sectors. The TVET community needs to promote awareness of the demand for sustainability and green skills, and not only in new professions like the bio-energy sector. "In every industry or production cycle, natural resources and chemical inputs are used, and emissions and wastes generated—in growing vegetables, manufacturing shoes, or construction. Each worker engaged in these value chains, regardless of their educational level, has an impact on the production and consumption cycle. High-level policies, strategic plans, or innovative technologies will not have the impact hoped for, unless the workers on the ground have acquired the necessary green skills to put these ideas into practice. Without this capacity for change, the skills shortages of today become the skills gaps of tomorrow."¹²²

Special efforts are needed to encourage workers into advocacy for green skills and to enable their participation in promoting green skills. Aside from the trade unions, the NGOs can be harnessed in a more systematic way to foster green skills in each sector of the economy, especially in the agriculture, tourism and construction sectors.

TESDA, as an organization, should be the model in greening of TVET. This should be reflected in all the central and regional offices of TESDA. Moreover TESDA's initiatives during the first two years of the GTC should be consolidated to form the knowledge base for greening TVET.

TESDA must promote and catalyze processes for greening TVET. Other members of the agencies listed in the Green Jobs Act are members of the TESDA Board and they could be the champions of green TVET and promote discussion in the highest decision-making bodies such as the Cabinet.

¹²² Montague 2013, 209f; 219f.

6.2.2 Intensify the mainstreaming of the green agenda in the tvet sector. Improving existing vocational skills is more important than developing new specialized green jobs and green tvet

Many of the skills needed in a green economy can be covered by already existing jobs; a balance of generic skills, for example in terms of autonomy and communication, generic green skills (such as reducing waste and improving energy and resource efficiency) and topping-up existing job-related skills is much more important for developing a low-carbon economy than more specialized green skills.¹²³

“Given the interrelationship between the greening of TVET and market demand for greener products and services, the function of TVET should not be limited to the transfer of technical knowledge for new job profiles in areas such as renewable energy. TVET should also be a contributor to strategies that promote the integration of principles of sustainable development into life-long learning. This approach is particularly important for those who have little or no access to a ladder educational system. Green/sustainable development is a cross-sectoral issue of growing significance in the world of work (especially in agriculture and labor-intensive manufacturing). It will take time for TVET and the entire educational system to more effectively match the specific demands of traditional and modern industries as they negotiate the greening process. Nevertheless climate change requires immediate action.”¹²⁴

TESDA needs to: 1) *intensify and speed up the greening of training regulations and disseminate the green agenda to the tripartite sectors and the training providers. It should sustain the earlier work on training regulations; for example, tourism, manufacturing and agriculture are expected to be key job generators;* 2) *integrate the green agenda into enterprise training and in community-based training and enhance the quality of*

*training using these two modalities; and 3) harness the scholarships and linkages with government technical-vocational schools and State universities and colleges offering TVET programmes in order to provide access for a greater number of trainees.*¹²⁵

As regards the PDP, this “community-based training will be promoted by identifying and supplying the specific skills requirements of different barangays. It will be area specific, resource based, flexible, holistic, and product and service oriented. It will use the community driven approach to training delivery, and continuous consultations and collaboration at the grassroots level with government agencies. Attention will be given to informal workers, indigenous peoples, farmers, fisher folk, drug dependents, rebel returnees, women victims of abuse and human trafficking, returning and repatriated OFWs, and PWDs so that they become active participants in the development process.”¹²⁶ For these target groups the most likely starting point in skills transformation will be enhancing and expanding their existing work skills through knowledge transfer and practical training. This might focus on new work routines that have a positive effect on their livelihoods and, on a larger scale, contribute to a green economy and sustainable development. New capabilities will, for example, entail different practices in the handling and use of chemicals, different routines for waste management or increased attention to safety and health protection in daily work activities. In agriculture, for example, this might also include adjusted protocols for soil protection, or the choice of seeds and crops that are more resilient to changing climatic conditions.

Regarding greening of TVET, the immediate imperative is for TESDA to convene a strategic envisioning and planning workshop to define the future direction and role of the GTC. The latter is a vital resource in the greening of TVET as it can be a primary advocate, as well as the “think tank” knowledge manager on green technology, and the provider of technical advice to technical and vocational education institutions on greening of jobs and skills. Defining the GTC’s mission is

¹²³ CEDEFOP 2010, 1 in BMZ. TVET for a Green Economy 2015:33.

¹²⁴ Katharina Baumgarten & Stephen Kunz, 2015.

¹²⁵ Philippine Development Plan (PDP) 2017-2022.

¹²⁶ Philippine Development Plan (PDP) 2017-2022.

crucial to unleashing its potential; certainly this is a task for TESDA and its stakeholders.

6.2.3 promote and SUPPORT GREENING of the barangays and local communities

1) *Highlight, popularize and support the successes of greening at the local level.* LGUs have some success stories in greening such as LOAM-C. Their experiences can be documented and disseminated to a larger public. Their good practices in green agriculture can be presented in such a way as to persuade other LGUs to subscribe and follow the green path.

2) *Enforce the environmental laws in all the barangays nationwide.* For example, the Solid Waste Management laws and the Organic Act have not been fully implemented. The demand for green jobs and skills will emerge from the enforcement of such laws.

3) *Foster greening of the environment initiatives* such as low-cost but climate-change-friendly projects, such as mangrove plantations, dredging of waterways; concreting of flood walls and pathways; strengthening or rebuilding of multipurpose community centres (which also serve as refugee centres in times of disaster), strengthening of dykes, building cheap but stronger homes, and so forth.

6.2.4 Enhance the enabling environment for green skills development

1) *Consolidate the knowledge base, especially science and technology discoveries and innovations as well as successful practices in greening jobs in all the economic sectors at all levels i.e. household, community, and organization.* High-tech industries are already speaking of the next industrial age. Technology-based and smart solutions can be adapted to any industry if the right values are assigned to both the environment and to people.

2) *The Philippines must seek knowledge and experience from neighbouring countries in greening TVET.* For example, an association such as ASEAN has a common vision and policy,

but the greening of TVET will probably lead to a diversity of approaches across jurisdictions. Common guiding principles are needed to successfully address technical issues such as teacher training, curriculum development and training delivery.

3) *Support green initiatives and investments in the private sector that foster environmental sustainability.* For example, the PCCI reported that they have been recognizing companies that have initiated sustainable environment processes in their businesses.¹²⁷

4) *Continue greening the environment by enforcing the laws and educating people.*

Donor agencies, including the ILO, possibly under its Just Transition Project, can provide technical assistance to strengthen the institutional capacity of DOLE and TESDA and to speed up processes such as greening of training regulations that are essential tools for greening TVET in the country. Similarly, donors could support national agencies that have standard-setting functions, such as the DPWH, in the dissemination and actual application of the Green Building Code.

At the 2nd SONA of Philippine President Duterte on 24 July 2017, he stated that climate change is a priority concern. The matter of green jobs and green skills can be discussed at Cabinet level within the rubric of climate change impact and its socio-economic implications. This should also promote convergence of relevant agencies and institutions in the bureaucracy. The DOLE, TESDA and CCC, all members of the Cabinet, should jointly champion the advocacy for greening jobs using the PGJA as their policy platform.

All told, now that the IRR has been signed, it is high time for DOLE to set in motion the preparation of the Green Jobs HRD Plan utilizing and building on the Industry Roadmaps completed by DTI such as those on bamboo, cacao, copper manufacturing, and so forth.

¹²⁷ PCCI Representative to the Validation Meeting on Skills for Green Jobs, 14 September 2017, ILO Country Office, Makati, Metro Manila.

7. Annexes

Annex 1: Key Policies and Regulations

1.1 Greening the environment

Until today, there are still an estimated 7.1 million hectares of unproductive, denuded and degraded forestlands which contribute to environment-related risks such as soil erosion, landslides, and flooding. To accelerate the rehabilitation and reforestation of these unproductive, denuded and degraded areas, the government seeks participation and investment by the private sector, with a view to enabling private companies to achieve carbon neutrality. DENR programmes address this concern:

The National Greening Programme and the Reforestation Programme led by DENR sought to plant 1.5 billion trees in 1.5 million hectares from 2011-2016. It was expanded to cover all remaining unproductive, denuded and degraded forestlands and its period of implementation has been extended from 2016 to 2028. Implementation of the NGP was launched through Executive Order 26 as a government priority to reduce poverty, promote food security, environmental stability and biodiversity conservation, and enhance climate change mitigation and adaptation. Under EO26 three key national agencies, namely DENR, DA and DAR, were instructed to converge their activities toward focused and unified interventions for sustainable rural development. The NGP requires Filipinos to change the way they think about trees and forests by valuing forests as precious national resources. <http://www.denr.gov.ph/news-and-features/features/254-national-greening-programme-visioning-a-green-renaissance-in-the-philippines-.html>

The NGP was expanded under Executive Order 193 signed by President B. Aquino on 12 November 2016 to cover all the remaining unproductive, denuded and degraded

forestlands and its period of implementation is extended from 2016 to 2028. The EO encourages all sectors, particularly the private sector, to actively participate in the Expanded National Greening Programme. It also tasked the DENR with issuing the appropriate rules and regulations within 60 days of the effective date of the EO. The Expanded National Greening Programme will be funded by the current appropriation of the DENR. Subsequent funding requirements will be incorporated in the annual budget proposal of the DENR through the General Appropriations Act.

In issuing EO 193 President Aquino noted that in the Global Forest Resources Assessment for 2015 the Food and Agriculture Organization ranked the Philippines as 5th worldwide in terms of greatest forest area gain from 2010 to 2015. <http://www.sunstar.com.ph/manila/local-news/2015/11/26/government-extends-national-greening-programme-until-2028-443663> The Government is extending the National Greening Programme until 2028.

The Forest Restoration Programme. The DENR Forest Management Bureau drew up a Forest Industry Roadmap as a step towards reviving the ailing forestry industry. The focus of the roadmap is the plantations established from 2011 to 2016 and will be implemented from 2018 to 2028 (Mailene Laviña, planning and programming section chief of the National Greening Programme). The types of landscape requiring restoration efforts at country level in the Philippines are: open and degraded forest ecosystems, wooded lands, and mangrove ecosystems; and existing forest that risks degradation and deforestation. <http://www.fao.org/in-action/forest-landscape-restoration-mechanism/activities/national/philippines/en/>

The Forest and Landscape Restoration Mechanism will focus on the rehabilitation of degraded forestlands, intensification of

protection and conservation of existing forests and protected areas for biodiversity conservation, and adoption of measures for soil stabilization. Crosscutting approaches will be developed with capacity-building on forest restoration and management, establishment of baselines, GIS mapping, development of knowledge products, planning, monitoring and reporting, putting in place of appropriate support mechanisms (platforms) and relevant systems of rewards and incentives, and so forth.

International Commitments under the FLR Initiative. The Philippines is committed to achieving the APEC target of increasing forest cover in Asia and the Pacific by 20 million hectares by 2020. It participates in the International Model Forest Network (IMFN) through the Asia Regional Model Forest Network. It is also committed by the three main Rio Conventions to the following:

- Creation of the Climate Change Commission (CCC) as the lead policy-making body of the government, tasked with coordinating, monitoring and evaluation of government programmes and ensuring mainstreaming of climate change in national, local, and sector development plans towards a climate-resilient and climate-smart Philippines.
- Preparation and adoption of the National Action Plan (NAP) in combatting desertification, land degradation and drought in the context of UNCCD.
- Preparation and adoption of a strategic plan for the thematic programmes of the CBD, covering the following: forests and mountains, agriculture, inland waters, coastal and marine areas and islands.

Measures in the Philippines will focus on three outputs, namely: (i) measures focused on an “enabling environment” of forest and landscape restoration (governance, inter-sector coordination, enabling environment, assessment and monitoring of FLR, etc.); (ii) measures focused on “resource mobilization” including on public and private investments and partnerships (national fund/CSR platform) or on mobilization of climate finance¹²⁸ (GCF)

and GEF and (iii) measures focused on “pilot actions in Philippines” with pilot activities on the implementation of methodological and business models potentially replicable in other area with future funds from Green Climate Fund /LDN-funded project proposals in the main areas of the Philippines. The 2016-2018 work plan was to be implemented in two phases with a first round of support in 2016 and a second round in 2017, to be managed by FAO Philippines with headquarters and regional offices for technical support.

Among the DENR programmes to green the environment are those pertaining to air and water pollution control, solid waste management, land reform, and biodiversity conservation. This is complemented by the energy programme to develop renewable energy and eliminate the use of fossil fuels, along with the research and development work of the Department of Science and Technology. Parallel moves have been taken in various economic sectors, namely industry, manufacturing and services, as well as in agriculture and energy, as explained in Section 3.3.

Climate change policy actions: No to fossil fuel!

The Climate Change Commission, under the Office of the President, is the government’s leading policy-making body “mandated to coordinate, monitor and evaluate state programmes and ensure mainstreaming of climate change in national, local and sector development plans toward a climate-resilient and climate-smart Philippines.”

<http://www.bworldonline.com/content.php?section=Economy&title=climate-change-commission-starts-review-of-energy-policy-covering-coal-fired-plants&id=129138>

The Philippines pledged a conditional 70 per cent reduction in GHG emissions by 2030 relative to a business-as-usual scenario for the period 2000-2030, which it stated would come from the energy, transport, waste, forestry and industry sectors. With a view to a low-carbon economy, the CCC is reviewing the government’s energy policy that is expected to reshape the country’s power development plans and replace coal with renewable sources of energy. A whole-of-nation

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approach is required in a comprehensive review of the government's energy policy to achieve a low-carbon development pathway and national goals and targets for climate change mitigation and adaptation, disaster risk reduction and a comprehensive sustainable-development-oriented review of the government's energy policy. The policy review is crucial to fulfilling the country's commitments under the Paris climate accord to keep the global temperature rise below 1.5 degrees Celsius and avoid the worst impacts of climate change.

A CCC resolution in May 2017 urged the DENR and the DoE to "initiate and coordinate discussions" over coal power plants to arrive at a low-carbon development plan for the energy sector. The resolution called on the DENR, DoE and NEDA to participate in the review of the government's energy policy. The CCC would "facilitate at least three meetings of its advisory board, serving as steering committee", as well as "three sub-national business summits; 10 roundtable discussions; and 10 technical working group meetings throughout the six months of the policy review process..." Between now and 2019 a number of coal-fired power plants are expected to start operating in the country's main island groups, the biggest concentration of which will be in Mindanao. The latter has long suffered from power interruptions because of inadequate power supply.
<http://www.bworldonline.com/content.php?section=Economy&title=climate-change-commission-starts-review-of-energy-policy-covering-coal-fired-plants&id=129138>

1.2 Greening the Economy

The extent of green adoption varies according to the economic sectors (e.g. industry and manufacturing, services and agriculture). The greening potential of an economic sector and criteria for determining the greening potential and readiness of a sector to adopt green jobs were analysed by the DOLE-ILS (Cynthia Cruz, Determinants of Greening Potential and Readiness of a Sector, ILS Study Series, 2009).

Industry

The DTI initiated the greening of industry by formulating Industry Road Maps in selected sectors: *Automotive Manufacturers, Auto Parts Industry, Pulp and Paper Industry, Plastic Industry, Housing Industry, and Furniture Industry*. Under the ProGED (Promotion of Green Economic Development) projects, the transition to a green economy was initiated in the industry and service sector. The projects include Greening the Manufacturing Industry Road Map, Greening the MSME Sector and Greening Public Procurement.

Looking to the future, the ProGED observed that: "...taking into account the developments of the past 40 years and the current trends, it can be predicted that by 2020, the following parameters will also have become reality in the Philippines:

- Advanced environmental standards and environmental-health-related consumer preferences are an integral part of major markets;
- Markets for green technologies and services (renewable energies, resource-efficient technologies, waste management, etc.) are at an advanced stage;
- Environmental legislation has been further elaborated and is much more efficiently and comprehensively enforced;
- Energy, water provision, water treatment and waste management are significant cost factors in production and service provision;
- Climate-change-resilient infrastructure has become key to attracting foreign investment;
- A global/regional governance scheme for the mitigation of Greenhouse Gas Emissions (GHG) fosters investments for technological and process innovation;
- Public and private investment has opened the market potential for new business solutions as climate-smart management of transport systems and of building structures."

Greening the Manufacturing Industry Road Map is an offshoot of the (ProGED), worth PhP 2.1-million, and aims to integrate Green Economic Development (GED) in the industry

sector policies of the Philippines. It seeks to propel climate-smart, environment-friendly, and globally-competitive industries, particularly in the following six manufacturing sectors of the Philippines: *Automotive Manufacturers, Auto Parts Industry, Pulp and Paper Industry, Plastic Industry, Housing Industry, and Furniture Industry*. These roadmaps take into account the world-wide trend towards factoring in environmental standards and climate change while ensuring competitiveness, good business performance and job creation.

In 2016, drawing up the manufacturing industry roadmaps entailed consultations on the integration of green elements in six priority industry roadmaps: automotive industry, paper, plastics, copper, furniture, and mass housing. The findings and recommendations were presented at a Greening Forum in March 2016. Subsequently, in September 2016 Dr. Bernd Gutterer, external consultant for the Greening the Industry Roadmaps initiative, assessed the usefulness and effectiveness of the Greening the Industry Roadmap intervention of ProGED. He also consulted with the DTI Green Growth Core Group to review progress with implementing the recommendations on the development of the green results framework. He also met with BOI sector champions and representatives of the six priority sectors (i.e. automotive industry, copper, plastics, mass housing, paper, and furniture) to receive updates on progress of work on the greening the industry roadmap and on the ongoing greening activities of the industry, and discussed future measures that the industry could implement. Then on 15 September 2016 the consultant met again with the members of the DTI Green Growth Core Group to review progress on the development of the DTI Green Results Framework (GRF). The meeting also held discussions with the Global Green Growth Initiative (GGGI) on possible collaboration in the future development of the GRF.

In cooperation with other government entities, DTI is tasked with contributing to the setting of framework conditions and building up capacities in support of a paradigm shift towards an innovation process that results in competitiveness, good environmental performance, climate change resilience, and job

creation (Source: Greening the Manufacturing Industry Roadmap, April 2015, GIZ).

Greening the MSME Sector. Another ProGED project, the Green Growth Cooperation (2015-2017), seeks to formalize a framework of cooperation and facilitate collaboration between the Global Green Growth Institute (GGGI) and DTI to promote programmes, research, and joint activities in support of capacity-building and development of green economic growth options to strengthen the business case for greening the MSME sector and boost its contribution to the national economy. The areas of cooperation are: 1) Business Case Preparation, 2) Mainstreaming Green Growth in the Planning Process, and 3) Capacity-Building for DTI Green Growth Advocates.

The GGGI funds this project and it is handled by DTI-Regional Operations Group (ROG), DTI-Corporate Planning Service (CorPlan), and DTI-Human Resource and Administrative Service (HRAS).

In 2016 the project conducted a situational analysis on the readiness to go green of SMEs in the food manufacturing sector in preparation for the conduct of the Case Study on Green SME Best Practices in the Philippines. The study was to focus on the cacao, coffee, and processed fruits and nuts sectors and was commissioned to a consulting group named ASSIST. Meetings were held on 11 October 2016 to discuss the business case study and agree on the way forward. The group agreed that the focus sectors are: *coffee, cacao, pili nuts, and processed fruit (banana)*. Each of the four sectors would have three representative firms, totalling 12 firms, to reflect analysis for low, medium and high levels of intervention with zero or low cost greening practices.

In December 2016, the Cost Benefit Analysis (CBA) Framework and methodology that the external consultant will use in data collection was presented. Through a Department Order, DTI created a Management Committee on Green Growth Cooperation and coordinated with the GGGI Team and Corporate Planning Unit to identify and agree on the key activities to be undertaken by DTI and GGGI throughout the

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year. Furthermore a Consultative Management Workshop for the Green Cooperation Framework was held on 30 September 2016 at the Makati Diamond Residences, Makati City. The workshop aimed at identifying key steps on how to go about mainstreaming green growth in the Department's planning process.

DTI shared its experience in greening the economy at the Global Green Growth Week at Jeju Island, South Korea on 5-9 September 2016. The DTI-Resource Generation and Management Service (RGMS) Director (Lydia R. Guevarra) presented a paper on "Investing in Climate Resilient Green Growth in the Philippines," together with officials from the Climate Change Commission (CCC) and the National Economic and Development Authority (NEDA). She presented DTI's various initiatives on green economic development (source: Greening the Manufacturing Industry Roadmap, GIZ, April 2015).

Greening Public Procurement. The Green Public Procurement (2013-2016), a 169.2 million pesos project, seeks to provide incentives for government contractors to produce ecologically-certified products. The project aims to create and pilot a replicable and workable innovation in the procurement systems to promote sustainable development in the country. DTI leads this project in collaboration with the Department of Budget and Management (DBM-PS), EU-SWITCH, Government Procurement Policy Board – Technical Support Office (GPPB-TSO), National Economic Development Authority (NEDA), and Philippine Economic Zone Authority (PEZA). The EU funds the project through SWITCH Asia.

In 2016 the project (i) formulated policy recommendations for incorporation of GPP criteria into RA 9184 (Government Procurement Reform Act); (ii) drafted a module on green criteria development, formulation of bid documents, and evaluating tenders; (iii) conducted suppliers' fora on green public procurement; (iv) conducted a test purchase of green products (LED), capacity-building for GPP programme managers and procurement officers through training workshops; (v) engaged with relevant government agencies (DBM-PS, GPPB, CoA, DENR) and ASEAN governments

and partners on exchange of information and capacity-building; (vi) applied GPP criteria for procurement of lighting equipment (LED); (vii) organized a Vendors Forum on Green Public Procurement; (viii) facilitated the preparation and submission to SWITCH Philippines of an energy audit proposal by the Philippine Plastic Industry Association; and (ix) facilitated meetings and workshops for (a) the GPP Technical Working Group (TWG) to draft the Terms of Reference (ToR) of Experts on Procurement of Green Products, and (b) for the GPP Project Management to draft the ToR for a Project Monitoring and Evaluation (M&E) expert.

The project also conducted a Workshop on Priority Product Selection and Technical Specifications for the Mainstreaming of Green Public Procurement with Implementing Partners (i.e. DBM-PS, DTI, EU-SWITCH, GPPB-TSO, NEDA, PEZA) and held consultations with EU SWITCH technical experts with the following Industry Associations: Semiconductor and Electronics Industries in the Philippines (SEIPI), Concepcion Industries Corporation (on air-conditioning products), Philippine Plastic Industry Association, Inc. (PPIA), and the Chemical Industries Association of the Philippines (SPIK).

The project also conducted workshops to develop the list of Commonly Supplied Equipment (CSE) and non-CSE for inclusion in the development of green specifications for public procurement, and engaged with the private sector on the provision of technical assistance and on accessing government procurement processes (source: Greening the Manufacturing Industry Roadmap, GIZ, April 2015).

Greening Services

The Services sector in the Philippines has dominated the labour market owing to the exponential growth of the IT Services industry. The strong Services sector, including the booming ICT industry, has mostly recruited graduates from tertiary education. There are certain small initiatives in green technology and related qualifications, but these activities make up only a small percentage of TVET activity and niche markets (in Baumgarten and Kunz, 2015: section 3.2.).

The Services sector includes communication, travel and transport, construction, and so forth. In the present report the focus will be on the tourism and construction sectors as these are potential job generators. As early as 2010 the ILS rated the construction sector as sufficiently green in the light of the private initiatives for green building certification, eco-sustainable communities and public-private partnerships for energy efficiency (Cynthia Cruz. Determinants of Green Potential: A Framework for Sectoral Analysis. ILS Discussion Paper Series 03-2010:17 of 18).

Tourism

Tourism is a potential green job and revenue generator for the country. In 2015 it contributed 10.6 per cent to GDP. In 2015 4.99 million Filipinos were employed in the tourism sector and in 2015 the government collected 227.62 billion pesos from a total of 5,360,682 foreign visitors.

In 2016 tourism contributed 8.6 per cent to GDP, using tourism's direct gross value added as a measure. The TDCVA amounted to 1,234.5 billion pesos in 2016, an increase of 13.7 per cent over the previous year's.

<https://psa.gov.ph/tourism-satellite-accounts-press-releases>

The Department of Tourism (DOT) aimed to achieve 6 million tourist arrivals in 2016. It recognized ecotourism as a sector poised to drive tourism's success. The Philippine National Ecotourism Strategy (NES) and Action Plan (2013–2022) has identified a potential market size of 1.5 million to 14.2 million eco-tourists. Ecotourism, as defined by NES, is a form of sustainable tourism within a natural and cultural heritage area in which community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics, as well as economic benefits, are fostered and pursued for the enrichment of host communities and the satisfaction of visitors.

Two key policies supporting tourism are: Executive Order 111 and the Farm Tourism Development Act.

Executive Order 111 provides a definite framework for the creation of a regulated ecotourism State in the Philippines and the creation of the National Ecotourism Development Council and various national and local ecotourism steering committees. These bodies are responsible for the design of sustainable, long-term business practices in Philippine ecotourism and the implementation of these plans and the enforcement of the regulations that they promulgate.

Ecotourism activities are often handled at local level. Local governing bodies create specific rules, regulations and tours, and appoint managers for specific areas. For the people of the rural Philippines this has been a major economic boon. This is because many of these local governing bodies require that tourists hire local guides to take them into protected local areas. This is not necessarily true for all areas in the Philippines, but there are some areas that engage in this practice.

http://www.internationalwildlifelaw.org/phil_animal_act.html

R.A. No. 10816, also known as the “Farm Tourism Development Act of 2016” (the “Act”), was signed into law on 23 May 2016. Farm tourism, as defined by the law, is the practice of attracting visitors and tourists to farm areas for production, educational, and recreational purposes which involves any agricultural or fishery-based operation or activity and may also provide a venue for outdoor recreation and accessible family outings.

The Act recognizes that combining tourism with agriculture can promote the value of agriculture in the economic and cultural development of the country, serve as a catalyst for the development of agriculture and fishery communities, and provide additional income for farmers, farmworkers and fisher workers. The Act seeks to promote environment-friendly, efficient and sustainable farm practices; provide alternative recreation facilities and farm tourism activities for families, students and other clientele; and promote health and wellness with high-quality farm-produced food. It created the Farm Tourism Development Board under the Department of Tourism (DoT).

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With the secretaries of the DoT and Department of Agriculture at the helm, acting as Chair and Vice-Chair respectively, the Board formulates and sets the overall direction for implementation of a Farm Tourism Strategic Action Plan (the “Plan”) which is a comprehensive set of programmes, projects and activities for the growth of farm tourism in the country.

The Plan has to be integrated and made consistent with the National Tourism Development Plan. It has to cover various areas of concern such as investment promotion and financing; market research, trends, innovations and information; accreditation of farm tourism camps; market promotion and development; agriculture and fishery research, development and extension; institutional and human resource development; and infrastructure support. It would likewise define the roles and responsibilities of national government agencies, local government units (LGUs), farm tourism operators, tour operators, educational institutions, and other industry stakeholders in its implementation.

In terms of investment promotion and financing, the DoT, DA and DTI will develop programmes linking stakeholders in the farm tourism industry, government financial institutions, government-owned or controlled corporations, private banks, financial cooperatives and other lending institutions to increase access to credit for farm tourism.

Moreover, under the Act, incentives under the Organic Agriculture Act of 2010 (RA 10068) may also apply to farm tourism activities, such as: a) exemption from the payment of duties on the importation of agricultural equipment, machinery and implements as provided under the amended Agriculture and Fisheries Modernization Act;; b) identification by LGUs of local taxes that may be offered as incentives to for organic input production and utilization;; c) provision of preferential rates and a special window to for organic input producers and users at the Land Bank of the Philippines;; d) subsidies for certification fees and other support services to facilitate organic certification;; e) zero-rated value added tax on transactions involving the sales/ or purchase of bio-organic products,

whether organic inputs or organic produce; and f) an Income Tax Holiday for seven years, starting from the date of registration with the concerned investment promotion agency for organic food and organic input producers. These incentives may encourage local investors to consider investing some of their funds in organic tourism. Even retiring employees may find it useful to spend their retirement pay in on such ventures, just likeas with the one prosperously successfully established by a retired employee in Majayjay, Laguna.

The Board, in consultation with the concerned government agencies, LGUs and their colleagues, and farm tourism industry stakeholders, has 90 days from the effectivity of the Act to issue the implementing rules and regulations.

Philippines Improving the Competitiveness of Tourism Project. The Philippines is an ecotourism destination yet only a few eco-lodges, eco-guides and eco-tours are accredited with DOT. This area of concern has provided an impetus to *reviewing of ecotourism rules and regulations promulgated in 2008*. The review aimed to assess the ecotourism standards under the RIA framework and provide policy options to ensure ecotourism regulations are efficient and relevant to the industry. The Philippines Improving Competitiveness in Tourism (PICTourism) programme, a technical assistance project for DOT administered by the Asian Development Bank and funded by the Government of Canada, is reviewing the current ecotourism standards and regulations. This review is being done under PICTourism’s Regulatory Impact Assessments (RIA) output, focused on the review of tourism-related regulations. Such a review will facilitate identification of challenges and steps to move ecotourism forward. (<http://www.pictourism.ph/index.php/press-updates/134-sustainable-and-vibrant-ecotourism-a-vital-component-for-philippine-tourism-growth-says-dot>)

Green jobs

The Department of Tourism (DOT) held a Tourism Skills Forum in January 2017 at which updates were presented on the Tourism Industry Skills Development Programme (TISDP), a

key component of the Philippine Improving Competitiveness in Tourism (PICTourism) project. It focuses on improving quality standards of tourism through interventions in the areas of quality assurance and accreditation of hotels and resorts, skills development, and a regulatory review of the sector.

The TISDP has been designed as an innovative and flexible mechanism for addressing the training and development needs of the existing tourism industry workforce. Its activities include improvement of tourism curricula and teaching methodologies, the conduct of research and the Industry Skills Grant Scheme (ISGS) which extends financial assistance to tourism-oriented firms to improve their human resources. The first round of grants was awarded in 2014, amounting to US\$850,000. The 26 recipients benefitted around 4,200 employees of tourism enterprises, community service organizations (CSO) and industry associations in the pilot provinces of Bohol, Cebu, Davao and Palawan. At present the grant for the first and second phases has reached \$1.243 million with a total of 7,545 trained. Among the grant recipients are the Bohol Association of Hotels, Resorts and Restaurants; Calamianes Association of Tourism Establishments (Palawan); Cebu Parklane; and Grand Menseng (Davao).

The ISGS has invariably raised the competitiveness of the tourism sector through the monetary grants for training programmes that centre on enhancing skills and competency levels, specifically of frontline service personnel.

An important output of the TISDP is the Tourism Human Resource Development Strategy that mirrors the details of the strategic direction on human resource development of the National Tourism Development Plan (NTDP), the industry's roadmap for tourism development. Specifically it supports efforts towards developing a more competent, well-motivated and productive workforce that is on a par with international standards, such as the ASEAN. It also seeks to support the certification process in consonance with the ASEAN Mutual Recognition Agreement (MRA) for Tourism Professionals to provide opportunities for cooperation and capacity-building and facilitate mobility within

the tourism sector in the country and in ASEAN. "It is the NTDP's vision for the Philippines to become the major source for highly trained workforce and center for tourism & hospitality training and education in the region." <http://www.malaya.com.ph/business-news/special-features/towards-building-more-competitive-tourism-work-force>

The TESDA Certification and its relevance to the Association of Southeast Asian Nations (ASEAN) Mutual Recognition Arrangement (MRA) was discussed in the Tourism Skills Forum but there was no mention of the inclusion of green jobs and green skills. <http://www.malaya.com.ph/business-news/special-features/towards-building-more-competitive-tourism-work-force>

Construction Services

The construction sector in the Philippines is a major industry that covers a wide range of activities such as design, engineering, site work, contracting of materials and labor and rental of related machinery. It employs 1.8 million workers or five per cent of the national total employed. Based on the census, construction firms employed 107,334 workers, more than a majority of whom are engaged in general engineering construction. "The Philippine Statistics Office states the average annual growth rate of commercial and residential buildings is over 500 per cent. Buildings consume 63 per cent of the country's energy supply, according to 2013 data from the Department of Energy." (IFC, 2016).

The share of the construction industry in the total employment of the country was 8.2 per cent in 2016. It continued to provide job opportunities, employing on average a total of 3.72 million workers in 2016, a rise of 38 per cent compared with the 2.697 million workers in 2015 (2015 Construction Industry Performance Highlights, Impact on the Philippine Economy, 2016).

Green construction is the practice of erecting buildings and using processes that are environmentally responsible and resource-efficient. Green buildings limit their environmental impact by conserving as much energy and water as possible and are

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constructed of recycled or renewable materials so as to achieve maximum resource-efficiency.

The Philippine Green Building Code is now a part of the National Building Code. The GB Code, a Referral Code of the National Building Code (Presidential Decree No. 1096) was launched on 25 June 2015 by the Department of Public Works and Highways (DPWH), with the assistance of the World Bank-IFC and the technical support of the Philippine Green Building Initiative (PGBI). The latter is composed of accredited professional organizations in the building industry.

The general provisions of the Code provide for the protection of the people from the harmful effects of climate change. The Code seeks to improve the efficiency of building performance through a framework of standards that will enhance sound environmental and resource management to counter harmful gases throughout the buildings' life cycle, including efficient use of materials, site selection, planning, design, construction, use, occupancy, operation and maintenance, without a significant increase in cost.

The technical professionals, developers, contractors, property managers and building owners involved in the planning, design, construction and management of buildings have the opportunity and the responsibility to help the government address the adverse effects of climate change by ensuring that buildings are planned, designed, constructed, operated and maintained to the required efficiency levels.

Resources must be used efficiently to meet the developmental and environmental needs of the present and future generations equitably. Occupants of green buildings will benefit from improved indoor environmental quality, which promises higher productivity and better comfort.

The GB Code adopts a staggered or incremental approach and is subject to periodic review by the DPWH secretary through the National Building Code Development Office with a view to modifying or including new aspects and emerging efficient technologies and to expanding the coverage to other building uses or occupancy, or replacing outmoded

measures. As a start the GB Code will apply to all new construction or alteration of buildings with a minimum total gross floor area (TGFA) as follows: residential condominium 20,000 sq.m, hotel/resort 10,000 sq.m, educational establishment 10,000 sq.m, institutional hospital 10,000 sq.m, business office 10,000 sq.m, mercantile mall 15,000 sq.m, and mixed occupancy 10,000 sq.m. The Code does not apply to buildings in the above use or occupancy classifications constructed prior to its date of effectiveness. When alterations, additions, conversions and renovations of existing buildings constructed after the effectiveness of the Code fit with the minimum TGFA above, the whole building will be subject to the applicable provisions of the GB Code.

The GB Code spells out the construction standards for an energy-efficient building. For example, since half of the energy bill goes to air-conditioning, buildings with air-conditioning systems will be required to adopt efficient practices, designs, methods and technologies to cut down energy use. Glass transfers more heat, so the amount of glazing is ideally reduced in relation to the wall size to bring down heat gain inside the building. The required wall-to-window ratio or WWR needs to be balanced with the amount of daylight coming through the glazed area. The solar heat gain coefficient or SHGC will be determined by dividing the amount of solar heat passing through the glass by the total solar radiation incident on the glass. The higher the WWR, the lower the SHGC required in glass windows.

Indoor environmental quality standards will require strict adoption of efficient design and operation practices to protect building occupants' health, productivity and safety. Relatedly, the Tobacco Regulations Act restricts tobacco smoking in public spaces and the prescription of designated smoking areas in buildings.

<http://business.inquirer.net/195889/philippine-green-building-code#ixzz4kmE5UtSj>.

EDGE Licensing

To promote green building a *certification system* is now in place through the assistance

of the IFC, a member of the World Bank Group. IFC's green building programme is expected to cut 1.9 million metric tons of green house gas emissions in the Philippines.

<http://news.pia.gov.ph/article/view/1141471050810/ifc-and-pgbi-drive-green-building-growth-in-the-philippines>

The IFC handed over the EDGE licensing agreement to the Philippine Green Building Initiative (PGBI), a non-profit group of professional associations that promotes energy-efficient and environment-friendly design and construction. It will serve as the exclusive certification provider for EDGE projects in the Philippines. EDGE stands for Excellence in Design for Greater Efficiencies, and is an IFC innovation that was funded by Austria, Canada, Denmark, ESMAP, the EU, Finland, GEF, Japan and Switzerland; it promotes resource-efficiency in the use of water and in reducing use of energy in making construction materials. It is a design and investment planning tool that the building industry can use to create sustainable designs in order to be more competitive in the market. To qualify for EDGE design certification companies must use the EDGE software to prove that their building design will reduce resource consumption by at least 20 per cent as compared with a conventional building. The online software is available free at www.edgebuildings.com.

BERDE Building for Ecologically Responsive Design Excellence. BERDE was developed as a *tool for a voluntary green building rating system* in the Philippines. It was developed in collaboration with the Philippine Building Green Council. The BERDE for New Construction of Commercial Buildings was developed under the supervision of the BERDE Technical Management Board.

<http://philgbc.net/berde/berde-nc/1.1.0/BERDE-NC-COM-v110.pdf>

Most of the workers in these speciality trade occupations learn their skills through formal training programmes, apprenticeships, and trade schools. Craft training and apprenticeship programmes usually consist of technical instruction and an additional 3-4 years of on-the-job training. Trainees and apprentices must also pass practical and written tests to demonstrate

their knowledge of the trade. Many craft training or apprenticeship programmes can be found through an NCCER or ABC training programme sponsor or a local union chapter.

Continual learning is important for trade workers, because they need to acquire new green skills. A carpenter, for example, should know current advanced framing techniques. Other trade occupations need to become familiar with green products and be able to use them.

Depending on the State in which they practise, some of these workers need to be licensed. Most States and communities require electricians, plumbers, and HVAC installers to be licensed. Licensing requirements vary, but workers typically must have several years of experience and pass an examination that tests their general knowledge and familiarity with local building codes.

Many of the occupations in green building design, such as architects and civil engineers, require at least a bachelor's degree, while many of the construction and trade occupations can be learned through on-the-job training or an apprenticeship.

Training in green practices is more important for some occupations than for others. For example, although the work of construction laborers might be different on a green construction site, these workers usually do not require much specialized training. Speciality trade workers - who need to be proficient in installing energy- and water-efficient appliances and who might use new techniques - usually require more. The design occupations such as architects and engineers require a considerable amount of education and training specific to green construction.

(<https://www.bls.gov/green/construction/>)

1.3 Greening Agriculture

For three decades from 1970 to 2000 Philippine agriculture was on the path of slow growth until the food crisis of 2008, when its growth rate gradually increased. Compared to manufacturing and services, its share in the economy had stagnated at 11-12 per cent. The country used to

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be a net exporter of food until the 1980s; now it is an importer of food, possibly reflecting land scarcity and a burgeoning population.

In the Philippines many agricultural practices threaten the environment, particularly the availability of water resources for irrigation and habitats and breeding areas for fish. Tiongco et al. systematically explained how Philippine agriculture reached its low point and now green agriculture faces many challenges: deforestation, soil erosion, greenhouse gas emissions, loss of biodiversity, mangrove ecosystem degradation, and water and air pollution. For example, the Green Revolution introduced in the early 1960s achieved high yields by using high-yielding varieties of rice and application of synthetic fertilizers and pesticides. These practices were widely used in the banana and pineapple plantations causing the pollution of air and water and the destruction of biodiversity. Worse still, pesticides had adverse impacts on the farmers' health.

The government of the Philippines used different instruments to address these environment risks posed by commercial agriculture and, in effect, facilitated the greening of agriculture. They include *direct regulation, instruments that correct or create markets and information, advocacy and voluntary approaches*.

There is a long list of policy initiatives for promoting green agriculture. As early as the period of the Marcos administration, presidential decrees on environmental protection were issued and gave birth to Environmental Impact Assessments. National recognition of the importance of the environment was codified in the 1987 Constitution, and in 1992 the government formulated the Philippine Strategy for Sustainable Development, known as Philippine Agenda 21.

Direct regulation: this includes AFMA of 1977; the Philippine Development Plan, NCCAP 2011-2028, Solid Waste Management Act, *Organic Agriculture Act of 2010*, Pollution Control Law (1976), Philippine Clean Air Act, Clean Water Act, and the Soil Survey and Conservation Programme (which took effect in 1962).

Incentives that create markets: these include Incentives for Adoption of Green Technologies, Philippine Agricultural Practices, and Payment for environmental services.

Information and advocacy: this includes the Philippine National Standards for Organic Agriculture, Information on Agricultural Accounting, Advocacy for Adopting Green Technology, and Advocacy on Guidelines on the Certification of Good Agricultural Practices for Fruits and Vegetable Farming of 2005 (DA-AO No. 25).

The greening process in farming is still marginalized in the ASEAN, including the Philippines, although it is the source of the livelihoods of the majority of the population (Baumgarten and Kunz, 2016: section 3). In fact the immediate need is to oppose the wanton destruction of natural resources. For example, destructive and reclamation activities in Manila Bay run counter to the government mandate to protect the marine environment and the welfare of fishery workers. The Bureau of Fisheries and Aquatic Resources (BFAR) is charged with such responsibility. But the incumbent mayor of Manila, Joseph Estrada, approved another reclamation project in Manila Bay, the Horizon project touted as Manila's biggest land reclamation project covering 417 hectares of water. The project was proposed by a real estate firm and costs 100 billion pesos. Therefore the national fishery alliance Pambansang Kilusang Mamalakaya ng Pilipinas (PAMALAKAYA-Pilipinas) is challenging BFAR to oppose the mayor's approval.

1.4 Green Jobs and the Philippine Green Jobs Act

The notion of green jobs is relatively new in the Philippines. DOLE-ILS had been giving it some thought from 2008 onwards. These initial explorations broke ground and served as a conceptual foundation that culminated in the passage of the PGJA. The PGJA notably defines and recognizes "green jobs" as any form of employment in any economic sector that contributes to the quality of the environment. Additionally, these green jobs are required to be "decent," in that they are productive, respect

workers' rights, and provide fair incomes, workplace security and social protection for families, as well as promoting social dialogue.

“A green jobs adaptation strategy...may require an understanding that vulnerabilities and adaptation options will vary according to the nature, scale and vulnerability of different economic segments as regards climate change. Understanding the impacts will require inter-relating physical science with socio-economic information. Knowing the geography and the context of vulnerability is necessary in order to formulate a concrete plan of action that will align poverty reduction and employment creation with a broader set of investments in environmental conservation and rehabilitation.”
(Cynthia Cruz, From Jobs to Green Jobs: A Just Transition Framework, 2010:10)

Annex 2: Case Studies

Q Case Study I. The Story of Human Nature ...an authentic, home grown pro-environment company in the Philippines

Human Nature describes itself as company which is pro-Philippines, pro-poor and pro-environment. It produces affordable and genuinely natural beauty and personal products, the raw materials for which are mainly sourced from the country and which are formulated by Filipinos in Natural Care Labs based on the latest breakthroughs in green chemistry and manufacturing.

The company began in 2008 with a dream to create a business that would produce high-quality Philippine-made natural products that could facilitate the uplift of impoverished communities and restore the productivity of the land. The two sisters who founded the company are daughters of the founder of Gawad Kalinga (GK), Tony Meloto, who started a world-recognized movement for nation-building.

GK envisions an end to poverty of five million families by year 2024 through its three-phase development model - *Social Justice, Social Artistry and Social Transformation*. The story of GK is another long story, very well documented. Human Nature helps GK farming villages to produce and process the high-quality and high-value products that are then bought by Human Nature at just and fair prices, even above market prices.

Many of the ingredients in popular beauty and personal care products - coconut, elemi, sugarcane, aloe, citronella, lemongrass, and others - are from tropical plants which grow abundantly in the Philippines. Coco-Nectar (from the flower of the coconut) is a breakthrough ingredient which is excellent for the scalp and Human Nature was the first beauty company worldwide to use this organic material.

In 2015 Human Nature became a member of the Natural Products Association (NPA), the authority

on the natural products industry in the United States upholding the strictest criteria of natural claims worldwide. To date, Human Nature has the highest number of products certified as natural by the NPA.

In 2016, Ecovia Intelligence (Organic Monitor) - a global consulting institution for the natural and organic beauty industry - gave Human Nature the Sustainability Pioneer Award: a first for any Asian beauty brand.

Human Nature envisages that it can contribute to the prosperity of the Philippines by producing not just raw materials but quality-finished goods so that Filipinos can buy Filipino-made products to support the local economy.

Human Nature promotes organic agriculture and is mindful of protecting the environment.

Through its partnerships with Gawad Kalinga and other organizations who share the same vision, it aims to develop globally-certified organic farms in the countryside that can produce excellent raw materials for Human Nature products, as well as community-based enterprises that will increase the income of poor communities.

Human Nature proclaims that it carefully monitors the impact of all its business decisions on the environment. For example, their Natural Care Labs thoroughly research all raw materials to ensure that they are naturally derived, biodegradable, and that their production does not use environmentally toxic processes. Furthermore it ensures that the products used would not harm the ecosystems when released into the environment after use by their customers.

It partnered with the City Optimized Managed Electric Transport (COMET) to help Metro Manila's traffic and pollution problem by bringing sustainable, efficient and affordable green transportation to city commuters. Running solely on electricity, it helps minimize ozone-depleting carbon dioxide from burning diesel.

Human Nature Fosters Decent Jobs

As an employer, Human Nature believes and adheres to principles of decent work, viz.:

- It employs Gawad Kalinga residents from nearby communities in Quezon City and Laguna and provides fair living wages, around 70 per cent more than the minimum wage required by law. Warehouse staff, merchandisers, and manufacturing plant personnel receive regular full benefits instead of the usual 5-month contracts (without any benefits) from which millions of Filipinos nationwide suffer.
- It advocates a no-firing policy, recognizing that people from poor backgrounds who have not had the benefit of good education will make mistakes, thus as employers their role is to be good stewards of the employees and help them become the best that they can be. For example many of their warehouse employees are GK leaders who spearhead projects in their respective GK communities. To allow them to serve their communities, Human Nature implemented a rule that allows them to take half a day off per week (paid) to serve in their communities, as long as they offset this with another half-day of their own time.

Human Nature is hopeful that their “radical employment practices will embolden other employers in the Philippines to see that it is possible to build a thriving business, which is also mindful of the needs of the poor.” In recruiting people it proclaims its pro-environment mission and adherence to the principles of decent work and the job vacancy announcement reads as follows:

HEROES WANTED!

We are looking for brave, talented, dedicated people to step up and save the world (starting with the Philippines)! If you wholeheartedly love our nation, care for Mother Earth, and dream of a career where you can pour out your skills to push the Philippines to the top spot of the global natural and organic consumer goods industry, WE WANT YOU.

Be the hero you've always wanted to be and be part of this world-beating, ground-breaking enterprise with a heart! Experience job fulfilment, a competitive salary and career growth — all the while helping to realize our collective dream of a first-world Philippines. Due to the number of applications, we will be able to communicate only with shortlisted applicants. Thank you for your understanding.

www.humanheartnature.com

Q Case Study II. The TESDA Green Technology Center

In March 2015 TESDA formally launched the (over 25-million peso) Green Technology Center (GTC) within its campus in Bicutan, Taguig City. It was built as a new training centre offering training courses in green skills catering to the need for emerging green jobs. TESDA is combining a technical-vocational curriculum with green technology.

Partnerships for Green Skills

On 21 January 2014, the Federation of Filipino-Chinese Chamber of Commerce and Industry, Inc (FFCCCII) donated as state of the art building to TESDA as the Green Technology Center (GTC). FFCCCII is composed of over 200 member organizations across the Philippines. It has been involved with various civic works, collaborates with the government in its village school donations, relief operations and medical missions.

GTC was envisaged as becoming the Green Skills Hub. The GTC recommends policies and encourages the development, implementation and promotion of existing models, programmes and standards towards quality green TVET. The objectives of GTC include the following: developing and delivering quality green TVET programmes; developing models of green working environment and workplaces; facilitating development of green training regulations; conducting, collecting and disseminating green technology research; facilitating adoption of research and technologies; establishing a green technology

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network with institutions and individuals both locally and globally; hosting green events, i.e. exhibits, symposia, conferences, seminars and product launching; acting as an information exchange hub for green technology; and serving as a link for green entrepreneurship.

GTC will determine policies and programmes on green skills through partnerships with various stakeholders and practitioners in sustainable development. On 30 May 2016 the GTC formalized partnership with different institutions and companies during the Green Stakeholders Partnership Forum. These partners could either be sources or recipients of green TVET.

The GTC was designed to be a model of green technology such as vertical gardens and landscaping, showcasing of implementation of waste segregation systems, use of natural light and ventilation, harnessing of solar panels or lighting, and conservation of water and power. TESDA hopes that GTC would serve as a beacon for green technology in sustaining a better and healthier environment.

Training Programmes for Green TVET

Training programmes under GTC's roof will be mainly for trainers and researchers on green technologies and will bring research products to communities through extension service, and promote green products entrepreneurship.

<http://legitipines.com/blog/tesda-now-pushing-green-vocational-technical-training/>

GTC will cater to various trainees, clients and stakeholders in different fields and areas of technical-vocational education and training (TVET), among them *photovoltaic systems, hydroponics, vertical gardening, landscaping, inverter technology, and e-trike servicing*.

Eventually GTC plans to offer various training programmes for the following qualifications: Vertical Gardening, Landscaping NC II, Electronic Trike (e-Trike) Servicing, Photovoltaic Technology, Inverter Technology, Hydroponics, and Organic Farming.

For the TVET programmes, GTC will adopt the TESDA Technology Institutions (TVIs) concept, appropriately dubbed TREE or Training-Research-Extension-Service-Entrepreneurship.

From 2015 until the present day, GTC's activities and projects include the Training Programme, Technical Learning Sessions, Product and Technology Exhibits, Researches, Seminars and Fora.

Among its activities are:

Awareness raising and Sustained Advocacy. GTC promotes green skills through social media, i.e. <http://www.facebook.com/tesdagtc> and through exhibits. In March 2015, along with the grand launching of the GTC, various agencies such as the Department of Energy, the Department of Science and Technology, and the University of the Philippines (Diliman campus) showcased their respective green technologies including renewable energy, bio-reactors and products, and organic gardening and farming. Private partner companies included Hytech Powers and Smart Grid Technology, Bernac Electric Transportation, ECOS Foundation for the e-trike Technology and the Daikin Air Condition for the Inverter Technology. More such exhibits were mounted in 2015 such as: 1) Product and Technology Exhibit in Renewable Energy (for two days). Demonstrations were given by exhibitors of renewable products and technology for the guests. On the second day Technical Learning sessions was given among TESDA employees. 2) (August 2015) 3rd Product and Technology exhibits were held with the theme *Healing the Ozone through Organic Farming and Waste Management*. Companies promoting organic farming and waste management showcased their products and technologies. These included Harbest Agribusiness Corporation, Rising YuEra International, Costales Nature Farms, Life Harbest Hydroponics, P Richfund International, Philippine Council for Agriculture and Natural Resources Research and Development, ITDI-DOST, and Solid Waste Management Association of the Philippines. 3) (October 2015) This focused on e-Vehicle Green Transport for a Cleaner Environment in support of DENR-EMB's implementation of the Clean Air Act. Firms advocating and manufacturing alternative

transport that uses electrical energy and solar energy to power the vehicles participated; many are members of the Electric Vehicle Association of the Philippines (EVAP) and the Philippine Utility Vehicle Incorporated (PhUVInc.)

In 2016 ten more such exhibits were mounted to raise awareness of green jobs and green skills. The themes of the exhibit were: urban gardening for everyone, sustainable urban agriculture, vegetable and ornamental gardening, e-vehicles on the road to sustainable, smokeless and efficient transport, solid waste management, effective utilization of water for environmental protection and conservation, and integrating sustainability in softscape¹²⁹ installation and maintenance. Then, in February 2017, the Philippine Sustainable Energy Generation through its Photovoltaic Technology exhibit was organized. LGUs and TESDA personnel, public and private educational institutions administrators and trainers, trainees, students and other interest organizations attended. It showcased the latest photovoltaic equipment and designs from industry players.

Creation of a Green Campus. GTC aims to create a TVET category for DENR's National Search for Sustainable and Eco-Friendly School as a way of motivating TTIs/TVIs to pursue sustainable development. This is to encourage technical and vocational institutions to create their own Green Campus. Under study within the GTC are factors that could comprise a green campus: development and implementation of green policies, standards, models and guidelines; green training programmes and qualifications and environmental community awareness and engagement; management, protection and conservation of energy and water resources; litter and waste management; transport and travel conservation and air pollution control; biodiversity and green building, infrastructure and spaces.

Green Training Regulations. One of the first tasks of the GTC is to develop TRs for projected green jobs, especially in the field of Renewable Energy – Wind Turbines, Hydroelectric Planning,

Geothermal and Pollution Control, which are the current focus of the Government of the Philippines. As of June 2017 TESDA has greened 26 TRs. The TESDA Board has promulgated qualifications in Garbage Collection and Sanitary Landfill Operations: Garbage Collection NC I (*Palero*), Sanitary Landfill Operations NC II (Sanitary Landfill Facility Spotter) and Sanitary Landfill Operations NC III (Sanitary Landfill Facility Site Foreman).

Training of Green TVET Trainers. TESDA has been conducting training for TVET trainers such as servicing of engines using LPG as alternative fuels, solar cell power generation system technology, drip irrigation systems, CFC phase-out management and codes of practice for RAC technicians. For the TVET trainers' capacity-building, with help from the National TVET Trainers' Academy (NTTA), TVET trainers were trained on environment-related competencies such as renewable energy, efficient energy use and management, waste water treatment, waste management recovery and recycling, and environmental consultancy and green ICT.

Technical Training. In March 2016 the GTC conducted seminars on Solar Energy and Harmful Air Effluent Reduction through Inverter Technology that were attended by 49 and 51 participants respectively. Technicians and member firms of the Refrigeration and Air Conditioning Technicians for Development of the Philippines, Inc. (RACTAP) and selected trainers in RAC Servicing, Consumer Electronics Servicing, Electrical Installation and Maintenance and Mechatronics attended the seminar (conversation with J. Gacutan, GTC Technical Staff, ILO Meeting on the Just Transition Project, Pan-pacific Hotel, 29 June 2017).

Q Case Study III. Development Bank of the Philippines, Pioneer in Green Financing

The Development Bank of the Philippines has earmarked funds in support of environmental projects in line with the Philippine Development Plan. The DBP has had twenty-six years of experience in green financing. In

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its developmental mission and initiatives, DBP is committed to environmental protection and sustainable development. It has successfully integrated and mainstreamed environmental considerations into all aspects of its operations and services, asset management and business decisions.

Since 1991 the Bank has successfully implemented several environmental credit programmes on its own and in partnership with JICA, the German government and other ODA facilities. It has pioneered granting of loans to assist industries and local government units (LGUs) in the integration of environmentally-friendly processes and technologies such as cleaner production, water conservation, proper waste management, energy efficiency, air quality improvement, pollution prevention and control, among others.

In 1999 DBP developed Environmental Due Diligence & Environmental Performance Monitoring Manuals. These manuals document the procedures undertaken by the Bank in exercising uncompromising due diligence in the evaluation of environmental risks in all supported projects consistent with DBP's Environmental Policy Statement.

To report the Bank's environmental performance, the Bank started publishing a Corporate Environmental Report in 1998 up until 2007; then in 2008 the Bank started publishing a Sustainability Development Report to cover triple bottom line reporting (environment, social and economic).

In 2011 the Bank established the Green Financing Program (GFP) as the umbrella programme for environmental projects to support the government's strategic thrusts on environmental protection and green growth. It also institutionalized climate-resilient growth in project financing. Under the programme, eligible projects include, among other things, climate change adaptation; disaster risk reduction; a tree plantation waste management project; green building construction and property management including hotels, resorts, and restaurants; green transport; and other environment-friendly initiatives such as energy-efficient lighting, urban greening, rehabilitation of water bodies

and endangered ecosystems, and eco-tourism projects.

<https://www.devbnkphl.com/news.php?id=139>

DBP is aggressively pushing its green financing programme that will further support a more integrated approach to investing in environment-friendly processes and technologies. DBP president and chief executive officer Francisco F. Del Rosario, Jr. said the Green Financing Programme is the Bank's umbrella programme for the environment sector and supports the Philippine Development Plan 2011-2016's objective of a cleaner and healthier environment. "We have initially allocated P18.9-billion for the program which is designed primarily to further assist industries and local government units (LGUs) in the integration of environmentally-friendly processes and technologies such as cleaner production, water conservation, proper waste management, energy efficiency, air quality improvement, pollution prevention and control, among others," he said.

The programme will promote green projects of both the private and government sector by providing financing and technical assistance. It specifically aims to reduce the environmental footprint from industrial operations and LGU projects, enable industries to achieve production efficiency and become globally competitive in the fast-growing green markets, and help the private and public sectors comply with environmental laws and regulations.

Maximum loan amounts will be determined based on eligible loan components, the funding requirement of the sub-project, the borrowing capacity of the proponent, and the cash flow of the project. Eligible borrowers are private corporations, LGUs, government-owned-and-controlled corporations, government agencies, cooperatives, and participating financial or microfinance institutions. Projects eligible for financing include pollution and waste management projects; green building construction and property management including hotels, resorts, and restaurants; green transport; and other environment-friendly initiatives such as energy-efficient lighting, urban greening, rehabilitation of water bodies

and endangered ecosystems, and eco-tourism projects.

DBP has 10.9 billion pesos in pipeline projects under the Green Financing Programme. Most of the projects are for the acquisition of e-vehicles in the National Capital Region, Cavite, Ilocos Norte, Nueva Vizcaya, and Guimaras. Other pipeline projects include construction of a bio-ethanol distillery, power and wastewater treatment plants, construction of a green charcoal plant, a ferro-nickel smelting plant, and construction of a sanitary landfill.

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Annex 3: Roles of Government Agencies listed in the Philippine Green Jobs Act

GOVERNMENT	ROLE	GOVERNMENT AGENCY	ROLE
DOLE	Formulates a National Green Jobs Human Resource Development Plan for the development, enhancement, and utilization of the labor force, in both the private and public sectors	DOF	Administers the grant of incentives as discussed in Section 5 of this Act to qualified individuals and business enterprises engaged in registered strategic activities, and maintains a database on the same.
DENR	Establishes and maintains a climate change information management system and network as a reference in the formulation of strategies and approaches to develop potential green jobs	DepEd	Implements faculty, facility and curriculum development for primary and secondary education in support of the knowledge and skills requirement of a green economy
CHED	Develops and implements standards, curricula, and instructional materials in support of the green economy	TESDA	Develops a special business facilitation programme for individuals and business enterprises producing green jobs
NEDA	Ensures the mainstreaming of green job concerns in development plans	DTI	Develops a special business facilitation programme for individuals and business enterprises producing green jobs
PRC	Encourages the development of a qualifications framework that can facilitate recognition of the knowledge, skills, and competencies of professionals working in the green economy	DOST (together in TESDA)	Assists the DOLE in analyzing skills, training, and re-training needs in relation to the use of green technology that has the potential to create new green occupations and greener jobs, especially in industries or sectors undergoing structural changes due to climate change and greening of the economy
DOTC	Ensures the mainstreaming of green job concerns in its sectoral development plan and encourages more investments in public transport infrastructure and services to optimize the potential of public transport towards green growth and job creation	DOT	Outlines sustainable tourism planning and integrated approach to the promotion of a job-rich sustainable tourism industry
DPWH	Develops and implements programmes that promote the importance of green building practices in safeguarding the environment and sustaining economic development	GFIs (in consultation with the BSP)	Provides preferential financial packages to business enterprises that create jobs
CCC (in consultation with other agencies)	Develops and administers appropriate standards for the assessment and certification of green goods, services, technologies, and practice for the purpose of regulating the availability of incentives and ensuring green jobs content pursuant to the National Green Jobs Human Resource Development Plan as provided in Section 6 (a)		

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