

# Green Skills for Rural Youth in South East Asia



Research Report for Plan International  
Indonesia, Myanmar, Thailand & Vietnam



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Acronym	Full Version
ACCCRN	Asian Cities Climate Change Resilience Network
CCA	Climate Change Adaptation
CSO	Civil Society Organisation
GHG	Greenhouse gas
ILO	International Labour Organization
INGO	International non-governmental organisation
IPCC	Intergovernmental Panel on Climate Change
LABS	Livelihood Advancement Business School
NGO	Non-governmental organisation
TVET	Technical and vocational education and training
YEE/YES	Youth Economic Empowerment / Youth Economic Solutions
UNEP	United Nations Environment Programme
WWF	World Wildlife Fund

## 1. Key Messages

Green Skills can be understood as the knowledge and skills needed to live and work in an environmentally responsible way, and to deal with the impacts of climate change.

Green jobs are jobs that contribute to preserving or restoring the sustainable environment, or dealing with the impacts of climate change.

Across all countries of study, the sectors with the most potential for generating green jobs are: Agriculture, Forestry and Fishing; Energy; Services; and Construction.

For many students, working in an environmentally responsible way is important, but they do not know how to access the skills and knowledge they need.

Training content for green skills at local levels needs to include marketing and sales skills, to ensure that farmers and green entrepreneurs are able to develop their business.

Teacher training is a significant gap, with the majority of teachers feeling ill-equipped to deliver training in green skills.

Older community members could become valuable training assets, particularly in engaging young people, if the scope of new policies and training programmes were extended to the whole community.

Plan can have a significant impact in the area of green skills by integrating elements of Youth Economic Empowerment and Climate Change Adaptation programmes, to:

1. Enable young people in areas affected by climate change to train in alternate livelihoods with employment prospects.
2. Ensure that students receive basic environmental awareness, which will then cascade into their eventual workplace.

## 2. Executive Summary

The impacts of climate change, including increasingly severe weather patterns, reach across every country and citizen worldwide, compelling nations to implement sustainable adaptation measures. In order to ensure the necessary 'green transformation' of market economies, it is essential that workers are skilled in environmentally friendly and adaptive practices. There can indeed be an element of 'greening' in all professions; it is essential, therefore, that the importance of climate change awareness and green skills training is understood by all. Skills development has been proven to ensure labour productivity. Research conducted to date, however, has shown that countries' transitions to a greener economy are hampered by skills shortages in new environmental professions as well as the lack of skills adaptation taking place in existing jobs<sup>1</sup>. For this reason, development programmes must ensure that green skills training is incorporated into any new and existing skills-based initiatives.

Plan International (referred to in this document as Plan) commissioned this research report in order to investigate the potential for green skills training in four countries: Indonesia, Myanmar, Thailand and Vietnam. The research has sought to identify the existing provision of green skills training in each of these countries and the sectors in which green skills gaps are likely to occur in the future. In each country, the existing provision of Climate Change Adaptation (CCA) and Youth Economic Empowerment/Solutions (YEE/S) programmes were considered; the research also aimed to identify ways in which these programmes could be integrated to ensure that the knowledge and skills required for climate change adaptation (whether upskilling or seeking alternate livelihoods) were made accessible to the young people who need it most.

Desk research was conducted to understand the issues surrounding green skills; evaluations of existing programmes in both CCA and YEE were also sought to identify good practice. Field research was conducted in each country with groups including policy makers, employers, NGOs and youth and community groups to understand the ways in which CCA is understood, what 'green skills' mean and the esteem in which they are held, and ways that these stakeholders feel that vocational training for upskilling or alternate livelihoods is needed. The views of young people, aged 15 to 24<sup>2</sup>, were also gathered using focus groups and online surveys. The final report, which has been drawn from the analysis for each country, aims to identify specific action points for Plan and other NGOs in the area of green skills.

### Key Findings

From the research, we have drawn the following key findings. These findings have been used to develop recommendations and key action items in the subsequent sections.

- There is significant confusion around terminology regarding green skills and green jobs amongst the majority of stakeholders interviewed as part of this project.
- Green Skills can be understood as the knowledge and skills needed to live and work in an environmentally responsible way, and to deal with the impacts of climate change.
- Green jobs are jobs that contribute to preserving or restoring the sustainable environment, or dealing with the impacts of climate change.
- Young people and employers are confused about the distinction between climate change mitigation and climate change adaptation; the former is understood to relate to action to prevent further impacts, and the latter is understood as adapting behaviour to cope with climate change.
- National policies tend to focus more on promoting environmental technologies for export, rather than offering support for innovative approaches to meet domestic needs.
- For many rural young people seeking employment, their only option is to move to urban centres.
- Across all countries of study, the sectors with the most potential for generating green jobs are: Agriculture, Forestry and Fishing; Energy; Services; and Construction.
- The primary preferred employment sectors according to young people were design/media, agriculture, business and education.
- There is a gender bias in many training programmes and expected career paths, with specific jobs being prescribed for boys and for girls.

<sup>1</sup> Strietska-Illina, Olga, et. al. 2011. 'Skills for Green Jobs: A Global View'. International Labour Office (ILO).

<sup>2</sup> This refers to the United Nation's definition of 'youth'. UN Division for Social Policy and Development (DSPD). 2014. <http://undesadspd.org/Youth/FAQs.aspx>.



- For many students, working in an environmentally responsible way is important, but they do not know how to access the skills and knowledge they need.
- While environmental awareness is sometimes delivered as part of training programmes, it is ad-hoc and informal.
- Agricultural students would like the opportunity to use their skills and knowledge to help farmers in rural areas improve their techniques.
- Training content for green skills at local levels needs to include marketing and sales skills, to ensure that farmers and green entrepreneurs are able to develop their business.
- Teacher training is a significant gap, with the majority of teachers feeling ill-equipped to deliver training in green skills.
- Training can be delivered effectively in the community; in the workplace; through apprenticeships and other placements; and in institutions.
- Older community members could become valuable training assets, particularly in engaging young people, if the scope of new policies and training programmes were extended to the whole community.
- The Livelihood Advancement Business Schools (LABS) model is relatively unique in terms of giving young people choice over their career pathways, and providing employment opportunities to suit by matching supply and demand within local economies.
- Green skills are not a priority for employers, but cost saving is; if the financial benefits of investing in green skills could be shown, more employers would be interested.

## Recommendations and Action Items

While the most common definitions of green jobs focus on climate change mitigation activities, which are not the focus of Plan's work, it is our conclusion that Plan can have a significant impact in the area of green skills, especially those directly relevant to the livelihoods of young people. From the research, we believe that there are three main areas of green skills development that Plan can focus on:

1. Enabling those in rural areas affected by climate change to learn new skills in agriculture, to preserve their livelihoods.
2. To integrate elements of YEE into CCA programmes to enable young people in areas affected by climate change to train in alternate livelihoods with employment prospects.
3. To integrate knowledge from CCA programmes into the common YEE curricula, to ensure that students receive basic environmental awareness, which will then cascade into their eventual workplace.

Other areas where Plan can achieve impact in terms of improving access to green skills for youth, include the development and use of consistent terminology; encouraging further study into the identification and quantification of green skills; and contributing to raising awareness at policy levels.

As initial points of action, we would recommend the following:

- Developing flexible curricula on:
  - New agricultural techniques and skills that would assist farmers with climate change adaptation and increase income.
  - General environmental awareness and climate change.
- Investigating partnerships with:
  - Universities to encourage agricultural students and graduates to undertake community placements.
  - Support TVET centres in developing green competencies for certain jobs.
  - Rural training centres to deliver agricultural skills curricula.
- Engaging community leaders to drive the engagement of young people and to deliver mentoring support.
- Developing a modified version of the market scan methodology to be used in CCA community work.
- Providing teacher training in green skills and ensuring that resources are available online.
- Ensuring that terminology and messages regarding green skills are consistent.
- Developing policy and advocacy work around green skills.

### 3. Research Methodology

Plan International commissioned the study, from which this report has been drawn, in order to investigate the potential for green skills training in four countries: Indonesia, Myanmar, Thailand and Vietnam. The research sought to identify the existing provision of green skills training in each of these countries, and the sectors in which skills gaps are likely to occur in the future. Specific objectives included determining what kinds of skills, knowledge and vocational training young people in rural areas would need to be better equipped to adapt to climate change, assessing what work and initiatives under Youth Economic Solutions (YES) and Climate Change Adaptation (CCA) programmes already exist and identifying the needs and market demands for green jobs in the local labour market in South East Asia. The methodology comprised a full desk review, field research in each of the countries of study, online quantitative surveys, data forecasting and data analysis.

#### 3.1 Literature Review

The existing provision of Climate Change Adaptation (CCA) and Youth Economic Empowerment/Solutions (YEE/S) programmes were considered in each country of study. The research also aimed to identify ways in which the existing YEE model of training and the CCA programmes offered by Plan could be integrated to ensure that the knowledge and skills required for climate change adaptation (whether upskilling or seeking alternate livelihoods) were made accessible to the young people who need it most.

Desk research was additionally conducted to understand the issues relating to green skills and jobs in each country of study. Research covered the economic and social context in each of the countries of study, including education and training available; CCA and YEE policy and programmes; green skills policy, programmes and growth sectors; and the current situation of green jobs in national labour markets.

#### 3.2 Field Research

Field research was conducted in each country of study with various stakeholders, including education practitioners, employers, NGOs and community groups, government officials and training institutes, to understand the ways in which CCA is understood, what green skills mean and the esteem in which they are held, and ways that these stakeholders feel that vocational training for upskilling or alternate livelihoods is needed. The views of young people were also gathered through focus group discussions.

Field research in Indonesia was carried out in the East Nusa Tenggara (NTT) region, covering NTT's capital, Kupang, as well as the smaller towns of Soe and Kefamenanu. In Myanmar, field research was carried out in Yangon and Mandalay. Chiang Mai and Chiang Rai were selected for field research in Thailand; qualitative data was gathered in Hanoi and Danang in Vietnam. As data was collected in select regions, the field research should not be considered to reflect national findings in any of the countries of study.

Qualitative data gathered included awareness of CCA; green skills requirements and gaps; labour supply and demand; CCA and YES policy, programmes and funding; and stakeholder engagement with young people, local communities, employers and local government.

#### 3.3 Online Surveys

Online surveys were administered to young people using the SurveyMonkey platform; the survey was adapted from one already in use by Plan Thailand. A general survey link was issued in English; translated versions were made available in Thailand and Vietnam.

Surveys aimed to gather data regarding youth comprehension and understanding of green skills and CCA; environmental skills that are employed by young people in daily life; barriers and opportunities for practising green skills at work and in daily life; interest in learning about ways to reduce the impact of climate change; and understanding of the ways in which people may have to adapt to climate change. Quantitative data gathered from survey results were disaggregated by sex and age group where appropriate. Full survey results can be found in Appendix 2.

#### 3.4 Data Forecasting

Data on rural youth was estimated by calculating the historical trajectory of urbanisation and applying it forwards to 2014 and 2019, based on the average annual change between 2009 and 2012 (as calculated from World Bank WDI data). The estimated remaining rural population was applied to figures for total youth numbers in each country for 2014 and 2019, as estimated by the UN Population Prospects (medium variant).

Sector change was estimated by applying historical annual change forward to 2014 and 2019, as sourced from national statistics sources. Green jobs data in the region was very limited; estimates had been made for Indonesia as a proportion of the total sector size by the Green Jobs Working Group, and these proportions were also applied to Vietnamese sector data.





## 4. Concepts and Definitions

During the design and delivery of this research, it became apparent that the issue of concepts and definitions related to climate change and green skills, was an area of contention and confusion. Different governments, regions and agencies refer to, and understand, these concepts in very different ways; the majority of young people interviewed as part of this project did not understand the terminology at all. In this section, we identify the commonly accepted definitions of key terms, and we also offer terminology that we found to be more easily understood by the people that are most central to the outcomes of this project: not development workers and environmental specialists, but young people.

### Climate Change Mitigation and Adaptation

According to the United Nations Environment Programme (UNEP), climate change mitigation refers to efforts to reduce or prevent greenhouse gas emission; climate change adaptation refers to building resilience to the impacts of climate change<sup>3</sup>. As part of this project, however, we found that young people responded best to a clearer, more practical explanation: '*Climate change mitigation includes actions to prevent further climate change, and climate change adaptation are actions to deal with the negative impacts of climate change*'. Mitigation and adaptation have traditionally been approached differently by scholars, with the mitigation research community generally relying on economic modelling and adaptation researchers focusing on community-based research<sup>4</sup>.

Climate change mitigation includes activities undertaken to prevent further climate change and climate change adaptation involves modifying behaviour (including in the workplace) or lifestyles to deal with the negative impact of climate change.

While there are clear distinctions between the two approaches, it was clear from the field research that many communities and young people do not perceive there to be a difference between the two approaches, and that general 'green' practices are more important than conceptual distinctions. It is also true that certain practices fulfil both goals, for example, reforestation policies. The green actions most commonly understood by young people interviewed included behaviour normally linked with mitigation (e.g. turning off lights and saving water); for these young people, changing their behaviour, both in work and at home, to be more environmentally friendly was extremely important, but many did not know how. There was a clear gap in knowledge about adaptive practices that respond directly to the impact of climate change.

<sup>3</sup> United Nations Environment Programme (UNEP). <http://www.unep.org/climatechange/adaptation>.

<sup>4</sup> Klein, Richard J.T. et al. 2007. 'Inter-relationships between adaptation and mitigation' in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Edited by M. L. Parry et al. Cambridge University Press.

## Green Economies, Skills and Jobs

### Green Economy

The UNEP's definition of a green economy is one that *'results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive'*<sup>5</sup>. Although such holistic definitions are widely acknowledged, the literature and policy discussions around green jobs and green economic development suggest a stronger emphasis on climate change mitigation and low greenhouse gas (GHG) development pathways than on climate change adaptation<sup>6</sup>.

### Green jobs

There is no centrally agreed definition of green jobs as yet, although the ILO characterises them as being *'decent jobs that contribute to preserve or restore a sustainable environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency'*. Green jobs are also understood by the ILO to include those that help support adaptation to the impacts of climate change<sup>7</sup>. While this definition was not previously known amongst stakeholders interviewed for this project, it was understood and accepted once explained. It was not understood, however, how young people and employers who were not connected to 'green' sectors could contribute to environmental sustainability, or how the green economy would impact those aiming for entry-level jobs.

### Greening jobs

The ILO defines the 'greening' of occupations as *'the extent to which green economy activities and technologies increase the demand for existing occupations, shape the work and worker requirements needed for occupational performance, or generate unique work and worker requirement'*<sup>8</sup>. The concept of 'greening jobs' as understood by interview respondents, however, was different: it focused on ways in which existing jobs could be made more environmentally friendly. For one employer in Vietnam, it involved training staff about effective waste management practices, and embedding this knowledge in the job specification and duties. In his opinion, by making his organisation environmentally friendly, he was improving efficiency and reducing costs; he was also responsible for a cascade effect where his staff would be able to share this knowledge in future jobs.

We would suggest that a working definition of the process of 'greening jobs' could be: *the process by which tasks and responsibilities within jobs are made environmentally friendly and efficient.*

### Green skills

The Council of Australian Governments (COAG) provides the following definition: *'Skills for sustainability, also known as green skills, are the technical skills, knowledge, values and attitudes needed in the workforce to develop and support sustainable social, economic and environmental outcomes in business, industry and the community.'* The main actions required to develop green skills, according to COAG, include<sup>9</sup>:

- Embedding green skills practice and teaching within the regulatory framework, and within the curriculum.
- Skilling VET trainers to deliver green skills.
- Developing strategies to upskill and retrain workers in vulnerable regions, industries and sectors.

Other definitions, however, including that offered by the Environmental Careers Organization (ECO) Canada, focus more narrowly on green skills as being the skills required for green jobs, rather than a wider interpretation that could

<sup>5</sup> United Nations Environment Programme (UNEP). 2011. 'Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers'.

<sup>6</sup> For example, see Fien, John and Guevara, Jose Roberto. 2013. 'Skills for a Green Economy: Practice, Possibilities, and Prospects' in *Skills Development for Inclusive and Sustainable Growth in Developing Asia-Pacific*. Edited by R. Maclean et al. Springer/Asian Development Bank Open Access: 'A "green economy" has four interconnected and mutually dependent goals: increasing economic growth, alleviating poverty by reducing unemployment, increasing social inclusion and equity, and reducing greenhouse gas emissions'.

<sup>7</sup> International Labour Office (ILO). 26<sup>th</sup> August 2013. 'What is a Green Job?'. [http://www.ilo.org/global/topics/green-jobs/news/WCMS\\_220248/lang--en/index.htm](http://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm).

<sup>8</sup> ILO Department of Statistics. 2007. 'Definition of Green Jobs Used in the Employment and Environment Policy Context'. International Labour Office (ILO).

<sup>9</sup> Council of Australian Governments (COAG). 2010. 'Green Skills Agreement: An Agreement between the Australian Government and the state and the territory governments'.

apply to all sectors and industries. ECO does note, however, that more generic knowledge and skill sets are needed to make green economies successful, including general awareness of environmental issues and sustainable development<sup>10</sup>.

The definition that was most widely applicable to the young people and employers involved in this research, most of whom were not employed (nor intending to be) within 'green jobs', was that which held that 'green skills' were those that enabled people to work and live in a more environmentally efficient or sustainable way, regardless of sector or industry. This definition had a strong impact upon young people particularly, as it encouraged them to consider ways in which they could develop green skills relevant to their chosen career, and to feel that they were able to contribute to environmental sustainability in a meaningful way.

### Recommended Use of Terminology

It is recommended that the terminology used in relation to green skills is appropriate to the audiences to be engaged; in this case, the primary audience of young people, and the secondary audiences of teachers/educators and employers, tend to have limited awareness of environmental issues and the potential for involvement in the 'green economy'. Live and Learn, based in Vietnam, demonstrated particular good practice in terms of the simplicity and impact of the language and engagement methods they use to raise knowledge about the environment and climate change.

'Green Skills' are understood by young people and employers as being those that enable people to work and live in a more environmentally efficient or sustainable way.

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<sup>10</sup> Environmental Careers Organisation (ECO) Canada. 2010. 'Defining the Green Economy: Labour Market Research Study'.



## 5. The Context: Green Economic Development in South East Asia

The following section provides an overview of the impacts of climate change on countries and individuals in South East Asia, as well as an introduction to green economic development and green industry in the region.

### Climate Change in South East Asia

According to the World Bank, climate projections for any individual location within South East Asia are difficult to make with any confidence due to the region's complex and diverse terrain of mountains, valleys, peninsulas and islands, together with the large array of local climates that are influenced by these environments. Rapidly growing populations and their rising dependence on natural resources and agriculture across South East Asia, however, have made the region increasingly vulnerable to the effects of climate change. The region has been identified as particularly vulnerable to droughts and tropical cyclones (typhoons)<sup>11</sup>. It is feared that sea level rises of 100cm<sup>12</sup> by 2100 will contribute significantly to the decline of coastal wetland, low unvegetated wetlands, mangroves, coastal forests, and salt marshes. In Vietnam alone, almost five million people may be displaced if sea levels rise by this amount<sup>13</sup>.

Indonesia, Myanmar, Thailand and Vietnam face increasingly frequent extreme weather systems; the economic costs of which are severe.

<sup>11</sup> World Bank. 2013. 'Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience'.

<sup>12</sup> Such a rise may occur if emission increases continue, raising global average temperatures by four degrees by 2100. World Bank. 2013. 'Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience'.

<sup>13</sup> World Bank. 2013. 'Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience'.

Indonesia, Myanmar, Thailand and Vietnam face increasingly frequent extreme weather events, including intense rains, droughts and cyclones; each country is also highly exposed to floods and rising sea levels<sup>14</sup>. Indonesia, for example, experienced 293 major natural disasters, affecting over 18 million people between 1980 and 2008<sup>15</sup>. According to the Germanwatch Global Climate Risk Index, Myanmar is second only to Honduras as the country most affected by extreme weather events between 1993 and 2012, despite only a small number of events occurring. Vietnam is ranked as the sixth most affected country and Thailand as the tenth. Indonesia is relatively less vulnerable, at position number 72<sup>16</sup>.

Livelihoods in the Asia-Pacific region, particularly in South East Asia, are often highly dependent on the ecosystem services provided by ocean and coastal environments for food, building materials, medicine, tourism revenues and coastal protection. There are both direct and indirect impacts of climate change on human health, all of which lead to reduced labour productivity, the slowing of economic growth and increased healthcare costs: in South East Asia, it is estimated that the impact of climate change will lead to an increase in number of deaths from heat-related cardiovascular and respiratory diseases by 2.9% and 12.4% respectively by 2050 and 9.2% and 20.4% by 2100<sup>17</sup>. Direct impacts include heat stress; water shortages; and water, food and vector-borne diseases. Indirect impacts include economic development and food security<sup>18</sup>.

Aside from the human cost of extreme weather, the economic costs are also severe: the estimated costs of Indonesia's natural disasters stands at an average of US\$761 million per year<sup>19</sup>. The Asian Development Bank, meanwhile, forecasts a loss equivalent to 6.7% of GDP annually in Indonesia, the Philippines, Thailand and Vietnam by 2100 if no significant action is taken to address climate change<sup>20</sup>.

### Green Economies in South East Asia

Due to its rapid growth, and its vulnerability to crises, the Friedrich Ebert Foundation has described Asia as both a *'global economic powerhouse and a tinderbox'*. The Foundation recommends a model of economic development that includes dynamic rather than resource-intensive growth, social inclusion, ecological sustainability and gender equality<sup>21</sup>. Despite the specific challenges faced by developing and emerging economies, Asian countries have led the way in developing a new paradigm for green growth. In 2005, Asian leaders adopted the Seoul Initiative on Environmentally Sustainable Economic Growth (Green Growth)<sup>22</sup> and the Asia and Pacific region *'leads the developing world in terms of green patents and green exports'*<sup>23</sup>.

It is difficult to track how well green technologies and industries are developing in Asian countries as they are frequently developed and applied across a range of sectors such as agriculture, energy, transport or construction, and so remain relatively invisible to policy makers. Green industries, firms and jobs are also still poorly represented in standard national accounts. Moreover, the trend to date has been for policies promoting environmental technologies to be focused on the export sector or the development of technological expertise, rather than on offering financial support for innovative approaches to adapting the kinds of environmental goods and services needed to meet domestic needs<sup>24</sup>.

There is a critical need in Asia for trade unions, civil society organisations and political parties to forge political coalitions and policies to ensure sustainable adaptation to climate change.

<sup>14</sup> Lasco, Rodel D. et. al. 2011. 'Climate Change Adaptation for Smallholder Farmers in Southeast Asia'. World Agroforestry Centre (ICRAF).

<sup>15</sup> Centre for Research on the Epidemiology of Disasters (CRED). 2009. 'EM-DAT: The OFDA/CRED International Disaster Database'. <http://www.emdat.be/database>.

<sup>16</sup> Kreft, Sönke and Eckstein, David. 2014. 'Global Climate Risk Index 2014: Who Suffers Most from Extreme Weather Events? Weather Related Loss Events in 2012 and 1993 to 2012'. Germanwatch.

<sup>17</sup> Asian Development Bank (ADB). 2009. 'The Economics of Climate Change in Southeast Asia: A Regional Review'.

<sup>18</sup> Asian Development Bank (ADB). 2009. 'The Economics of Climate Change in Southeast Asia: A Regional Review'.

<sup>19</sup> PreventionWeb. 'Indonesia Disaster Statistics'. <http://www.preventionweb.net/english/countries/statistics/?cid=80>.

<sup>20</sup> Brömmelhörster, Jörn. 2010. 'The Economics of Climate Change in Southeast Asia: A Regional Review'. ADB Report Analysis.

<sup>21</sup> Friedrich Ebert Stiftung (FES). 'Regional Cooperation in Asia: Shaping the Economy of Tomorrow in a Sustainable Way'. <http://www.fes-asia.org/pages/shaping-the-economy-of-tomorrow-in-a-sustainable-way.php>.

<sup>22</sup> This was at the 5th Ministerial Conference on Environment and Development in Asia and the Pacific.

<sup>23</sup> Dutz, M. and Sharma, S. 2012. 'Green Growth, Technology and Innovation'. Cited in Quitzow, Rainer et. al. 2013. 'Green Jobs In Asia: Achievements, Strategies and Potentials'. Friedrich Ebert Stiftung (FES).

<sup>24</sup> Quitzow, Rainer et. al. 2013. 'Green Jobs In Asia: Achievements, Strategies and Potentials'. Friedrich Ebert Stiftung (FES).

Green economic development in practice includes, according to the ILO<sup>25</sup>:

- A cross-sectoral focus on investment in low carbon and carbon reduction technology, with a particular focus on current high carbon industries, including agriculture.
- A subsequent emphasis on higher skilled 'green jobs'.
- The creation of market prices for 'resources that were previously considered free, cheap or external to the market - principally carbon, but also water, forested land, waste and biodiversity'.
- Significant change and expansion in industries that currently provide 'green but not decent jobs' because they have limited labour regulations or where employment conditions are inadequate – such as low wage jobs in biodiesel and ethanol production, electronic waste recycling, and solar panel installation.
- Initiatives to harness the above changes for green and 'decent' jobs, led predominantly by government, donors, NGOs and local communities, and by business corporate, social and environmental responsibility functions.

The Friedrich Ebert Foundation's 2013 report on green jobs in Asia, which covers three of this study's target countries (Indonesia, Thailand and Vietnam), highlights the specific challenges faced by developing economies in achieving a 'green transformation'. They see a critical need for trade unions, civil society organisations and political parties to forge political coalitions for change. Given that human development gains remain out of reach for large parts of the population in developing economies, green job creation requires 'more active integration of different policy objectives, so that policies aimed at socio-economic development do not conflict with environmental goals and vice versa'. Of particular importance is the co-ordination of centrally-drafted policies with local planning practices<sup>26</sup>.

### Country Policies

Indonesia is highly vulnerable to the impacts of climate change; policy and legislation concerning climate change is therefore at an advanced level. Policy and legislation directly relating to CCA, however, is at an early stage of development. National policies, and international commitments, are managed by the National Development Planning Agency (BAPPENAS) and the relevant ministries concerned<sup>27</sup>. Recent national policies and projects include the 2011 National Action Plan for Climate Change Adaptation (RAN-API)<sup>28</sup>, the National Council for Climate Change, chaired by the President<sup>29</sup>, and the Indonesia Climate Change Trust Fund (ICCTF), launched in 2009<sup>30</sup>.

Contrary to the strong policies at national level, some regional policymakers feel that more still needs to be done. Policy makers in Kefamenanu, for example, believe that it is the lowest national policy priority after, in order of priority, education, health, construction, agriculture and labour; they also believe that it should be afforded greater priority. Kefamenanu is in a region which is particularly affected by climate change; this may suggest a disconnect between local and national policy responses and priorities in the area of climate change mitigation and adaptation. Activities to address climate change led by policy makers in Soe include promotion of the use of paper over plastic bags, campaigning in schools on the importance of healthy living, campaigning about global warming and waste collection, and planting trees. Some of these activities are being undertaken in partnership with NGOs. Government programmes which focus on organic farming in Indonesia, according to one NGO, are not performing well and further vocational training is needed to support the transition to sustainable and profitable organic farming methods<sup>31</sup>.

Myanmar's climate change policy initiatives are directed by the National Adaptation Programme of Action (NAPA). NAPA is currently being implemented by the United Nations Environment Programme (UNEP), the Department of Meteorology and Hydrology and the Ministry of Transport. NAPA's project deadlines have been changed, cancelled entirely (on the retirement of its original project coordinator) and reinitiated in 2011. Further research and a public

<sup>25</sup> Jarvis, Andrew et. al. 2011. 'Assessing Green Jobs Potential in Developing Countries: A Practitioner's Guide'. International Labour Office (ILO).

<sup>26</sup> Quitzow, Rainer et. al. 2013. 'Green Jobs In Asia: Achievements, Strategies and Potentials'. Friedrich Ebert Stiftung (FES).

<sup>27</sup> Indonesia State Ministry of National Development Planning (BAPPENAS). <http://www.indonesia.go.id/en/ministries/ministers/state-minister-for-chairperson-of-the-national-development-planning-agency/1646-profile/277-kementerian-perencanaan-pembangunan-nasional.html>.

<sup>28</sup> Murniningtyas, Endah. 2013. 'Update on Indonesia's Climate Change Mitigation and Adaptation Plan'. Indonesia State Ministry of National Development Planning (BAPPENAS).

<sup>29</sup> Indonesia National Council on Climate Change (DNPI). 2014. <http://adaptasi.dnpi.go.id/index.php/main/contents/54>.

<sup>30</sup> Grüning, Christine et. al. 2012. 'Case Study: The Indonesia Climate Change Trust Fund'. Frankfurt School - UNEP Collaborating Centre for Climate & Sustainable Energy Finance.

<sup>31</sup> Field research in Indonesia, October 2013.

review have been conducted and programme implementation is now underway<sup>32</sup>. Further recent policy initiatives include the Myanmar Agenda 21<sup>33</sup>, the National Forest Master Plan (2001-2030)<sup>34</sup>, the National Sustainable Development Strategy (NSDS) 2009<sup>35</sup> and the National Environment and Health Action Plan (NEHAP)<sup>36</sup>.

Climate change programmes have a strong focus on disaster risk reduction, food security and livelihoods and awareness raising. In climate change policies related to forestry, for example, emphasis is placed on disaster risk reduction (protecting villages, for example, from cyclones) and encouraging the use of alternatives to wood fuel. However, any environmental policies which might apply more broadly to green skills in industry currently have no national targets<sup>37</sup>. 'Green skills' as a term is rarely referred to in documentation relating to Myanmar. One of the reasons for the lack of information is that regime change is relatively recent; and education in environment and sustainability related areas was, according to one assessment, not one of the previous regime's policy priorities<sup>38</sup>.

Thailand's climate change policy comprises initiatives led by specific ministries and national policies developed by the Government of Thailand. At national level, the Thailand Climate Change Master Plan aims to implement CCA and climate change mitigation policies as well as promoting citizen welfare, strengthening social and economic security, promoting international cooperation, and increasing competitiveness<sup>39</sup>. The Master Plan supports green skills, in its mission statement, namely 'to equip all related parties with preparedness and adaptation skills to cope with the effects of climate change' and 'to encourage all related parties to take part in reducing greenhouse gas emissions on the basis of sustainable development and co-benefits to achieve sustainable economy and living'<sup>40</sup>. Further national policies include the National Strategic Plan on Climate Change (2008-12)<sup>41</sup> and the 11th National Economic and Social Development Plan (2012-16)<sup>42</sup>.

At ministry level, the Ministry of Agriculture in Thailand has been driving greener rice field and plantation processes and the Ministry of Tourism has been working to promote eco-tourism. Both ministries have acknowledged that skills development strategies will be necessary to implement these policies. The Department of Alternative Energy and Efficiency's action plan detailed the skills gaps in the alternative energy sector<sup>43</sup>. The Ministry of Labor is working to establish a National Green Skills Office to impact employment in the sector and provide greater opportunities for unskilled workers, while the Ministry of Agriculture is currently one of the only ministries to provide direct support to industry to make practices greener, by providing training and support for organic agricultural techniques<sup>44</sup>. The Ministry of Energy's Energy Efficiency Development Plan provides a target of reducing the country's energy intensity by 25% from 2005 to 2030 (the equivalent of about 30 million tons of crude oil), primarily from the industry and transport sectors<sup>45</sup>.

In Vietnam, climate change policy is formulated in accordance with the 2007 National Target Programme (NTP – also called NTP-RCC). The NTP is the main framework for the management and coordination of CCA activities 'to achieve

<sup>32</sup> Myanmar National Environmental Conservation Committee and Myanmar Ministry of Environmental Conservation and Forestry. 2012. 'Myanmar's National Adaptation Programme of Action (NAPA) to Climate Change'.

<sup>33</sup> United National Sustainable Development. 'Economic Aspects of Sustainable Development in Myanmar'. <http://www.un.org/esa/agenda21/natinfo/countr/myanmar/eco.htm>.

<sup>34</sup> Myanmar Food Security and Agriculture Thematic Group (FSATG). 2010. 'Framework for Action for the Central Dry Zone, Myanmar'.

<sup>35</sup> Myanmar Ministry of Forestry. 2009. 'National Sustainable Development Strategy for Myanmar'.

<sup>36</sup> Save the Children. 2009. 'Disaster Preparedness Program: Save the Children in Myanmar Case Study 2009'.

<sup>37</sup> Field research in Myanmar, December 2013.

<sup>38</sup> Tun Myint. 2007. 'Environmental governance in the SPDC's Myanmar' in *Myanmar: The State Community and Environment*. Edited by Monique Skidmore and Trevor Wilson. Australia National University E Press.

<sup>39</sup> Pipitsombat, Nirawan. 'Thailand Climate Policy: Perspectives Beyond 2012'. European Union External Action Service (EEAS) Presentation. Thailand Office of Climate Change Coordination, Thailand Office of Natural Resources and Environmental Policy and Planning, and Thailand Ministry of Natural Resources and Environment.

<sup>40</sup> Pipitsombat, Nirawan. 'Thailand Climate Policy: Perspectives Beyond 2012'. European Union External Action Service (EEAS) Presentation. Thailand Office of Climate Change Coordination, Thailand Office of Natural Resources and Environmental Policy and Planning, and Thailand Ministry of Natural Resources and Environment.

<sup>41</sup> Care Deutschland-Luxemburg. 2013. 'Climate Vulnerability and Capacity Analysis Report: South of Thailand. Building Coastal Resilience to Reduce Climate Change Impact in Thailand and Indonesia'.

<sup>42</sup> Thailand Office of National Economic and Social Development Board. 2011. 'Summary of the Eleventh National Economic and Social Development Plan (2012-2016)'.

<sup>43</sup> Rojvithee, Areeya. 2010. 'Skills for Green Jobs in Thailand. Unedited Background Country Study'. International Labour Office (ILO).

<sup>44</sup> Asia Pacific Green Jobs Network. 'Thailand Green Jobs'. ILO Regional Office for Asia and the Pacific. <http://apgreenjobs.ilo.org/news/thailand-green-jobs>.

<sup>45</sup> Thailand Ministry of Energy. 2010. 'Thailand 20-Year Energy Efficiency Development Plan (2011-2030)'.

*sustainable development objectives in the future*. Programme activities include an assessment of climate change impacts on various sectors and regions, as well as the introduction of measures to raise awareness of climate change. These policies include the National Green Growth Strategy, which aims to green existing sectors; and to generate employment from green industry, agriculture and services, and the development of green infrastructure. Taking a clear urban focus, the Strategy states that the Government's key tasks in terms of human development to 2020 are in<sup>46</sup>:

- Developing wastewater collection and treatment systems to meet regulatory standards (between 40-60% depending on the size of the city).
- Environmental upgrading in 100% of severely polluted areas.
- Improving waste collection in line with newly established regulatory standards.
- Improving public transportation in large and medium cities up to 35-45%.
- Enabling 50% of large and medium cities to gain green urban standards.

In addition, the Ministry of Agriculture and Rural Development has developed an Action Plan for Climate Change in 2008, which aimed to secure food supply and human security by enhancing adaptation and mitigation capability and defining the responsibilities of the relevant agencies<sup>47</sup>. The Clean Investment Fund has also been established more recently by key national stakeholders, the Asian Development Bank and the World Bank Group to support low carbon investments in the power, transport and industrial sectors<sup>48</sup>. Importantly for encouraging green skills development, youth employment strategies form a central part of general employment policies. A legal framework for youth employment is in place, including labour and labour regulations, as well as a new enterprise law, cooperative law and foreign direct investment (FDI) law, which have all contributed towards improving the position of youth employment. Despite this central focus in policy planning, the ILO indicates few employment opportunities for young people. Exporting labour has been a key approach for the Vietnamese government to enable access to employment opportunities but also to gain technical skills required within Vietnam<sup>49</sup>.

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<sup>46</sup> Socialist Republic of Vietnam. 2012. 'Viet Nam National Green Growth Strategy'.

<sup>47</sup> Vietnam Ministry of Agriculture and Rural Development. 2009. 'Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector Period 2008-2020'.

<sup>48</sup> Climate Investment Funds. 'Vietnam'. <https://www.climateinvestmentfunds.org/cifnet/?q=country/vietnam>.

<sup>49</sup> Dang, Nguyen Ahn et. al. 2005. 'Youth employment in Viet Nam: Characteristics, determinants and policy responses'. Vietnam Employment Strategy Department.



## 6. Young People, Livelihoods and the Environment<sup>50</sup>

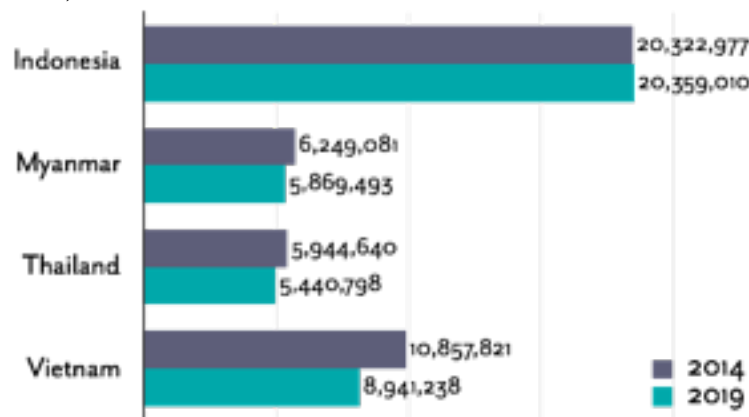
As the primary beneficiaries of Plan's work, and the focus of this research, obtaining the input of young people was critical to our work. Research carried out with young people in the four countries of study focused on aspects of urbanisation and migration, career aspirations, environmental awareness and gender considerations regarding climate change and livelihoods. Findings from all four countries of study are included in the following analysis, as well as the results of the online survey, which attracted responses across South East Asia, in particular from Vietnam.

### 6.1 Rural/Urban Divide

Geographic location is a critical factor in the livelihoods of young people; the proximity of young people to education and employment can be dictated to a large extent on whether they are in rural or urban areas. Patterns of migration from rural to urban areas, whether to pursue further study or because of limited employment opportunities in rural areas, is an important factor to consider in policy initiatives related to green skills and green jobs, especially within the agricultural sector.

The numbers of young people living in rural areas is forecast to fall in all study countries apart from Indonesia, due to a combination of increased levels of urbanisation and falling numbers of youth in the population. In Indonesia, the number of young people is forecast to increase over the next five years, and while more young people will move to cities, this number is not enough to prevent an estimated increase in young people living in rural areas<sup>51</sup>.

Young People in Rural Areas, 2014 and 2019 Estimates<sup>52</sup>



Migration, both intra-country and inter-country, factors in the ambitions of many young people living rurally in the countries of study. Many people in Myanmar, for example, emigrate to Thailand, Malaysia, Indonesia and the Arab states to in pursuit of available employment opportunities<sup>53</sup>. According to the ILO representative in Kupang, Indonesia, young people living in rural areas are not generally interested in agriculture - they prefer to work in trade and services. Young people interviewed in the region believe that they suffered from a lack of job prospects locally, which drove the need to migrate to the region's capital. In Myanmar, agricultural and other rural employment opportunities have been affected by technology which has, in turn, led to improved productivity and fewer jobs; this has also led young people to migrate into the cities<sup>54</sup>.

Several respondents in fact suggested that their only option may be to move. Some students in Vietnam also noted that young people migrated to the cities and were sometimes unable to find work, forcing some to turn to crime<sup>55</sup>. In addition to the need to migrate to urban centres, students in Myanmar also commented on the need to go abroad to obtain qualifications for certain jobs. Two young people involved in a focus group discussion in Mandalay, Myanmar, reported that they would need to study abroad in order that they could qualify in certain professions<sup>56</sup>.

<sup>50</sup> For the purpose of this research, 'young people' and 'youth' refer to those aged 15 to 24.

<sup>51</sup> For data forecasting method, please see Appendix.

<sup>52</sup> For full method, see Appendix. Data sources: UN Population Prospects, Medium Variant; World Bank Databank; calculations.

<sup>53</sup> Field research in Myanmar, December 2013.

<sup>54</sup> Field research in Indonesia, October 2013.

<sup>55</sup> Field research in Vietnam, October 2013.

<sup>56</sup> Field research in Myanmar, December 2013.



Of a group of agriculture students participating in a focus group discussion in Vietnam, three wished to return home to rural areas and the remaining two wished to remain in the city. Of those wishing to return to rural areas, one student had parents working in the agricultural sector: *'if everyone were to stay in the city after graduation, there would be nobody left to help people like my parents'*. He intends to help his family learn organic methods and try to reduce waste; he also wants to use his knowledge about seed plantations to help others in the community. Another student reported that her parents left agricultural professions to become drivers, as farming did not provide sufficient income to enable them to send both of their children to university. She plans to return home to help her community implement new techniques for waste and water management. One student who plans to remain in the city after graduation is hoping to gain knowledge of rural communities through field trips, and then to work in the government to help implement policy changes that will help the affected people. She would also like to implement a project whereby straw, which is readily available in farming areas, can be used to make fertiliser<sup>57</sup>.

Agricultural students in Vietnam want to use their knowledge to help farmers in rural areas improve their techniques and skills against the impacts of climate change.

Despite a gradual fall in the numbers of young people living in rural areas, young people in certain regions were in fact found to commonly return to their villages having completed their studies. In northern Thailand, one of the unintended - and, perhaps, poorly recognised - outcomes of non-agricultural vocational skills training is that many young people from rural areas return to their villages to work in agriculture after finishing their courses. This is particular to the local culture, especially of ethnic groups, where young people may go away for periods of time, but in the long term,

<sup>57</sup> Field research in Vietnam, October 2013.

prefer to remain near their families. Vocational opportunities outside agriculture are limited, as most villages do not need, for example, more than one automotive mechanic<sup>58</sup>. The consequence of this is that an opportunity is missed in terms of providing relevant agricultural training to young people who eventually work in the sector, but train in a different area; this barrier may be insurmountable as there is no way of identifying which young people may return to agriculture, nor would it be appropriate to train them in a subject for which they have currently expressed no interest.

## 6.2 Employment Ambitions

Many young people in focus group discussions noted concern regarding future career prospects, some directly relating difficulties to the impacts of climate change. Students in Vietnam, for example, expressed concern regarding future employment, particularly in the agriculture and fisheries sectors, due to the impact that climate change was having on livelihoods. One group was particularly concerned that those working in the fishing industry would lose their income due to the impact of bad weather<sup>59</sup>. One young farmer in Indonesia was also concerned that he may have to seek alternative income that is impacted less by the environment, such as animal husbandry, due to the impacts of climate change on his work<sup>60</sup>.

It is interesting to note that aspirations for future employment in Indonesia focused to a certain extent on the environment, with students commenting that their ideal professions would be working in architecture, 'designing better drainage and better materials for construction'; 'teaching about the environment'; 'teaching about disease prevention'; and working in law enforcement 'helping people after disasters'<sup>61</sup>. Students at the agricultural college in Vietnam also placed a certain focus on environmentally responsible career paths. One student was studying hybrid seed technology and wants to practice in-vitro fertilisation to develop new seed types. Another student who would like to work in the government noted that policies need to be developed to reduce the impact of climate change. Those young people who reported that they would be returning home after they have graduated, further focused on introducing environmentally friendly practices into farming. One student noted that he wanted to help his family learn organic methods and try to reduce waste, and to share his knowledge about seed plantations to help others in the community<sup>62</sup>.

Young people's aspirations for future employment in Indonesia and Vietnam placed a certain focus on environmentally responsible career paths, such as architecture and teaching.

Young people expressed concern in finding employment more generally due to the economic crisis as well as the lack of practical working experience that they gained at university<sup>63</sup>. It was felt by young people from several focus group discussions in Indonesia, for example, that there are few job prospects available for young people<sup>64</sup>. Community health and social work were reportedly not subjects that could be studied in Myanmar. Job prospects for those less academic students were further found to be limited in Myanmar. Young people commented

that graduates' marks dictate what they study at university; if, for example, you get a high mark, you study medicine, while lower marks may allow you to study literature. Young people leaving education after middle school were said to have no choice but to work in a shop or a café<sup>65</sup>. Finally, funding for continued learning to follow their desired career paths was reported by some young people in Thailand as a barrier to progression<sup>66</sup>.

The primary preferred future employment sectors as noted by young people surveyed across the countries of study were business, agriculture, education, and design/media. Long term working plans for those young people whose family lived in a rural area was found mainly to be living in a rural area working in a non-agricultural profession for young women, although living and working in the city remained popular for both young men and women<sup>67</sup>. Career aspirations for young people in Indonesia focused on working in agriculture. Other preferred careers included small shop owner, working in the automotive workshop, and producing materials (silk) at home. Several young people who attended focus group discussions in Indonesia commented that they would like to start their own business; lack of capital for

<sup>58</sup> Field research in Thailand, September 2013.

<sup>59</sup> Field research in Vietnam, October 2013.

<sup>60</sup> Field research in Indonesia, October 2013.

<sup>61</sup> Ibid.

<sup>62</sup> Field research in Vietnam, October 2013.

<sup>63</sup> Ibid.

<sup>64</sup> Field research in Indonesia, October 2013.

<sup>65</sup> Field research in Myanmar, December 2013.

<sup>66</sup> Field research in Thailand, September 2013.

<sup>67</sup> Quantitative research survey results, November 2013.

start-up businesses was seen to be a problem amongst young people. The lack of vocational skills training and the desire to learn these skills was also mentioned. One respondent, for example, was hoping to open a small shop, but stated that no programmes were available to teach him the skills he needed, such as how to calculate profit and loss<sup>68</sup>. Vocational student in northern Thailand from ethnic groups commented that local young people tend to return to agriculture after their training and work mostly with cash crops such as rice or corn. Alternative income is earned from handicrafts for tourists. Other career options, such as working as a barber, motorbike mechanic, tailor or in food sales are restricted due to the limited number of mechanics, for example, required by villages. Most young people in the area choose to stay in the village; when they do work away from home, they tend to return after a few months, for both cultural and administrative obstacles in many cases<sup>69</sup>.

The primary preferred employment sectors for young people are business, agriculture, education and design.

There is often a disconnect between young people's employment ambitions and their eventual career path. In Myanmar, young people tend to do what their parents do; professional choices are limited by cultural practices and a lack of training in basic numeracy and literacy skills. Young people in Mandalay are encouraged by their parents to attend university, with the subject of study being dictated by school grades. There appears to be no focus on, or concern regarding, the impacts of climate change on employment opportunities<sup>70</sup>.

### 6.3 Environmental and Climate Change Awareness

In most of the field research across the four countries, the concepts related to CCA which were highlighted by respondents tended to be simple actions; these actions were important, but had limited reach, such as planting trees and separating paper waste<sup>71</sup>. This has led the German development organisation GIZ, which is operational in Myanmar, to suggest that there is a danger in people being overly confident with the little information they have<sup>72</sup>.

Quantitative research found that CCA is primarily understood by young people as ensuring that communities and places of work have better disaster risk management in place to cope with more frequent and unpredictable weather events. Just one quarter of respondents felt that CCA related to changing or diversifying jobs in response to climate change; almost half of all respondents, however, felt that learning new agricultural techniques is directly related to CCA. When asked about environmental skills used in daily life, the majority of survey participants noted energy-saving and saving water. Almost all respondents were able to identify environmental skills that they had employed<sup>73</sup>.

General environmental awareness in Myanmar and Indonesia is still limited and little information is available in the media<sup>74</sup>; the same is true, to a lesser extent, of Vietnam and Thailand<sup>75</sup>. In rural Indonesia, people are learning about climate change; for example, about which crops might be best suited to certain conditions and that such conditions change. While many are aware of seasonal and weather changes, however, knowledge of the science of climate change is limited. Others have found that weather and climate patterns are no longer predictable<sup>76</sup>. CCA awareness is relatively low in Myanmar, and communities have often failed to link the environmental changes they experience to the effects of global warming. Where people discuss issues related to climate change in Myanmar, it is mostly in the context of environmentally friendly products<sup>77</sup>. A sign of change in this regard, however, may be indicated by the theme of the 2013 SEA Games in Myanmar, which was 'Green, Clean and Friendship'<sup>78</sup>.

Despite a limited general environmental awareness, young people were found to be aware of the impact that climate change has on working life. Survey participants were, for example, asked to note the ways in which people may have to

<sup>68</sup> Field research in Indonesia, October 2013.

<sup>69</sup> Field research in Thailand, September 2013.

<sup>70</sup> Field research in Myanmar, December 2013.

<sup>71</sup> Field research in all four study countries, September to December 2013.

<sup>72</sup> Field research in Myanmar, October 2013.

<sup>73</sup> Quantitative research survey results, November 2013.

<sup>74</sup> Ibid.

<sup>75</sup> Field research in all four study countries, September to December 2013.

<sup>76</sup> Field research in Indonesia, October 2013.

<sup>77</sup> Field research in Myanmar, December 2013.

<sup>78</sup> Olympic Council of Asia. 10<sup>th</sup> December 2013. 'Myanmar Welcomes SEA Games to New Capital'. <http://www.ocasia.org/News/Index.aspx>.



adapt to climate change. The large majority noted that people may have to update occupational skills; almost a third of young people felt that income sources may also need to be diversified<sup>79</sup>.

Many commonplace behaviours discussed as part of this research are likely to have negative impacts on climate change and the wider environment, although this is often due to a lack of available information and clear messaging on alternative solutions (and sometimes, a lack of alternative solutions altogether). The majority of people in Myanmar still use firewood, for example, which continues to contribute to deforestation; this is as much about necessity as awareness, as there are few alternatives available for cooking<sup>80</sup>. Farmers in Indonesia also continue with practices such as crop burning and deforestation in many places. The World Wildlife Fund works with Indonesian fishermen in the tuna industry in order to try to increase levels of sustainability. Fishermen meet high local demand for tuna by bombing the water; although they understand that other methods may be preferable, bombing is the easiest way to secure high yields. Future resource loss is not considered<sup>81</sup>.

Adaptation is believed, by some, to be expensive as it is perceived as requiring technology, although others have found non-technological alternatives to adaptation, such as diversifying crops. Although farmers are encouraged to use organic fertiliser, they do not receive adequate training to produce or use it.

CCA is understood by young people as ensuring that communities and places of work have better disaster risk management in place.

<sup>79</sup> Quantitative research survey results, November 2013.

<sup>80</sup> Ibid.

<sup>81</sup> Field research in Indonesia, October 2013.

Current coping mechanisms in rural areas of Indonesia are traditional, as people watch the weather and plant their crops accordingly, rather than applying technology<sup>82</sup>.

In Vietnam, individual students talked of the perceived impacts of climate change on their own families' livelihoods; one student believed that an unusually harsh winter had killed one family's livestock and another student believe that a water shortage saw their crops fail. They also saw evidence of climate change in flooding, rising sea levels, increased rainfall, hotter temperatures and bigger storms. Rising prices are being seen, they said, due to crop destruction, reduced tourism and land erosion due to rising sea levels<sup>83</sup>.

The Vietnamese agriculture students believed that the newness of green agriculture practices in Vietnam would make it difficult for them to find work<sup>84</sup>. As with employers, interest in green approaches to work and living are often associated with finances rather than the environment; healthcare students in Thailand, for example, expressed an interest in learning more about green skills so that they could apply them to their daily lives and save money<sup>85</sup>.

In Indonesian focus groups with young people, climate change was, in part, blamed for the lack of opportunity in rural areas, but young people demonstrated little knowledge or understanding of what climate change was or what it meant to their communities<sup>86</sup>. Agriculture students in Vietnam felt that climate change would definitely affect their careers: those studying plants noted that it would affect the planting schedule, and those studying rural development would need to incorporate projects on green technology<sup>87</sup>.

A number of respondents in the research countries suggested that the study of climate change should be incorporated as early as possible into the school curriculum<sup>88</sup>. Plan may have a role in encouraging the incorporation of climate change issues into the school curriculum, due to prior work engaging with education ministries on integrating DRR and CCA into the school syllabus. There are, however, both political and structural issues which may prevent curriculum changes from taking place; in Myanmar, for example, one respondent commented that the state curriculum is too rigid to incorporate environmental issues<sup>89</sup>.

## 6.4 Gender Considerations

Literature suggests that the impacts of climate change will be felt more acutely by girls and young women. Research has found that girls in many societies face gender discrimination resulting in lower access to education and healthcare and thus will feel the effects of poverty more overtly. Climate change and resulting severe weather undoubtedly exacerbate extreme poverty; girls are likely to be greatly affected by the direct impacts of climate change<sup>90</sup>. There are also distinct protection issues relating to an increase in sexual exploitation and abuse in disasters<sup>91</sup>. Climate change adaptation programming must, therefore, take gendered differences in roles and responsibilities in society, as well as impacts felt from climate change, into account in order to ensure maximum impact for beneficiaries.

The evidence base for gender considerations directly relating to CCA and green jobs is limited in the four target countries. One study found that young men and women in rural areas of Vietnam *'generally share the same challenges'* regarding adaptation to climate change, and that their responses (typically migration) are also similar. The percentage of female dropouts from education in rural areas is, however, higher than that of male dropouts, and female participation in the labour market in rural areas is lower. These obstacles were not directly associated with climate change adaptation and sustainable development; they were, however, found to impact *'youth human capital on a permanent basis'*<sup>92</sup>. The literature suggests that there are distinct barriers to education, training and other key resources for accessing green jobs and livelihoods for young women in

In a review of 423 National Adaptation Programmes of Action for climate change adaptation, only 10% were found to include any mention of women.

<sup>82</sup> Ibid.

<sup>83</sup> Field research in Vietnam, October 2013.

<sup>84</sup> Ibid.

<sup>85</sup> Field research in Thailand, September 2013.

<sup>86</sup> Field research in Indonesia, October 2013.

<sup>87</sup> Field research in Vietnam, October 2013.

<sup>88</sup> Field research in all four study countries, September to December 2013.

<sup>89</sup> Field research in Myanmar, December 2013.

<sup>90</sup> Plan International. 2011. 'Weathering the Storm: Adolescent Girls and Climate Change'.

<sup>91</sup> Plan International. 2013. 'Because I Am A Girl: The State of the World's Girls in 2013. In Double Jeopardy: Adolescent Girls and Disasters'.

<sup>92</sup> Perezniето, Paola. 2011. 'Youth Vulnerabilities and Adaptation. Exploring the Macro-level shocks on youth: 3F (Food, Fuel, Financial) Crisis and Climate Change in Ghana, Mozambique and Vietnam. Overseas Development Institute (ODI).

rural areas across the target countries.

Regarding training for young women, Plan's Youth Employment Sub-Sector Strategy (2013-2016) notes that many TVET courses have an in-built gender bias in terms of activities that are deemed suitable for boys and girls; they recommend investigating training options that would present opportunities for adolescent girls and young women, while also ensuring training aligns with market demand<sup>93</sup>. Plan Laos' experience conducting workshops with girls and women in Laos, for example, found that special facilitating techniques were sometimes required, such as forming separate groups for women in order that they were able to discuss issues and voice their opinions freely<sup>94</sup>. Plan Thailand's research into green skills found that there were discrepancies in the training offered to males and females, with the latter only having 38% participation<sup>95</sup>.

In addition to barriers to education and training, findings show certain gender differences regarding future career paths<sup>96</sup>. In Indonesia, field research found evident differences in career paths followed by men and women. Young women in one group discussion, for example, talked about beauty and teaching and men talked about working in agriculture and automotive workshops<sup>97</sup>. Students at REACH<sup>98</sup> Da Nang in Vietnam further commented that men have better chances of employment than women as women are expected to have families and men are more able to do shift work<sup>99</sup>. According to Yayasan Mitra Tani Mandiri in Indonesia, however, the separation of labour between sexes is becoming less apparent. Both men and women now cultivate the land, plant and carry tools<sup>100</sup>. Gender inequality appears to be more of a recognised issue in Myanmar, where discussion about the promotion of gender equality has failed to translate into reality. Women are less involved in community activities than men as they are expected to take care of children and undertake household duties<sup>101</sup>.

Climate change was also found to have varying effects on particular jobs and sections of local economies. Where specific jobs are traditionally gendered (for example smallholder agriculture is associated with women, and fishing or livestock management is associated with men), impacts on income and employment access due to climate change can be expected to vary for men and women<sup>102</sup>.

In addition to gender differences in climate impacts relating directly to employment, research has found negative public perceptions of female engagement in the climate change debate in the Asia Pacific region. Evaluation of the 4CA programme in Indonesia, for example, has shown that men and boys are perceived to be more capable actors in reducing risks associated with climate change<sup>103</sup>. A review published in October 2013 by UN Women of 423 National Adaptation Programmes of Action for climate change adaptation further found that only 10% of programmes included any mention of women<sup>104</sup>. There is however an emphasis in the literature on the value of participatory approaches to gender sensitive and equitable CCA capacity building and local economic development<sup>105</sup>.

<sup>93</sup> Plan International Asia Regional Office. 'Youth Employment Sub-Sector Strategy 2013-2016'. Internal Report.

<sup>94</sup> Plan International Australia. 2013. 'Disaster Risk Reduction / Climate Change Adaptation Capacity Building Interim Report. Year 2'. Internal Report.

<sup>95</sup> Plan Thailand. 2014. 'Green Skills for Youth: Economic Empowerment for Climate Change Adaptation in Thailand'. Internal Report.

<sup>96</sup> Field research in Vietnam and Indonesia, October 2013.

<sup>97</sup> Field research in Indonesia, October 2013.

<sup>98</sup> REACH is a Vietnamese NGO specialising in vocational education and training.

<sup>99</sup> Field research in Vietnam, October 2013.

<sup>100</sup> Field research in Indonesia, October 2013.

<sup>101</sup> Field research in Myanmar, December 2013.

<sup>102</sup> United Nations Food and Agriculture Organisation (FAO). 2012. 'Training Guide: Gender and Climate Change Research in Agriculture and Food Security for Rural Development'.

<sup>103</sup> Plan International Australia. 2012. 'Child Centred Climate Change Adaptation (4CA) in the Asia Pacific'. Internal Report.

<sup>104</sup> Gosh, Jayita. 2013. 'Structural and policy constraints in achieving the MDGs for women and girls. Opportunities and challenges in achieving the MDGs: A gender-based analysis'. UN WOMEN.

<sup>105</sup> Bach, Tan Sinh and Vu, Canh Toan. 2012. 'Mainstreaming adaptation into local development plans in Vietnam'. Regional Climate Change Adaptation Knowledge Platform for Asia.



## 7. Green Jobs and Green Skills

General environmental awareness has been found to be limited in all countries of study<sup>106</sup>. Despite limited knowledge of environmental issues, young people were found to be aware of the impact that climate change has on working life<sup>107</sup>. Agriculture students in Vietnam, for example, felt that climate change would have a direct impact on their professional lives, affecting the planting schedule<sup>108</sup>. As with employers, however, interest in greening professions was

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<sup>106</sup> Field research in all four study countries, September to December 2013.

<sup>107</sup> Quantitative research survey results, November 2013.

<sup>108</sup> Field research in Vietnam, October 2013.



often associated with financial concerns rather than the environment. As noted above in Section 4, the definition that was most widely applicable to the young people and employers surveyed was that green skills were those that enabled people to work and live in a more environmentally efficient or sustainable way, regardless of sector or industry.

The following section investigates environmental priorities for the countries of study and the correlative areas of work that these priorities encompass. Despite the limited availability of disaggregated data on employment numbers in green jobs, Section 7.1 provides estimations of green jobs in each of the countries of study as well as an overview of national policies and priorities regarding green employment. Section 7.2 further discusses specific green skills in employment, and gives an overview of qualitative and quantitative findings from the countries of study regarding understanding and utilisation of green skills in the labour market.

## 7.1 Green Jobs

Green jobs include a wide range of professions that help ‘*preserve or restore a sustainable environment*’. Jobs termed as ‘green’ are not limited to those working directly in new environmental sectors such as renewable energy, but also include, for example, job functions in any profession that help to limit the emissions of greenhouse gases in existing industry, and any jobs that support adaptation to the effects of climate change<sup>109</sup>.

Environmental priorities for developing countries include air quality, municipal waste management, freshwater shortages, water pollution and poor sanitation, coastal management, deforestation and unsustainable land cultivation and climate-mediated environmental impacts (especially heavily populated mega-deltas). These translate into the following types of ‘green’ work areas<sup>110</sup>:

- Introducing controlled and sanitary waste management services and enhancing decent work in the informal waste management sector.
- Introducing energy-efficient cooking stoves, solar water heaters and solar panel systems in place of unsustainably harvested firewood, creating jobs in the manufacture and servicing of such equipment and reducing the burden of firewood collection.
- Building and servicing biogas plants to provide eco-friendly and economical fuel for lighting and cooking, in place of kerosene.
- Building and servicing composting plants to convert waste into natural fertilisers that can replace the costly chemical-based or petroleum-based fertilisers that can pollute groundwater reserves.
- Small-scale generation/decentralised power grids based on renewable energy technologies or industrial co-generation, rather than on large oil- or coal-based power plants and centralised, inefficient and loss-making electricity grids.
- Low-carbon public transport schemes.
- Sustainable natural management, such as forestry.
- Eco-tourism.

There is limited disaggregated data for Asia on green industries or green employment and, in general, estimates of green jobs vary widely depending on the methodology used and what assumptions are made<sup>111</sup>. Challenges around measuring green jobs are compounded by extensive informal sector employment across the region<sup>112</sup>.

In the agricultural sector, demand for green jobs is low in many areas across the region. Productivity is a key factor in the use of non-green practices in agriculture and fisheries; farmers face market pressure to use chemical fertilisers in order to increase their outputs. Responses from field research indicate that consumers often prefer non-organic produce that uses pesticides and other chemicals because the produce is larger and has a more regular form. Organic produce is also more expensive to grow and to buy. Despite increased demand for the production, marketing and

<sup>109</sup> International Labour Office (ILO), 26<sup>th</sup> August 2013. ‘What is a Green Job?’. [http://www.ilo.org/global/topics/green-jobs/news/WCMS\\_220248/lang--en/index.htm](http://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm).

<sup>110</sup> Jarvis, Andrew et. al. 2011. ‘Assessing Green Jobs Potential in Developing Countries: A Practitioner’s Guide’. International Labour Office (ILO).

<sup>111</sup> Quitzow, Rainer et. al. 2013. ‘Green Jobs In Asia: Achievements, Strategies and Potentials’. Friedrich Ebert Stiftung (FES).

<sup>112</sup> Jarvis, Andrew et. al. 2011. ‘Assessing Green Jobs Potential in Developing Countries: A Practitioner’s Guide’. International Labour Office (ILO).

<sup>113</sup> Field research in Indonesia, October 2013.

selling of organic fertiliser, demand for organic farming in general is limited<sup>113</sup>, and that demand may need to be stimulated through non-market mechanisms such as regulation.

### Indonesia

In 2008, the Asia Pacific Green Jobs Network estimated the numbers of green jobs in Indonesia to be as follows<sup>114</sup>:

1. Agriculture: 2,434,000 green jobs<sup>115</sup> (6.2% of total)
2. Transport: 603,000 green jobs<sup>116</sup> (9.8% of total)
3. Manufacturing: 331,000 green jobs<sup>117</sup> (2.6% of total)
4. Forestry: 242,000 green jobs<sup>118</sup> (17.6% of total)
5. Construction: 187,000 green jobs<sup>119</sup> (3.5% of total)
6. Fisheries: 97,000 green jobs<sup>120</sup> (18.1% of total)
7. Tourism: 11,000 green jobs<sup>121</sup> (no data on the percentage of total jobs)
8. Energy: 4,700 green jobs<sup>122</sup> (2.3% of total)
9. Mining: 300 green jobs (0.03% of total)

Due to a lack of detailed sector data, we have not attempted to project these figures forward to 2014 and 2019.

### Myanmar

Myanmar is at a turning point in terms of economic development, with international involvement only just taking off. Green jobs do not appear to be a priority; one INGO suggested that the majority of people are struggling to get sufficient food each day, which, in their opinion, reduced the importance of climate change to a concern of lesser immediacy<sup>123</sup>. No labour force survey has been conducted since 1990; while there is one in development in conjunction with the ILO, it is unlikely to be undertaken before 2015. This means that there is no national or local labour force information on which to make an assessment of green jobs; they are currently likely to be highly limited, however.

Across all countries of study, the sectors with the most potential for generating green jobs are:

- Agriculture, Forestry and Fisheries
- Energy
- Services
- Construction

<sup>114</sup> ILO Country Office Indonesia. 2013. 'Green Jobs Mapping in Indonesia: Advance Draft'. International Labour Office (ILO).

<sup>115</sup> Green jobs in agriculture were calculated by the AP Green Jobs Network by taking employment figures in the following green agricultural sub-sectors: Low impact crops cultivation; smallholder rubber; sustainable palm oil production; organic plantations for beverages; low impact poultry farming; and combination farming.

<sup>116</sup> Green jobs in transport were calculated by the AP Green Jobs Network by taking employment figures in the following green transport sub-sectors: Mass public transport; non-motorised transport; and rail, river and sea transport.

<sup>117</sup> Green jobs in manufacturing were calculated by the AP Green Jobs Network by taking employment figures in several green manufacturing sub-sectors, including: The production of sustainable edible oils; green agro-processing; lean manufacturing of garments; the manufacturing of materials that promote sustainability; and green cement production.

<sup>118</sup> Green jobs in forestry were calculated by the AP Green Jobs Network by taking employment figures in the following green forestry sub-sectors: Sustainable natural forestry; production of non-timber products; and forest services, protection and conservation.

<sup>119</sup> Green jobs in construction were calculated by the AP Green Jobs Network by taking employment figures in the following green construction sub-sectors: Green buildings; labour intensive transport infrastructure; irrigation and water management; and installation of renewables.

<sup>120</sup> Green jobs in fisheries were calculated by the AP Green Jobs Network by taking employment figures in the following green fisheries sub-sectors: Sustainable fishing; seaweed farming; and good practices in aquaculture.

<sup>121</sup> Green jobs in tourism were calculated by the AP Green Jobs Network by taking employment figures in the following green tourism sub-sectors: Sustainable accommodation services; sustainable tourism services; sustainable management of tourism destinations; and green spas.

<sup>122</sup> Green jobs in energy and mining were calculated by the AP Green Jobs Network by taking employment figures in the following green energy and mining sub-sectors: Geothermal energy; renewable energy; and biomass.

<sup>123</sup> Field research in Myanmar, December 2013.



## Thailand

The energy, industrial and service sectors have the greatest potential for generating green jobs in Thailand<sup>124</sup>. Tourism increased by 20% in the first half of 2013, seeing a 14.5% rise in the number of hotels and restaurants. Transport and construction also grew by 8% and manufacturing by 2%. The sectors traditionally thought to have the highest demand for green skills, agriculture and fisheries, grew by just 0.4% due to diseased shrimp and a fall in rice production<sup>125</sup>.

Sector change for both the labour force as a whole and for the youth labour force (age 15-24) has been estimated for 2014 and 2019 by applying the annual change between Q3 in 2012 and Q3 in 2013 forward. The youth labour force size was estimated taking account of the shrinkage in numbers of young people over the next five years. The most significant growth sectors for young people are likely to be Finance and Insurance (growth of 69.4%); Electricity, Gas and Steam Supply (growth of 48.4%); and Administrative and Support Services (34.1%). While the agricultural sector is the largest employer in Thailand, its growth is predicted to decline in the next five years, with the youth workforce in the sector predicted to drop by almost 12%.

Using the proportions from the ILO Indonesia paper<sup>126</sup>, we estimate that there are currently around:

- 1,005,000 green jobs in the agriculture, forestry and fishery sector, of which around 132,000 are held by young people.

<sup>124</sup> Anuchitworawong, Chaiyasit et. al. 2012. 'Green Growth and Green Jobs in Thailand: Comparative Analysis, Potentials, Perspectives'. Friedrich Ebert Stiftung (FES).

<sup>125</sup> Asian Development Bank. 2013. 'Asian Development Outlook 2013 Update: Governance and Public Service Delivery'.

<sup>126</sup> Asia Pacific Green Jobs Network. 2013. 'Green Jobs – A Key Concept for Sustainable Growth with Equity: Identifying and Estimating Green Jobs in Indonesia'. ILO Regional Office for Asia and the Pacific.

- Fewer than 20 green jobs in the mining and quarrying sector, of which around a tenth are held by young people.
- 144,000 green jobs in the manufacturing sector, of which around 19,000 are held by young people.
- 77,000 green jobs in the construction sector, of which around 10,000 are held by young people.
- 83,000 green jobs in the transportation and storage sector, of which around 11,000 are held by young people.

### Vietnam

Using the proportions from the ILO Indonesia paper and applying them to sector data from Vietnam<sup>127</sup>, we estimate that there are currently around:

- 1.5 million green jobs in the agriculture, forestry and fisheries sector, 400,000 of which are held by young people.
- 200,000 green jobs in the manufacturing sector, 90,000 of which are held by young people.
- 155,000 green jobs in the transport and storage sector, 40,000 of which are held by young people.
- 115,000 green jobs in the construction sector, 40,000 of which are held by young people.
- Fewer than 100 green jobs in the mining and quarrying sector, around a third of which are held by young people.

Although employment policies in Vietnam have touched on the issue of green jobs, there is a greater focus on 'decent work'<sup>128</sup>. NGOs in Vietnam have a good understanding of the difference between green jobs and greening existing jobs, but report that the responsibility for greening jobs lies with employers. GIZ in Vietnam has suggested that more work needs to be done on greening existing industries. This will, they suggest, require the provision of incentives to employers; they believe that employers need to value green skills enough to include them in occupational standards and that the Government should engage with them on this issue<sup>129</sup>.

There is a certain overlap with the demand for green jobs and national policies (see Section 4.4) in that demand can be created or enhanced through certain policy approaches. The Vietnam Green Growth Strategy looks to green existing sectors with more efficient use of energy and natural resources. It also intends to generate a more environmentally friendly lifestyle through greater employment in the green industry, agriculture and services, which would be promoted by investment and the development of a green infrastructure. A renewable energy technology market will be developed, creating domestic demand for green technology and the development of a sustainable infrastructure is to include irrigation and water, energy and transportation. In greening the existing production (manufacturing) industry, the Vietnam Green Growth Strategy hopes to improve conditions for the creation of a 'green production' sector, with specific attention paid to green technology. The strategy also pledges economic and technical assistance to promote the application of high technology to traditional products that can be greened. These include<sup>130</sup>:

- Herbal medicine
- Eco-agriculture
- Forestry
- Fisheries
- Foods
- Commodities
- Garments made from locally produced material

In Vietnam, the ILO claims to take a value chain approach to youth economic empowerment projects, meaning that they develop and stimulate the market, creating links with the markets to which they export<sup>131</sup>. This approach may also be useful for programmes involving green skills, through creating a demand for green jobs, and therefore green skills, throughout the value chain. This approach runs the risk, however, of being prescriptive in terms of the employment

<sup>127</sup> Asia Pacific Green Jobs Network. 2013. 'Green Jobs – A Key Concept for Sustainable Growth with Equity: Identifying and Estimating Green Jobs in Indonesia'. ILO Regional Office for Asia and the Pacific.

<sup>128</sup> Friedrich Ebert Stiftung (FES) Regional Forum. 2012. 'Green Jobs in Asia: Potentials and Prospects for National Strategies'. Conference Report.

<sup>129</sup> Field research in Vietnam, October 2013.

<sup>130</sup> Ibid.

<sup>131</sup> Field research in Vietnam, October 2013.

prospects available to young people, as the opportunities will be dictated by the market that is chosen for development, rather than by the career pathways that young people wish to pursue.

## 7.2 Green Skills

Young people surveyed through quantitative research on the whole identified green skills to be directly related to the working environment. Almost half of all survey participants identified green skills as those that would help them to reduce their employers' impact on the environment, with 41% also noting that green skills are those that enable employers to adapt to climate change. It is interesting to note that young women primarily identified green skills as work related, whereas almost 60% of young men felt that green skills are those that enable the community to adapt to climate change. Older survey participants, above the age of 23, were also much more likely to identify green skills as those that enable the community to adapt to climate change<sup>132</sup>.

Many employers from across the region interviewed for this research indicated that green skills are not a priority for them, but that cost saving is<sup>133</sup>. There are many commonalities between the areas in which employers indicated that they are trying to save money, and green approaches to employment, mostly in the area of saving energy: examples include using less fuel and turning off lights and equipment when not in use<sup>134</sup>. This suggests that articulating cost savings may be as useful as articulating positive environmental impact when promoting the need for green jobs and skills.

In Thailand, employers do not necessarily look for green skills, but instead focus on areas such as language, appearance and behaviour. Le Meridien, for example, looks for a *'positive attitude and willingness to work and learn'* above anything else. It provides its own in-house training in activities related to the environment, such as energy saving and waste management<sup>135</sup>. Plan Thailand's research into green skills indicated that 60% of employers had no expectations of their staff as to possessing green skills<sup>136</sup>. Training institutions interviewed in Thailand were said to lack the necessary equipment and teacher skill-sets for specific environmental training. Such training is provided by external organisations when necessary and available<sup>137</sup>.

Students in Vietnam were found to know very little about climate change and have limited green skills; focus is more generally placed on energy saving, waste and 'environmentally friendly' behaviour, as determined by the government's curriculum. Almost two thirds of young people surveyed across the countries of study did, however, note that there was an environmental element to their course; young women were more likely than young men to state this. Water minimisation, recycling and reusing materials, as well as energy-saving, were identified as the main skills related to environmental sustainability learned whilst studying. Students noted that incorporating an environmental element into courses is more for the purpose of 'greening jobs' than developing green skills. Green skills training is also not provided as a unique course or element in the curriculum in Thailand, but is embedded, where possible, into all courses. This was found to include separating rubbish for recycling, energy saving or using natural products such as natural beauty products. Students were found to be generally more interested in practical career guidance than environmental training and certain respondents suggested that green skills should be integrated into workplace training, rather than the classroom. There was, however, found to be some interest in learning about green skills amongst young people surveyed across the four countries as a whole. Over a quarter of young people, for example, felt that it would be useful to learn green skills as part of their course of study. The best way to learn about green skills, according to the young people surveyed, is through training workshops and conferences<sup>138</sup>.

In Indonesia, training for young people and migrant workers does not generally include green skills. Skills most notably lacking are marketing and technical skills, which should be provided with any entrepreneurial or business training to maximise the chances of business success and sustainability<sup>139</sup>.

Over a quarter of young people surveyed felt that it would be useful to learn green skills as part of their course of study.

<sup>132</sup> Quantitative research survey results, November 2013.

<sup>133</sup> Field research in all four study countries, September to December 2013.

<sup>134</sup> Field research in Indonesia, October 2013.

<sup>135</sup> Field research in Thailand, September 2013.

<sup>136</sup> Plan Thailand. 2014. 'Green Skills for Youth: Economic Empowerment for Climate Change Adaptation in Thailand'. Internal Report.

<sup>137</sup> Field research in Thailand, September 2013.

<sup>138</sup> Ibid.

<sup>139</sup> Field research in Indonesia, October 2013.

## 8. Green Skills Training

The following section investigates several aspects of green skills training in the countries of study. Section 8.2 discusses the green skills training content of various technical and vocational courses, including those based on the agricultural and the services sectors. Training delivery modes, including through community empowerment and using women as agents of change, are covered in Section 8.3. Challenges in delivering green skills training, including resources available for training, teacher knowledge and delivery in rural areas, are finally discussed in Section 8.3.

### 8.1 Training Content

Participants of the UNESCO-UNEVOC Greening Technical and Vocational Education and Training (GTVET)<sup>140</sup> conference of 2013 acknowledged the need to develop training curricula for green handicrafts and the agricultural sector<sup>141</sup>. They also felt that existing jobs are likely to require new skills sets in ethics and sustainability; other jobs may require certain technical skills related to climate change adaptation<sup>142</sup>.

One of the key points to emerge from this research is the vagueness attributed to green skills when viewed at a macro level; different skills are needed not only depending on the sector and country, but according to the very particular local circumstances in which the local employment markets operate. Adaptation requirements for agricultural practitioners are dependent, for example, on a range of factors including which local crops grow well, the amount of rainfall, variations in seasons, the interaction between local circumstance and local climate impacts (for example, the fact that villages in cyclone-affected parts of Myanmar fared better when they had a belt of trees acting as a buffer), soil quality, level of erosion, access to technology and the potential to develop alternative livelihoods<sup>143</sup>. Training content, therefore, will need to be tailored at a local level. In northern Thailand, for example, there are specific demands on the soil through the production of cash crops such as rice or corn, which are increased by the use of chemical fertiliser; one youth leader interviewed as part of this research suggested that helping young farmers to diversify into crops such as mushroom cultivation or chicken farming would help to reduce damage to the soil<sup>144</sup>.

Training content for green skills needs to be tailored at a local level to consider different adaptation requirements.

In agriculture, the training focus tends to be on the development of technical skills, but marketing and sales skills are also desperately needed in many areas<sup>145</sup>. While it is easier to incorporate a green element into technical skills training, the promotion of green practices through sales and marketing could be a key element in order to support those working in agriculture to find new markets for their organic products.

In addition to the focus on technical skills development for the agricultural sector, research found green skills training content in courses directed at the services sector. In Vietnam, for example, hospitality and catering students who participated in the primary research have an environmental day as part of their studies, and are required to research waste management<sup>146</sup>. At the focus group in Chiang Rai, Thailand, with vocational trainers, it was suggested that green skills training could involve the incorporation of energy conservation into laundry processing courses, the promotion of the use of natural products in housekeeping courses, the use of environmentally friendly materials in dressmaking courses, the use of non-chemical products in caring courses and the incorporation of reuse and recycling concepts into office management courses. One trainer in Thailand suggested that green skills did not need to be specifically highlighted to students, but incorporated naturally into their training; their greatest priority is income generation<sup>147</sup>.

In the Philippines, specific green competencies have been built into existing qualifications by the Technical Education and Skills Development Authority (TESDA); for example, the Pest Management qualification now includes agro-ecological pest management, and an Organic Agriculture Production qualification has now been developed<sup>148</sup>.

<sup>140</sup> This conference was held online and focused on a number of workshops and discussions about developing green skills and relevant curricula.

<sup>141</sup> Kastrop, Julia. 2013. 'Green TVET: Qualifications Needs and Implementation Strategies. A Background Paper'. UNESCO-UNEVOC Virtual Conference on Greening TVET.

<sup>142</sup> PASCAL Universities' Regional Engagement (PURE). 2011. 'Melbourne: Green Jobs Study Report'.

<sup>143</sup> Analysis from the four country field research and international literature review.

<sup>144</sup> Field research in Thailand, September 2013.

<sup>145</sup> For example, field research in Indonesia, October 2013.

<sup>146</sup> Field research in Vietnam, October 2013.

<sup>147</sup> Field research in Thailand, September 2013.

<sup>148</sup> Philippines Technical Education and Skills Development Authority (TESDA). 2014. 'Building Green Societies Through Green Jobs'. TESDA Training Presentation.

## 8.2 Training Delivery

Existing youth economic empowerment and climate change initiatives delivered in South East Asia have employed various training delivery modes that are commonly accepted as good practice in development. These encompass local ownership, using women as agents of change, ensuring community leadership, partnering with industry and focusing on whole value chains<sup>149</sup>.

Community ownership is critical to the success of most development projects; the delivery of training in green skills is no exception. A good example is the New Idol Farmers Group in Indonesia, which is a community-run collective formed of farmers, drivers and labourers. Crop diversification is a key part of their approach in order to reduce the impact of climate changes. Group members receive informal on-the-job training<sup>150</sup>. The group leader measures impact in terms of the volume of produce and by the fact that most labourers can afford to buy a motorbike after working in the group for just three months. An advantage of informal training delivery models, such as this, is that there is less need for formal training resources, and greater adaptability to changes in skills needs and training subjects.

Available financial and material resources were further found to present a challenge in the delivery of green skills training. In Indonesia, for example, funding for training and related infrastructure tends to be insufficient<sup>151</sup>. Barriers to the provision of green skills training in northern Thailand also included the need for financial resources, appropriate equipment and advocacy at a policy level<sup>152</sup>.

Training can also be offered effectively in the workplace; in Chiang Mai, for example, many employers prefer to provide in-house training rather than taking on employees who have been trained locally<sup>153</sup>. The challenges inherent in this mode of delivery, however, are related to employer engagement and recognition of the need for training; until more evidence is produced as to the benefits of developing green skills in all businesses and sectors, it will remain difficult to convince employers of the potential impact to their profitability. Ensuring the quality of training delivery in the workplace is also a challenge; without common curricula or even common principles regarding green training, quality will remain variable. The green competencies developed by TESDA in the Philippines could provide a useful template for other organisations in this respect<sup>154</sup>. Training delivery through apprenticeships may also be a good way to engage young people in the workforce and to deliver training in green skills; this may be appropriate also for building the workforce in green sectors. Plan's Livelihood Linked Vocational Education for Thailand (LiVE) project uses skills development centres to deliver market-linked training for young people from disadvantaged backgrounds; business partnerships are developed in order to offer participants two-month apprenticeship placements<sup>155</sup>. The Transitions programme, delivered by Youth Connect, is also a good example of this method of training; it aims to bridge the gap between youth and employers and provide young people with practical job skills and apprenticeships. Training is offered in subjects including life skills; courses are 12 weeks long and lead to three month apprenticeships<sup>156</sup>.

In order to deliver training on any form of environmental awareness or green skills, however, it will be critical first to deliver training to the teachers. During the research, teachers were generally found to be lacking knowledge of green skills, having not participated in any green skills training themselves<sup>157</sup>; ensuring that teachers receive such training is an important challenge<sup>158</sup>. In Vietnam, for example, teachers require more formal training in order to integrate climate change into the curriculum, as their current knowledge is generally self-taught and focuses on saving energy. Getting teacher and/or trainer buy-in is a key barrier; in Vietnam, staff at the Nguyen Binh Khiem Technical School believe that teaching about the environment is important, but while they would be prepared to deliver further environmental training in a dedicated workshop, they do not believe that they would be able to dedicate any additional time to the subject<sup>159</sup>.

In addition to the need for teacher training, teaching on climate change-related issues tends to be classroom-based and to have little practical application. According to one of the NGOs interviewed in Indonesia, students need to be

<sup>149</sup> A value chain is the set of activities performed by organisations to bring a product or service to market.

<sup>150</sup> Field research in Indonesia, October 2013.

<sup>151</sup> Field research in Indonesia, October 2013.

<sup>152</sup> Field research in Thailand, September 2013.

<sup>153</sup> Ibid.

<sup>154</sup> Philippines Technical Education and Skills Development Authority (TESDA). 2014. 'Building Green Societies Through Green Jobs'. TESDA Training Presentation.

<sup>155</sup> Information provided by Plan.

<sup>156</sup> Youth Connect Thailand: Training Apprenticeships and Employment. <http://www.youthconnectthailand.org/about>.

<sup>157</sup> Field research in all countries of study, September to December 2013.

<sup>158</sup> Field research in Indonesia, October 2013.

<sup>159</sup> Field research in Vietnam, October 2013.



encouraged to apply their knowledge to real life; the Ministry of Education can help to facilitate this by encouraging work placements or practical training opportunities<sup>160</sup>.

In some areas, delivery challenges are compounded by the small size of many villages and hamlets; one agriculture student interviewed in Thailand, for example, comes from a village of only seven households<sup>161</sup>. In these situations, peer to peer learning may be the most appropriate delivery mechanism. In areas with high youth migration away from villages, the integration of CCA and YES programmes into community development initiatives with younger children may also address delivery challenges: training can be developed according to community needs and delivered by local institutions/peer teaching.

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<sup>160</sup> Field research in Indonesia, October 2013.

<sup>161</sup> Field research in Thailand, September 2013.



## 9. Integrating YEE and CCA Programmes

### 9.1 The LABS model

The Livelihood Advancement Business Schools (LABS) model, as originally developed by Dr Reddy's Foundation, focuses on matching supply and demand of labour, and providing young people with life skills as well as the technical skills they will need for work. The LABS model is utilised by Plan's Youth Economic Solutions (YES) programmes in many countries, but to varying degrees of depth and effectiveness; the Ministry of Planning in Indonesia will reportedly use this model to assist their TVET planning<sup>162</sup>.

The goal of Plan's YES strategy is to improve the standard of living for excluded and marginalised youth; the purpose is to secure work for 50,000 young people by 2016. Employment is the key success factor, rather than completion rates; there is also significant focus on community mobilisation and improving the value chain. There are two 'tracks' for YES programmes - the LABS model and the Entrepreneurship model. To date, Plan have trained over 20,000 young people using these models; approximately 78% of these young people have secured work and 76% report improved quality of life<sup>163</sup>.

The LABS system has eight modules; while their purpose is consistent throughout different country models, the names may vary:

1. Market Scan
2. Curriculum Development
3. Mobilisation and Application
4. Induction and Life Skills
5. Technical Training
6. Work Readiness training
7. Job Placement
8. Post Placement Evaluation

The market scan ensures that the programme will have relevance and impact, and also ensures the identification of employers for engagement in industries with skills needs. At present curricula is restricted to four areas (Hospitality, Food & Beverage, Sales & Marketing, and IT), although there is scope to move beyond these industries where there is need. Young people are engaged and given training in the life skills they may need, for example in reproductive health, followed by the technical training relevant to their future job. The training institution will also give training in work readiness skills, including punctuality, workplace behaviour and communication. Trainees are then placed in jobs with the employers engaged at the outset of the process, and are evaluated six months after graduation to assess progress.

Contributing factors for success include the ability of the model to address and enable the ambitions of young people; and the fact that the teaching staff (facilitators) are all still working in their relevant industry, ensuring that the skills taught are relevant in a work context. The challenges to date for Plan have included ways to access and engage rural communities, and areas with a lack of economic opportunity. Another key restriction is the fact that curricula is developed according to need in each country; there is no centrally-held repository of core curricula, which could be adapted for local needs. With the advent of an e-learning platform for LABS in May 2014, it is likely that flexible curricula for a number of industries could be developed, and that learning materials could be shared between facilitators in all institutions offering LABS-style programmes. It must be noted, however, that the LABS model is not suitable for all countries; places like Myanmar and Timor-Leste do not yet have the necessary employment sector and industry to support the model.

### 9.2 Integration

An objective of this project was to assess the potential for integration between YES programmes and the Climate Change Adaptation (CCA) programmes run by Plan; the research has indicated that there is likely to be significant benefit to both programmes from integration, primarily using the LABS model.

<sup>162</sup> Figures from Plan International interview, Bangkok October 2013.

<sup>163</sup> Ibid.

### 9.2.1 Integrating LABS into CCA programmes

Under the current CCA model, communities are engaged by Plan and assisted to identify the key areas of climate change impact; together, they then develop projects, for which seed funding is provided, to facilitate adaptation to the effects of climate change. One shortcoming of this model, however, is the lack of focus on young people in rural areas, many of whom migrate for work due to lack of employment opportunities; there is also the assumption that young people will continue in the traditional work areas of their village.

By expanding the impact assessment model to incorporate specific modules of the LABS model, it may be possible to give young people a choice in their future career, while still ensuring employment. This could be as follows:

- When assessing communities for CCA impact assessment interventions, a parallel market scan on the employment trends and gaps for the area could also be performed. This could identify large employers and engage them.
- Communities, particularly young people, could be asked to consider their training needs and ambitions, relevant to the employment opportunities that are available.
- Curricula could be taken from a central Plan repository and modified to meet local needs.
- The method of training delivery would also be a key factor at this point, it should be noted, particularly in areas where there are no training institutions, as the training delivery would likely be from a Plan facilitator or, better still, in a peer-to-peer model.
- Placement would occur with employers, and post-placement evaluation six months later.

In villages and communities where there are no employment opportunities, and skills gaps are related to agricultural needs, training could be developed and delivered in the relevant areas. Utilising LABS-style skills gap analysis would ensure that any training developed and delivered is according to the specific needs of the community. There is also potential for flexible curricula to be developed for adaptation and delivery by the communities themselves in a peer-to-peer learning model.

### 9.2.2 CCA into the LABS model

A key finding of this research is that young people do not have a clear understanding of what climate change is, and what the difference between mitigation and adaptation is. Most significantly, many young people do not understand the importance of green skills and environmentally aware behaviour for themselves, their community and their prospective employers. Integrating environmental skills into the LABS model may help to raise the level of awareness amongst young people and, by transmission, to their families and communities.

To date, green skills have not formed a formal part of the curricula in the LABS training modules, but a number of teachers and institutions interviewed as part of field research indicated that it would be a welcome addition. Additions to curricula could involve training sessions similar to those run by Live and Learn in Vietnam, which focused not only on giving young people information about the environment, but also engaging young people in trying to understand the impacts to their own lives and communities, and identifying behaviours that could reduce environmental impact and help them adapt better to the impact of climate change.

Key areas for consideration include:

- Developing training sessions or modules that are flexible enough to be tailored to local contexts.
- Ensuring young people are motivated to understand the impact of climate change on their own lives.
- Ensuring that teachers and facilitators are similarly engaged and trained.

Partner NGOs providing training in environmental issues, such as Live and Learn, may assist in providing material that can be stored and shared on the e-learning portal.

## 10. Conclusions and Recommendations

### 10.1 Key Findings

From the research, we have drawn the following key findings. These findings have been used to develop recommendations and key action items in the subsequent sections.

- There is significant confusion around terminology regarding green skills and green jobs amongst the majority of stakeholders interviewed as part of this project.
- Green skills can be understood as the knowledge and skills needed to live and work in an environmentally responsible way, and to deal with the impacts of climate change.
- Green jobs are jobs that contribute to preserving or restoring the sustainable environment, or dealing with the impacts of climate change.
- Young people and employers are confused about the distinction between climate change mitigation and climate change adaptation; the former is understood to relate to action to prevent further impacts, and the latter is understood as adapting behaviour to cope with climate change.
- National policies tend to focus more on promoting environmental technologies for export, rather than offering support for innovative approaches to meet domestic needs.
- For many rural young people seeking employment, their only option is to move to urban centres.
- Across all countries of study, the sectors with the most potential for generating green jobs are: Agriculture, Forestry and Fishing; Energy; Services; and Construction.
- The primary preferred employment sectors according to young people were design/media, agriculture, business and education.
- There is a gender bias in many training programmes and expected career paths, with specific jobs being prescribed for boys and for girls.
- For many students, working in an environmentally responsible way is important, but they do not know how to access the skills and knowledge they need.
- While environmental awareness is sometimes delivered as part of training programmes, it is ad-hoc and informal.
- Agricultural students would like the opportunity to use their skills and knowledge to help farmers in rural areas improve their techniques.
- Training content for green skills at local levels needs to include marketing and sales skills, to ensure that farmers and green entrepreneurs are able to develop their business.
- Teacher training is a significant gap, with the majority of teachers feeling ill-equipped to deliver training in green skills.
- Training can be delivered effectively in the community; in the workplace; through apprenticeships and other placements; and in institutions.
- Older community members could become valuable training assets, particularly in engaging young people, if the scope of new policies and training programmes were extended to the whole community.
- The Livelihood Advancement Business Schools (LABS) model is relatively unique in terms of giving young people choice over their career pathways, and providing employment opportunities to suit by matching supply and demand within local economies.
- Green skills are not a priority for employers, but cost saving is; if the financial benefits of investing in green skills could be shown, more employers would be interested.

## 10.2. Recommendations for Green Skills Development

While the most common definitions of green jobs focus on climate change mitigation activities, which are not the focus of Plan's work, it is our conclusion that Plan can effect significant impact in the area of green skills, directly relevant to the livelihoods of young people. From the research, we believe that there are three main areas of green skills development that Plan can focus on:

1. Enabling those in rural areas affected by climate change to learn new skills in agriculture, to preserve their livelihoods.
2. To integrate elements of YEE into CCA programmes to enable young people in areas affected by climate change to train in alternate livelihoods with employment prospects.
3. To integrate knowledge from CCA programmes into the common YEE curricula, to ensure that students receive basic environmental awareness, which will then cascade into their eventual workplace.

Each of these recommendations is explored in further depth as follows:

### 10.2.1 Delivering Agricultural Skills Training

There are many areas in which Plan can successfully contribute to the development of green skills, both directly and indirectly. Agriculture is the sector affected most directly by climate change in the countries under consideration, and is also the sector where there is most potential for green jobs growth; as such, delivering or facilitating the delivery of training in agricultural skills could be the most direct way for Plan to assist young people in developing their livelihoods.

There are two main routes through which agricultural skills training could be developed and delivered: through community-based training; and through the delivery of curricula by partner training institutions (such as REACH in Vietnam) - currently primarily in urban centres, but potentially also in rural areas. In order to ensure consistency, it would be recommended that a core curriculum is developed, focusing on new techniques in agriculture and ways to address the impacts of climate change. Ensuring that the curriculum is flexible, and can be adapted to the different needs of communities and regions, is also crucial.

With both training modes, ensuring that a significant proportion of training is delivered practically is essential for improving understanding. Within the area of CCA/green skills, it may also play an important role in driving mindset change, in terms of local communities understanding the relevance of initiatives to their livelihoods. Programmes delivered within institutions using the LABS model ensure that practical and theoretical skills are balanced, and that students are given appropriate work placements; post-training support is also provided in the case of self-employed graduates.

Delivery of agricultural skills training at a community level could be performed in a number of ways: peer to peer knowledge dissemination, a community-based learning centre, or even the utilisation of agriculture students or graduates to teach short courses. In discussions with agriculture students in Vietnam, there was a strong desire on the part of students to use their knowledge about agricultural techniques to assist communities in coping with the impact of climate change. It may also be worth exploring the potential for such teaching experience to count towards students' grades, or to be used as a form of work experience.

A significant finding from the research is that older people in rural, agricultural communities are limited by two factors: (a) a lack of knowledge and therefore ability to diversify into more sustainable crops, and (b) city migration of younger members of the community. It was also discovered that many successful programmes and initiatives utilise the seniority of older community members and the respect in which they are held, to drive change. While Plan's focus is on children and young people, we believe that it may be useful to include older people in the community in training, as a way of engaging and supporting young people. Older community leaders are more likely to encourage young people to participate in training, and also to provide support in the form of mentoring; new techniques and technology are also likely to be more easily embedded if larger sections of the community are trained simultaneously.

Introducing agricultural skills into partner training institutions is likely to be a long-term objective, given that these institutions tend to be based in urban centres, and are not necessarily set up to teach (or provide practical experience in) agricultural skills. Developing partnerships with training institutions in areas experiencing significant levels of impact to agricultural production may be a way to introduce curricula focusing on the development of new skills and techniques; introducing theoretical training programmes into urban institutions, with placements in rural areas for work experience, may also be a solution.



Key actions include:

- The development of flexible curricula on new agricultural techniques and skills.
- Investigating partnerships with universities to encourage agricultural students and graduates to undertake community placements.
- Engaging community leaders in training to drive the engagement of young people and to deliver mentoring support.
- Developing partnerships with rural training centres to deliver agricultural skills curricula.

#### 10.2.2 Using LABS Methodology for CCA Programmes

An interesting finding from the research is that the LABS model, as used by Plan, is relatively unique in terms of enabling young people to pursue the career pathways that they want, while other initiatives and programmes have focus on development of the value chain, meaning that the choices of young people are prescribed. We also discovered that young people have strong ideas about their ideal career and ambitions, but often do not know how to go about pursuing their goals in education or employment; similarly, young people from rural areas wish to remain in their home towns, but do not feel that they can find a job.

From these findings, we believe that Plan can integrate aspects of the YEE and CCA programmes to improve employment prospects for young people in areas affected by climate change. As discussed in Section 9.2, the most relevant parts of the LABS model, as used in the YEE programme, are the market scan methodology, which identifies the economic needs of the local area or region; and employer engagement, which identifies the exact needs of local employers, and ensures that jobs will be available to graduates. In situations where young people wish to remain in agriculture, training could also be delivered or signposted (as per the previous recommendation) in new techniques and technologies.

The integration of YEE and CCA programmes may yield significant benefits to both sets of programmes, as discussed in Section 9; it should be highlighted, however, that the market demand for this - as expressed by employers and young people - is low in many areas, and may need to be stimulated by Plan's activities. We found little evidence of employer engagement in climate change adaptation and, more generally, in the wider training agenda. Where it was present, it was generally to meet legislative expectations, rather than any acknowledgment of the need for a structural change in

the way in which employment links with environmental sustainability. There is a need to articulate the environmental and climatic challenges in financial formats where possible to gain greater engagement from employers as to the benefits of 'greening' jobs.

The addition of specific LABS methodologies to CCA impact studies with communities will ensure that skills training programmes are offered which are relevant to those needed. It will also ensure that communities and employers are engaged, and that young people have the ability to choose their own careers, whether in upgrading their agricultural skills or seeking new employment pathways. Curricula for training modules can either be taught by local institutions, in regions or urban areas, or through peer-to-peer learning in smaller communities. It may also be possible to access teaching resources, as discussed earlier in the section, in the form of agricultural graduates.

Key actions include:

- Working with the YEE team to develop a modified version of the market scan methodology to be used in CCA community work.
- Developing linkages with local training institutions.
- Engaging local employers to identify available jobs and also to secure post-training employment.
- Engaging agricultural students or trainers to deliver community training, where required, on new agricultural technologies and techniques.

### 10.2.3 Integrating Green Skills into YEE Programmes

One of the most striking findings of the research with young people was the fact that there was very low understanding of climate change, or even basic environmental awareness. It is a key conclusion of the research that one of the most pertinent action items, and possibly the area that could yield the most positive long-term impact, is the provision of environmental awareness to young people. Plan is already delivering effective work in this area, both in its own programmes and through partner organisations such as Live and Learn. Integration of such knowledge into other programmes, however, such as YEE, would also yield significant positive impact.

By integrating environmental knowledge, both general and job-specific, into the existing YEE programme, trainees will be able to develop green skills that will benefit not only themselves, but also their future employers and their communities. As discussed in Section 9, there is significant scope to include CCA modules within existing YEE structures: while the current LABS curricula currently focuses on four course subjects (Hospitality, Food & Beverage, Sales & Marketing, and IT), and entrepreneurship training, there is scope to develop additional curricula based on skills needs. The green elements within the existing curricula are informal and ad-hoc; there is significant potential to include a formal module on environmental awareness and climate change adaptation methods.

While formal accreditation and certification should be a long-term ambition in terms of enhancing employability, anecdotal interview and focus group evidence from across the region suggests that it is not currently a priority among employers. Time spent working in the field and demonstrating competency were the most important factors. When developing projects, efforts may therefore be better suited to ensuring that skills are directly relevant to the needs of industry and local economies, rather than to some external standard, such as international comparability.

Building teachers' skills in this area is also a key challenge; it is likely that the LABS model will also need to include supplementary training material for teachers. With the e-learning platform that will be launched by Plan in 2014, it will be possible for teachers to share resources relevant to environmental awareness. It will be critical, however, to ensure that the language used is appropriate and the engagement methods targeted at young people.

Key actions include:

- Working with the CCA team to develop a core curricula on environmental awareness.
- Building CCA modules into relevant parts of each training curricula.
- Providing teacher training in green skills and ensuring that resources are available online.

## 10.3 Other Recommendations

Other recommendations, more broadly linked to raising awareness of green skills, include the use of consistent terminology around green skills; articulating the benefits of green skills and greening jobs; and raising awareness at policy levels.

### 10.3.1 Use of consistent terminology

As outlined in Section 3, there is some overlap in the way that people understand concepts related to climate change mitigation and climate change adaptation. They are not phrases which are widely understood; nor, for that matter, are

'green skills' and 'green jobs'. The language focus in many cases might be more appropriately linked into issues related to CCA and its outcomes, such as changing weather patterns, disaster mitigation and food security. It is likely that Plan will need to develop working definitions that differentiate between climate change mitigation and adaptation activities in language that is easily understandable by young people.

### 10.3.2 Articulating the benefits of green skills

While there is a good deal of research and evidence into the green economy and green jobs, there is little evidence as to the economic and social benefits of developing more generic green skills, and of greening jobs in all sectors. This may include assessing the benefits to employers of having staff that work in an environmentally responsible way (i.e. saving energy and reducing waste), and of refining business activities to have less environmental impact. While it may be outside Plan's remit and capacity to conduct such research, it would be beneficial for Plan to encourage other organisations to do so; providing a financial incentive for employers to value green skills and knowledge is likely to make engagement work much more successful.

### 10.3.3 Raising awareness at policy level

There appears to be an either/or mentality around the greening of the economy in many areas, with a perception that the creation of a green economy will take away from the existing economy, which is not feasible due to existing levels of resources and unemployment. Identifying approaches through which green skills have effectively been integrated as a growth strategy is essential for policy makers. Thailand may be a good reference point for catalysing change; the Government has, for example, driven consumer demand for organic produce by supporting traders and producers, as well as increasing attention on the agricultural sector and its value within the national economy.

The presence of distinctive policies targeting youth employment, green skills and climate change adaptation is a prerequisite for coherent delivery of the multitude of approaches and levers which are required to begin to address these issues. In general, these policies are piecemeal or at an early stage of development in the countries studied. There is a need to focus on policy development in these areas at both national and district levels, and to ensure that national and local priorities are not in conflict. Co-ordination between ministries is also something which should be advocated. This is inherently difficult because of the cross-sectoral nature of climate change and youth employment. The presence of a climate change master plan in Thailand is clearly a significant step forward and may assist with co-ordination between different ministries, offering a distinctive lens through which procurement or legislation may be viewed.

In each of the countries of study, it is clear that the impact of climate change is being felt most in rural areas; this is in line with the broader literature and relates to generally higher poverty levels in rural areas and less resilience to economic shocks. A significant amount of policy initiatives on green skills are being targeted in urban areas, however, presumably because these areas are more accessible and projects and programmes cost relatively less to run as a result. This approach contributes, however, to the divide between rural and urban outcomes, including in education, in the study countries, and means that young people in rural areas are less equipped to deal with the impacts of climate change.

In addition to awareness raising at the policy level, multi-level engagement strategies as a whole are essential in driving change in mindsets and improving sustainability. The Community-based Adaptation to Climate Change project in Vietnam, which ran workshops from the community level up to policy makers, was effective in doing this. Driving media attention to projects operating in this space is important.

## 10.4 Suggested Action Items

As initial points of action, we would recommend the following:

- Developing flexible curricula on:
  - New agricultural techniques and skills; and general environmental awareness and climate change.
- Investigating partnerships with:
  - Universities to encourage agricultural students and graduates to undertake community placements.
  - Rural training centres to deliver agricultural skills curricula.
- Engaging community leaders to drive the engagement of young people and to deliver mentoring support.
- Developing a modified version of the market scan methodology to be used in CCA community work.
- Providing teacher training in green skills and ensuring that resources are available online.
- Ensuring that terminology and messages regarding green skills are consistent.
- Developing policy and advocacy work around green skills.

## Appendix 1: Country-Specific Findings

The following findings have been drawn from the country-specific research, which is available in standalone reports.

### Indonesia

#### Climate Change Adaptation

*Limited understanding of climate change* - Policy makers in NTT demonstrated little understanding of climate change, and believed it only to have an impact on the agriculture and fisheries sector. Climate change, according to field research findings, is central government's lowest priority, after education, health, construction and agriculture, in that order. It was suggested that a department specifically focusing on the environment might help prioritise the issues. Of all the stakeholders met in NTT, NGOs demonstrated the greatest understanding of climate change and its impacts, as well as CCA, in the region. Climate change was, in part, blamed for the lack of opportunity in rural areas, but young people demonstrated little knowledge or understanding of what climate change was or what it meant to their communities. Often programmes seeking economic empowerment for groups also address CCA, such as those providing organic fertiliser to local farmers or providing non-agriculture skills for those needing a supplementary income. One programme noted that a key challenge was ensuring that communities understood the link between climate change and deforestation.

*Current impacts: farmer vulnerability* - Farmers are suffering the most apparent effects of climate change in the region, including poor crop yields which are blamed on unpredictable weather. Adaptation is believed, by some, to be expensive as it requires new technology, although others have found non-technological alternatives to adaptation, such as crop diversification. Although farmers are encouraged to use organic fertiliser, they do not receive adequate training to produce or use it. Disaster risk management, however, remains the greatest priority. Other recognised impacts of climate change in NTT have been food scarcity and mass migration of young people to urban areas.

*Insufficient co-ordination and sharing of information* - There should be greater collaboration across government departments, as well as NGOs, to ensure that young people can gain relevant green skills. Local policy makers believed that the youth need to be empowered and provided with the skills relevant to their own region. There is a lack of information available as to the impact of many of the programmes researched; contacting programme teams directly is required in many cases.

*Strong policy and financing structures* - Despite the need for greater collaboration, Indonesia has a strong system of integrated policies and funding structures. The ICCTF, as a multi-donor financing tool, may be a potential source of support or funding for future green skills action at community level for Plan International.

*Challenges of stakeholder engagement* - Engaging beneficiaries has been a challenging exercise for at least one programme; comparing their approaches with those employed by Plan and other successful programmes may be useful. There are conflicting examples of the impact of using local people as facilitators: in one programme, their usage was highly effective in engaging communities, while in another, their usage led to conflict. It would be worth investigating these instances further.

#### Youth Economic Empowerment and Training

*Lack of basic education provision* - In terms of training and education, few students graduate from high school in NTT; there should be a focus on elementary schooling in the districts visited. Pupils are often required to work and assist their parents rather than attend school, even at an elementary level. There are programmes in place to discourage this practice, but they have little impact. Vocational schools are believed to be more effective in providing the necessary skills for work to young people and local governments have provided such training, but there is no longer the funding to accommodate this in the region.

*Lack of practical skills* - There is a lack of practical skills among young people, particularly in sales and marketing. An NTT employer suggested that money should be a motivation to learn such skills. Younger people, he believed, were easier to influence than older members of the community whose behavioural patterns were more established. He would like to see employers collaborating more with vocational trainers to ensure that skills being taught are appropriate and relevant. Rather than dictate the jobs young people should consider, their existing talents and interests should be developed. Skills most notably lacking are marketing and technical skills, which should be provided with any entrepreneurial or business training.

*Employment and rural-urban migration* - Young people in rural NTT complained of a lack of job prospects. Although unwilling, many suggested that their only option may be to migrate to the region's capital, Kupang. There are a number of large scale programmes targeting youth employment strategies overtly, far more than have been identified in Vietnam or Thailand. A number of these programmes are also 'second chance' education initiatives targeting



disadvantaged young people and school dropouts. Entrepreneurship is also a viable option, which is valued amongst young people.

*Youth priorities: acquiring vocation-specific skills* - There was a clear desire to acquire vocation-specific skills among young people in NTT, particularly in areas such as business and marketing, as well as agricultural technology. Gender differences were not acknowledged, although they were apparent in their choice of jobs (young women, for example, talked about beauty and teaching, and men talked about agriculture and automotive workshops).

## Green Skills

*Lack of general green skills training* - Training for young people and migrant workers in NTT does not generally include green skills or climate change awareness raising activities. Any existing programmes that are driving these are considered ineffective and lessons are not being recorded or learned.

*Climate change mitigation/adaptation* - NGOs in NTT suggested that climate change mitigation should be taught in schools, while CCA should be more of a focus in vocational education.

*Greening agriculture* - Generally agricultural skills are learned from parents rather than in schools, so skills are not up to date and there is little understanding of the impact of 'non-green' agriculture. NGOs also suggested that technology should be a focus when training farmers, ensuring they have the necessary skills to use the tools available to them and green skills training initiatives, if not funded by government, could be funded by the private sector. It was suggested that the private sector also has a role to play. Some farmers recognised that supplementary jobs may be necessary to secure their income where crops fail and that informal 'on the job' training is more effective and relevant than formal training.

*Identification of skills to be taught* - Skills should also be specific to regions, which can be defined by mapping exercises, for example using GPS or local people to report climate changes in their area. The difference between urban and rural is significant and should also be taken into account. Training on adaptive capacity, including knowledge, finances, equipment and social support, will need to be critical elements of any successful green skills programme at community level.

*Community influence* - Although women have a greater role than before in decision making, local NGOs noted, the most influential people are respected village elders, so young people are struggling to influence their communities. This stakeholder group could, however, be used to influence the community to acquire green skills and adapt to climate change more effectively. The action on the part of local farmers in the Luwu District demonstrates that communities are able to discern alternate livelihood opportunities and to develop adaptive strategies. The provision of support to achieve these opportunities, and to ensure that they are aligned with local economic and employment needs, is likely to be a successful strategy for Plan International to take in any green jobs initiative.

## Key Challenges and Gaps

*Absence of gender issues* – There has been an almost complete absence of gender discussions in all but one of the projects encountered thus far. None of the evaluations or projects have mentioned gender issues as a focus of their work, nor have they disaggregated data along gender lines. As a focus of Plan's proposed programme, this is something that needs to be explored.

*Sustainability of programmes* – This may be due to a lack of data online but the majority of programmes do not seem to have gone into follow-up phases, despite some having registered significant impacts in evaluation documentation. Confirming whether this is the case and the motivations behind this might be important for programme planning.

*Career aspirations* - Little sector specific information has been identified thus far in terms of understanding young people's career aspirations. There have been a number of large-scale programmes targeting youth employment but it is not clear as to what types of jobs young people have gained from these programmes, and whether they have the potential for career development.

*Programme beneficiaries* – Programme objectives include targeting out-of-school youth and the disadvantaged, but this information is not generally disaggregated. This means that it is not currently clear who within this group is benefiting: for example, are indigenous and minorities able to participate?

*Youth engagement* – One project evaluation highlighted that a shortcoming had been the lack of engagement with young people in the programme planning. This issue is becoming increasingly important in development discourse; empowering young people to make decisions themselves on projects that have an impact on them. Identifying any youth networks or NGOs which target youth empowerment and advocacy will be important for Plan. This has been difficult through online searches and there are therefore currently very few in the stakeholder list.

*Information on rural economies* – There seems to be an urban bias in a number of existing programmes, with one evaluation (of a capacity building programme) indicating that this was simply because of the practicalities of operating in rural areas. Gaining a greater understanding of these practicalities and any evidence of successful engagement processes for rural communities is essential for Plan.

*Few CCA projects* – There are a number of projects targeting climate change assessment and green skills but not a vast amount focused on adaptation. This may be due to a choice by the Indonesian Government to focus to a greater extent on assessment and mitigation, rather than adaptation.

*Migration* – As with each other country of focus, migration has not been a direct area of exploration for the desk research up to this point. It is, however, an important aspect to understand, particularly in terms of out-migration from rural areas, including:

- The drivers for migration.
- The location of migration (international / urban centres).
- The overarching context young people find themselves in when they do migrate.
- Support structures in place for young people migrating.
- Existing policy to encourage / discourage out-migration from rural areas.
- The likelihood of young people migrating in comparison to older family members.

*Co-ordination between ministries* – A number of the projects listed in the good practice document show projects being jointly co-ordinated by multiple ministries, as well as capacity development programmes targeted at multiple ministries. There is no evidence to confirm whether this is working well but it is an aspect that is traditionally very difficult to manage, due to competing priorities and cultures between ministries.

## Myanmar

### Climate Change Adaptation

*Climate change is not a national priority* - With so many changes currently underway in socio-economic and political reform, climate change does not appear to be a country priority at this time. This may change as foreign investors enter the market and bring strong (and visible) CSR strategies and training.

*Language of climate change is recognised* - The language of climate change causes little confusion in Myanmar. Although interview respondents may not have been able to talk specifically about climate change adaptation methods and skills, there was a clear understanding of what climate change was, what caused it and the need to address it. This was mostly in the context of disaster risk reduction, such as planting trees to protect villages and communities from future cyclones.

*Disaster risk reduction* - Given the effective damage limitation in rural areas surrounded by trees following the 2008 cyclone, the planting of trees (in this context) is likely to be effective. This might be helped by local monks or, where communities depend on agriculture, by planting trees that provide tradable goods, such as coconut or fruit trees.

*Immediate and direct benefits: energy saving initiatives* - Some people in rural areas have been provided with energy efficient stoves. These require significantly less firewood to fuel. This not only reduces deforestation for domestic use, but reduces household costs. If individuals benefit directly from energy efficient technology, they may be more receptive to learning about the wider issue of climate change.

### Youth Economic Empowerment and Training

*Poor provision of vocational training* - Employers are not influenced by vocational training certification when recruiting in Myanmar, believing work experience and ability to be of greater importance. Soft skills are also often absent among vocational programme graduates with no work experience, and problem solving skills are under-developed.

*Working with employers* - Working with employers provides undergraduates with employment opportunities. Employers may assist in developing the curriculum, ensuring that skills provided are up to date and relevant. They may also be able to provide real-life case studies to help develop problem solving skills.

*Migrant workers* - Many poorer areas, such as those in the Dry Zone, depend on income earned from those who have emigrated to find work. These include people who have travelled to Yangon or abroad to explore opportunities. For some communities, this appears to form the basis of their economy and livelihood.

*Parental pressures* - It is widely thought that parents in Myanmar, particularly in Mandalay, apply pressure on their children to get a university degree rather than a vocational qualification. Many university graduates are unable to find suitable work or feel ill-equipped for the workplace following a degree; they need additional training, either on the job or provided by an NGO.

*Mentoring* - Given the importance of on the job training in Myanmar and the lack of soft skills provided to young people in training generally, mentoring is hugely beneficial to young people. This also provides an opportunity for young people to discuss real-life problems and possible solutions and apply their new skills.

*Engaging youth* - Youth forums are in the process of being created and may influence relevant policy. How engaged policy makers are with such groups, however, is yet to be determined.

## Green Skills

*Lack of green skills training* - Training rarely includes green skills in Myanmar, although there is some understanding, notably among NGOs and training organisations, that there is a need for change in this area. It is felt that this may be best addressed via primary schools, targeting younger children rather than being integrated into the curriculum at a later stage in education.

*Corporate Social Responsibility* - As international companies prepare to enter the Myanmar market, apparently with some caution, new industry should be engaged early on to understand their needs and skills expectations. Ensuring that any green skills developed are relevant to large, international employers would help young people in gaining employment and new companies to meet their labour needs locally.

*Gender differences* - It was generally acknowledged that women had equal access to training and employment to men; differences arose only in their subject choices. It was also noted that women had a greater role to play in household management, particularly in food management.

## Further Challenges

*Universities in Thailand* - Thailand presents more higher education opportunities for young people than Myanmar, but students attending Thai universities need to be proficient in English. There is no indication that these students intend to remain in Thailand following graduation; rather they need the skills and qualifications in order to practise their chosen profession in Myanmar.

*Lack of soft skills* - Soft skills, such as communication, presentation and negotiation should be practised in real life situations to allow trainees to realise the benefits. This might include learning to negotiate with parents or partners, or presenting to one another or debating (such as for campaigning or lobbying skills). This would help bridge the skills gap between an academic education and the work place and give students the opportunity to practise skills in real life situations, rather than just fictional case studies.

*Early stage of international involvement* - The relatively recent move from a military regime means that the involvement of international NGOs, companies and other large organisations has been limited until very recently. This means that a body of knowledge is lacking, and while baseline information is currently in the early stages of development; working in Myanmar is challenging for NGOs due to significant information gaps.

## Thailand

### Climate Change Adaptation

*Green practices are evident within businesses* - There appears to be some effort towards green practice, but it is not always effective and is implemented mainly because of cost savings rather than due to any environmental considerations. Energy conservation (and reducing costs) is the main relevant practice; environmental behaviour is practised in front of clients in the case of the hotel industry. Staff are trained to operate any new machinery and, where relevant, on security issues, including disaster response.

*Effective CSR practices* - Some businesses encourage their staff to act in a socially responsible manner, volunteering within the community, donating their own money to local causes or looking after their own health. In the case of Mazda, old stock and venues are provided to training centres as part of the corporate responsibility strategy. Profit is also generated by selling used plastic bags, sometimes going directly to the staff.

*Limited understanding of climate change amongst young people* - There was some limited understanding of climate change among young people in both regions, apparently gained from school rather than the training institutions. They were aware that they should reduce their energy and water use, as well as any toxic and chemical products and waste. They understood that recycling and reusing products would benefit the environment.

*Need for programme co-operation* - Knowledge sharing, including through peer-to-peer networks, is also likely to be an important element of successful programmes. There is very little formal evaluation material publicly available.

### Youth Economic Empowerment

*Families restricting young people's opportunities* - Families were often blamed for reducing students' opportunities, such as by not being able to afford equipment or needing or wanting them to remain in the village to work. In-village training was believed to be a possible solution for this, reducing young people's need to migrate.

*Restricted access for non-Thai students* - Only students with Thai identification (ID) cards can access most training and some students lack the relevant language skills, which is perceived to be a significant weakness. It is felt that introducing more non Thai students would increase retention rates. Migrant workers from other countries also pose a threat, particularly as it is unknown if they possess any green skills and because not all employers actively seek graduates with green skills.

*Socially responsible behaviour in young people* - Institutions are sometimes encouraging students to behave in a socially responsible manner, for example by providing services to their local communities.

*The hospitality industry is delivering successful training programmes* - Successful training programmes appear to have been delivered in the hospitality industry in particular, possibly because training is delivered on-site in an employment environment. It would be interesting to discover whether this model (similar to apprenticeships) would be applicable in other industries.

*Unclear certification and accreditation for programme training* - It is unclear whether or not the training that young people receive is certified or quality assured in any way; this may provide ongoing benefits for young people in terms of future employment opportunities.

*Employers recruit through personal networks* - Employers try to recruit locally, one using existing employees' personal networks. A common issue encountered when recruiting young people from further afield is that they quickly decide to return to start up their own local business. While many used to migrate to cities, however, many can now find employment opportunities in the more rural areas.

*Skills and experience matter to employers* - Skilled or educated workers have permanent contracts, while those working in production, for example, have temporary contracts and work shifts. Skill and experience, as well as quality of work, appear to be more important to employers than qualifications.

### Green Skills and Training

*Green skills should complement other skills* - Green skills are generally seen as an 'add on', best added to existing skill-sets. It was suggested that green skills could be incorporated into corporate safety training.

*Green skills are integrated into the curricula* - Environmental skills are generally integrated onto the curricula, rather than presented as stand-alone programmes. Such skills include reducing the use of toxic or chemical products, for example in beauty and mechanics; safety is also a key element of the curriculum. Institutions lack the equipment and skills for specific environmental training, which is brought in from other organisations when necessary and available, and work to build relationships with NGOs and governmental bodies to help them place graduates in jobs and to provide additional skills.

*Interest for green skills within villages* - Although green skills are not considered to be prevalent in the villages, the impacts of climate change have been noted and it was thought that green skills would make the villagers healthier and more productive. Poor quality soil (as a result of the use of chemical fertiliser and production of cash crops) appears to be driving young people to train for non-agricultural professions, but the demand for such skills in each village is limited.

### Key Challenges and Gaps

*Direct targeting of young people* – There is a distinct lack of overt targeting of young people in government programmes. It is possible that this is due to language barriers but in comparison to similar sector research done in the past, there is certainly an absence of direct policy. Any information regarding the extent to which youth employment and development are at the forefront of policy making would be valuable, particularly where it is possible to identify other programmes that Plan may be able to work with and share learnings.

*Career aspirations* - There is little sector specific information that we have come across thus far in terms of understanding young people's career aspirations. Integrating CCA and YEE programmes will require a significant understanding of the career aspirations of young people, if it is to be successful. For example, anecdotal evidence

online suggests that the Youth Career Development Programme has been a success in Thailand, yet in other countries the tourism industry is rarely seen as an aspirational career pathway. Identifying whether it has in fact been a success, and the drivers for this, could provide a useful foundation for the targeting of YEE programmes. In addition, the tourism sector could be an interesting pilot for Plan to explore, due to the ongoing debate about the efficacy of the sector for sustainable economic development (particularly as it is a central sector for Thai economic development planning).

*Green skills* – Green skills planning and policy is at a nascent stage in Thailand, with no direct targeting of policy yet, although elements have been included in sector plans and the National Development Plan. More information on the current direction of travel for green skills is required.

*Youth development networks* - There is a variety of collaborative networks and groups for climate change resilience, mitigation and to some extent adaptation; no networks have been identified with a specific focus on YEE. Youth-focused networks are primarily targeted at sexual exploitation, human trafficking and HIV/AIDS of young people. Identifying relevant networks is required to assist Plan in identifying operational partners who are directly engaged with young people in target areas.

*Urban based adaptation* – The majority of current CCA projects target individuals in rural areas, as production (and therefore livelihoods) will be affected by climate change. However, there are also impacts on urban areas, including increased migration, environmental damage, infrastructure damage and changing energy usage, which may additionally require adaptation strategies.

*Impact on rural areas* – Although the majority of CCA projects target individuals in rural areas (particularly smallholder farmers), they are nearly all currently at a pilot phase and it is not clear whether diversification activities are having the desired impact. It would be particularly important to understand the market demand in rural areas for the types of skills that are being advocated, as well as the buying power of the wider community to generate more sustainable local economies (and the impact this has on migration).

*Targeting of programmes for the most marginalised* – Little of the information available on policies or large scale programmes mentions the different groups being targeted, for example whether there is any direct targeting of women or hill tribes. Disaggregating data in this way will be essential for Plan to target future programmes; how this is currently articulated in government and NGO programming is an important aspect to understand.

*Basic skills* - This has again not been a focus of desk research but is an important aspect for YEE. It will be useful therefore to explore the extent to which there are programmes targeting basic skills development, particularly for individuals from marginalised groups.

*Private sector engagement* – Opportunities to work alongside the private sector to ensure that climate change adaptation and youth economic development are not mutually exclusive is essential. Engaging private sector organisations which have a clear sustainability focus in programme development, and possibly encouraging them to provide scholarships or awards for innovative CCA products developed by young people, could be another way to support green skills as an aspirational career pathway for young people.

## Vietnam

### Climate Change Adaptation

*Focus on employment, rather than environment* - Although the variation in seasons has been noticed in Hanoi, staff believe that students struggle to relate it to climate change or to understand information about the environment; the focus is more on finding employment.

*Curricula needs to focus on engaging young people's interest* - According to teachers, young people are generally more interested when relatable topics are reflected in the curricula. CCA should therefore relate to what they can see and understand, such as the weather, and how it can impact their work.

*High employer awareness of environmental issues* - Employers in Hanoi demonstrated a good understanding of sustainability, particularly those with international links (and internationally enforceable policies).

*Change needs to involve society as a whole* - Agricultural students generally had an excellent understanding of what climate change is and what its impacts are. They also understood that change needs to come at a policy level, as well as at individual levels. Working with other stakeholders to ensure that local policymakers receive consistent messages would ensure that they are not over-burdened by programmes.

*Online forums and workshops may be effective ways to share information* - Workshops at national and provincial level to introduce viable options for community-based adaptation strategies were essential to increase awareness of developing comprehensive adaptation strategies that are integrated with social and economic development planning. Use of an

online forum may help to disseminate success stories, engaging with parents, teachers, policy makers and young people alike, as well as being accessible to media.

*Engagement processes* – Learning lessons from projects such as the ACCCN (urban based climate change adaptation) and Oxfam projects (Climate change in the Red River Delta), in terms of the approaches that they have taken to engaging with local communities and key community actors, as well as local, provincial and national governments, could provide useful information to shape future projects.

### Youth Economic Empowerment

*Use of industry-based teachers* - Under the REACH programme, teachers come from a business background and focus on skills that can be applied in business; teachers are also expected to spend equal amounts of time in business and in teaching.

*Whole industry focus* - Focusing on whole industry sectors per NGO programme or institution, rather than a wide range of subject areas, could ensure that skills provided are relevant and meet market demand. It would also ensure that employer engagement was more manageable.

*Multi-stakeholder participation* - There appears to be YEE programme success where stakeholders work collaboratively. Ensuring employers engage with NGOs, as well as policymakers, would result in greater programme outcomes.

*Gender imbalance* - In agricultural courses it was perceived that men were more employable than women, due to the fact that greater physical strength is required for the work, and the expectation that women will have families. Female students felt that this was unfair, as although they have less physical strength, they feel they have better soft skills.

*Desire to return to rural areas* - Those students coming from rural areas were generally keen to return home and work within their communities; those from rural areas often face prejudice when attempting to find work in cities.

### Green Skills and Training

*Perception that green skills are valued* - Those students with an understanding of the environment felt better equipped to find work, believing that employers would value green skills as well as English skills.

*More focus on 'decent work' than green jobs* - Although employment policies have touched on the issue of green jobs, there is a greater focus on 'decent work'. Barriers to growth in the green sector include little interest from business and the lack of capital available to invest in green technology<sup>164</sup>. Conversations regarding green growth specifically have only begun as late as 2011 and there is not, as yet, any framework for green jobs<sup>165</sup>.

*Teachers need green skills training* - Although willing to provide relevant information in one workshop, teachers feel that they would not have the resources (time) to deliver any more than that. If climate change were to be integrated into the curriculum, teachers would also need more formal training, as their current knowledge is generally self-taught and focuses on saving energy.

*Employer responsibility* - NGOs understand the difference between green jobs and greening existing jobs, but greening jobs is believed to be the responsibility of employers. There are some concerns that greening jobs might conflict with local cultures, and so may be harder to implement.

*Policy conflicts* - Conflicts between local and national policy are also presenting barriers to greening existing industry.

*Focus on quantifiable impacts* - It was suggested that effective environmental training should include information on quantifiable savings and encourage employees to display environmentally aware behaviour as part of their job.

### Key Challenges and Gaps

*Impact of diminishing beneficiary numbers* - One of the challenges experienced by the REACH institutes is the decrease in their core target audience (poor and disadvantaged youth) as the economy continues to improve; it would be interesting to consider whether this issue is being experienced by similar programmes and what the potential solutions for broadening their audience or adapting programmes would be.

<sup>164</sup> Friedrich Ebert Stiftung (FES) Regional Forum. 2012. 'Green Jobs in Asia: Potentials and Prospects for National Strategies'. Conference Report.

<sup>165</sup> Nguyen, chi Quoc. 2012. 'Greening Doi Moi: An Outlook on the Potential of Green Jobs in Vietnam'. Friedrich Ebert Stiftung (FES).

*Financial sustainability* – All available evaluations listed issues with financial sustainability upon completion of projects, often driven by a lack of willingness/interest from beneficiaries to invest their own money into the product/services offered by the project. This is concerning, and something that needs further exploration. Understanding the motivations for individuals to invest in services is integral to improving financial sustainability.

*Implementation of green jobs/growth initiatives* – The development of the National Green Growth Strategy has been well received but there seem to be very few programmes operational in this area. There are also no programmes directly targeting young people for green jobs. This can be expected to change now that the Green Growth Strategy has been approved, encouraging NGOs and the private sector to seek the necessary investment.

*Projects directly targeting employment and self-employment for young people* – The majority of projects identified in this domain have been large-scale system-wide change initiatives, and not programmes targeting support for young people directly.

*Targeting of the most vulnerable / marginalised* – Many projects are clearly targeting the most vulnerable areas and communities, but data has not been disaggregated to document the extent to which the most marginalised within these communities have been targeted, and what impact the project has had on them. This is essential for CCA programmes, as the impact of climate change will inevitably be felt most by vulnerable communities.

*Engagement with Vietnamese NGOs* – There is a lack of evidence of international NGO-led projects engaging with Vietnamese NGOs.

*Private sector engagement* – A number of projects have highlighted financial sustainability as the key failure, with projects remaining dependent on donors to cover costs. This seems to be the case even where plans were in place for costs to be transferred, for example training institutes that aimed to begin charging for services. Engaging with the private sector, such as in the case of the Samsung project (integrating climate change issues into the primary education curriculum), is important, to potentially improve financial sustainability.

*Integration with TVET changes* – The vocational education and training sector is going through significant changes, with a number of large scale programmes aiming to improve the quality of provision and links with industry. Identifying opportunities to integrate these changes into the green agenda and climate change adaptation strategies, particularly through opportunities for livelihood diversification, is again a clear approach to integration. This may be through increased investment into priority sectors, or by integrating climate change issues into curriculums.

*Integration with the Green Growth Strategy* – The Green Growth Strategy documents a variety of ways in which investment will be prioritised and sectors to be targeted. This will enable significant opportunities for employment growth, as the Vietnamese economy is reoriented in some areas to catalyse 'green growth' and other sectors are 'greened'. Identifying opportunities to tie youth targeted employment and skills development programmes which feed into the Green Growth Strategy is one approach to integrating the two agendas.

## Appendix 2: Survey Results

Online surveys were carried out with young people in South East Asia using the SurveyMonkey platform; the survey was adapted from one already in use by Plan Thailand. A general survey link was issued in English; translated versions were made available in Thailand and Vietnam. It should be noted that the response rate from Vietnamese youth was significantly higher than from other countries, comprising 69% of respondents. Survey respondents by age group and level of education are noted in the tables below. The majority of survey participants (62%) were studying at university level; just over a third were enrolled in high school.

### Survey respondents by age group (%)

	16 or below	17-18	19-20	21-22	23 or above	Total %
Male (n=99)	0.4	0.4	3.3	8.2	28.2	40.4
Female (n=146)	1.2	4.1	13.5	18.4	22.4	59.6
Total (n=245)	1.6	4.5	16.7	26.5	50.6	100

### Level of education completed

Education level	Male %	Female %	Total % respondents
Primary	25.9 (n=7)	74.1 (n=20)	11
Secondary	33.3 (n=11)	66.7 (n=22)	13.5
High school	25.3 (n=22)	74.7 (n=65)	35.5
Vocational high school	40 (n=2)	60 (n=3)	2
College	46.2 (n=6)	53.8 (n=7)	5.3
University	46.7 (n=71)	53.3 (n=81)	62
Other	33.3 (n=6)	66.7 (n=12)	7.3

Young people on the whole identified green skills to be directly related to the working environment. Almost half of all survey participants identified green skills as those that would help them to reduce their employer's impact on the environment, with 41% also noting that green skills are those that enable employers to adapt to climate change. It is interesting to note that young women primarily identified green skills as work related, whereas almost 60% of young men felt that green skills are those that enable the community to adapt to climate change. Older survey participants, above the age of 23, were also much more likely to identify green skills as those that enable the community to adapt to climate change. Understanding of the term green skills by gender and age group are listed in the tables below.

### Understanding of term 'green skills' by gender and total respondents<sup>166</sup>

Understanding	% total respondents	Male %	Female %
Skills which help you to reduce your impact on the environment (n=80)	32.7	48.8	51.2
Skills which help you to reduce your employer's impact on the environment (n=121)	49.4	40.5	59.5

<sup>166</sup> More than one response was possible.



Understanding	% total respondents	Male %	Female %
Skills which help you to reduce your community's impact on the environment (n=82)	33.5	47.6	52.4
Skills which enable you to adapt to climate change (n=55)	22.4	52.7	47.3
Skills which enable your employer to adapt to climate change (n=100)	40.8	34.0	66.0
Skills which enable your community to adapt to climate change (n=33)	13.5	57.6	42.4
Don't know (n=11)	4.5	81.8	18.2

#### Understanding of term 'green skills' by age group

Understanding	16 or below	17-18	19-20	21-22	23 or above
Skills which help you to reduce your impact on the environment (n=80)	0	1.3	13.7	25.0	60.0
Skills which help you to reduce your employer's impact on the environment (n=121)	0	5.0	21.5	26.4	47.1
Skills which help you to reduce your community's impact on the environment (n=82)	0	3.7	15.9	31.7	48.8
Skills which enable you to adapt to climate change (n=55)	3.6	1.8	9.1	23.6	61.8
Skills which enable your employer to adapt to climate change (n=100)	1.0	4.0	18.0	36.0	41.0
Skills which enable your community to adapt to climate change (n=33)	0	3.0	0	15.2	81.8
Don't know (n=11)	0	9.1	0	9.1	81.8

Climate change adaptation was primarily understood by young people as ensuring that communities and places of work have better disaster risk management in place to cope with more frequent and unpredictable weather events. Just a quarter of respondents felt that CCA related to changing or diversifying jobs in response to climate change; almost half of all respondents, however, felt that learning new agricultural techniques is directly related to CCA. The tables below show understanding of the term 'CCA' by gender and age group of survey participants.

#### Understanding of the term 'CCA' by gender and total respondents

Understanding	% total respondents	Male %	Female %
Changing or diversifying your occupation to something that would be less at risk of being negatively affected by changing climate (n=65)	26.5	43.1	56.9
Reducing pollution from cars and other things that release greenhouse gases (n=81)	33.1	32.1	67.9

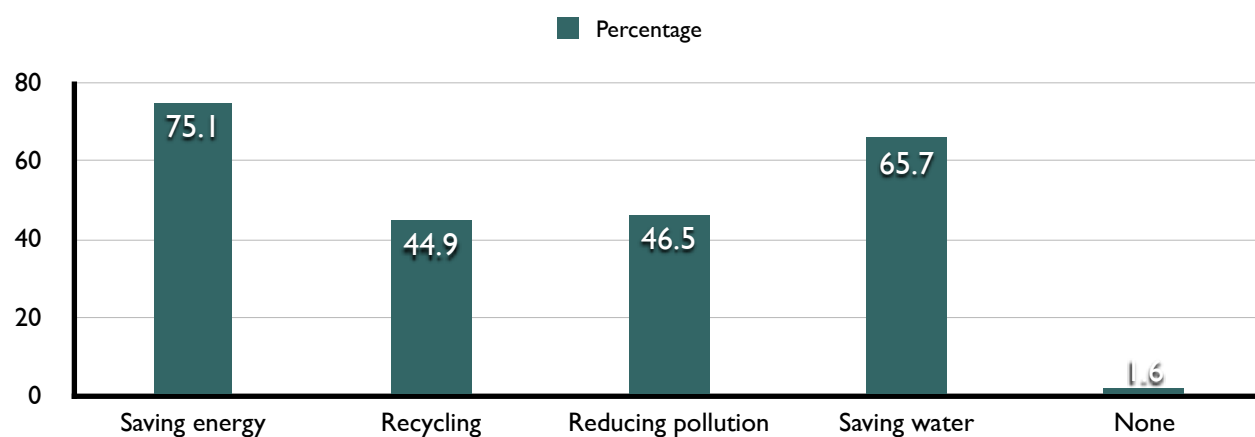
Understanding	% total respondents	Male %	Female %
Learning new agricultural techniques or planting different crops that are more resistant to drought or saltwater (n=108)	44.1	32.4	67.6
Installing an air conditioner to cope with heat waves (n=8)	3.3	50	50
Moving away from coastal areas threatened by sea-level rise (n=25)	10.2	52	48
Having better disaster risk management in your community and workplace to deal with more frequent, severe and unpredictable weather events (n=172)	70.2	39.5	60.5
Don't know (n=4)	1.6	25	75
Other (n=4)	1.6	25	75

#### Understanding of the term 'CCA' by age group

Understanding	16 or below	17-18	19-20	21-22	23 or above
Changing or diversifying your occupation to something that would be less at risk of being negatively affected by changing climate (n=65)	0	4.6	12.3	18.5	64.6
Reducing pollution from cars and other things that release greenhouse gases (n=81)	2.5	6.2	16.0	28.4	46.9
Learning new agricultural techniques or planting different crops that are more resistant to drought or saltwater (n=108)	1.9	3.7	19.4	32.4	42.6
Installing an air conditioner to cope with heat waves (n=8)	0	0	12.5	50.0	37.5
Moving away from coastal areas threatened by sea-level rise (n=25)	4.0	4.0	20.0	24.0	48.0
Having better disaster risk management in your community and workplace to deal with more frequent, severe and unpredictable weather events (n=172)	1.2	4.7	18.6	27.9	47.7

When asked about environmental skills used in daily life, the majority of survey participants noted energy-saving and saving water. Very few respondents were unable to identify environmental skills they employed.

#### Environmental skills used in daily life



Environmental skills used	% total respondents	Male %	Female %
Saving energy (n=184)	75.1	39.7	60.3
Recycling/waste segregation (n=110)	44.9	41.8	58.2
Reducing pollution (n=114)	46.5	36	64
Saving water (n=161)	65.7	36.6	63.4
None (n=4)	1.6	50	50
Other (n=11)	4.5	36.4	63.6

Regarding barriers to practising green skills at work and in daily life, young people mainly commented that those around them were not concerned with environmental skills. Young men primarily felt that they had no time for green skills.

#### Barriers to practising green skills at work and in daily life

Barriers	% total respondents	Male %	Female %
I do not believe they are important for me (n=1)	0.4	0	100
Lack of knowledge (n=81)	33.1	37	63
Lack of facilities (n=85)	34.7	38.8	61.2
The people that I live/work with do not worry about green skills (n=152)	62	39.5	60.5
I do not have time (n=15)	6.1	53.3	46.7
There is no place in my life/job for green skills (n=18)	7.3	33.3	66.7
Other (n=13)	5.3	46.2	53.8

Results show that almost all young people surveyed have an interest in learning about ways to reduce the impact of climate change.

Interest in learning about ways to reduce the impact of climate change	Male % (n=82)	Female % (n=119)	Total % (n=201)
Yes	39.6	57.5	97.1
No	0	1.4	1.4
Don't know	0.5	1	1.4

63% of young people surveyed identified themselves as students; over 40% of young women noted that they were currently studying compared to 22% of young men. Subjects of study of survey participants are listed in the following table.

#### Areas of Study

Area of study	Male %	Female %	Total % (n=100)
Arts and humanities	1	1	2
Economics, business and management	14	35	49
Languages	6	6	12
Science and mathematics	5	13	18
Social sciences	5	14	19

Almost two thirds of young people noted that there was an environmental element to their course. Young women were more likely than young men to state this.

#### 'Green' or environmental part of course of study

	Male % (n=44)	Female % (n=86)	Total % (n=130)
No	6.9	23.8	30.8
Yes	25.4	36.9	62.3
Don't know	1.5	5.4	6.9

Participants were asked the extent to which their studies included a range of environmentally sustainable skills. Water minimisation, recycling and reusing materials, as well as energy-saving, were identified as the main skills learned whilst studying.

#### Extent to which studies include a range of environmentally sustainable skills

	Part of the day-to-day course, % respondents	Elective or stand-alone subject, % respondents	Not offered at all, % respondents	Haven't noticed, % respondents
Water efficient practices (n=82)	37.8	24.4	31.7	6.1
Waste minimisation, recycling and reusing materials (n=82)	43.9	10.6	17.1	7.3
Minimising emissions from the transport of goods and people (n=82)	32.9	40.2	19.5	7.3

	Part of the day-to-day course, % respondents	Elective or stand-alone subject, % respondents	Not offered at all, % respondents	Haven't noticed, % respondents
Avoiding hazardous or toxic materials where alternatives are available (n=82)	37.8	34.2	20.7	7.3
Energy efficient practices (n=80)	40.0	31.3	22.5	6.3
Understanding how your work affects local plants and animals (n=82)	39.0	37.8	18.3	4.9
Knowing where the materials you use come from (n=82)	32.9	41.5	18.3	7.3

Young people surveyed as a whole felt that it would be useful to learn green skills as part of their course of study. Young women, however, showed far more interest in learning green skills than young men.

#### Usefulness of learning green skills as part of their course of study

	Male % (n=44)	Female % (n=85)	Total % (n=129)
Yes	28.7	61.2	89.9
No	5.4	2.3	7.8
Don't know	0	2.3	2.3

Participants were asked to note the ways in which people may have to adapt to climate change. The large majority noted that people may have to update occupational skills; almost a third of young people felt that income sources may also need to be diversified.

#### Ways in which people may have to adapt to climate change

	Male %	Female %	Total % of respondents
Changing occupations (n=32)	46.9	53.1	13.1
Updating occupational skills or training (n=154)	37.7	62.3	62.9
Diversifying sources of income (n=77)	45.5	54.5	31.4
Moving to a different area (n=28)	57.1	42.9	11.4
Investing in insurance (n=22)	45.5	54.5	9.0
Don't know (n=10)	80	20	4.1
Other (n=11)	36.4	63.6	4.5

The best way to learn about green skills, according to the young people surveyed, is through training workshops and conferences. Over a quarter of young people also thought that it may be useful to learn about green skills through courses of study.

#### The best way to learn about green skills

	Male %	Female %	Total % respondents (n=182)
Course	11	15.4	26.4
Training workshop/conference	20.9	29.1	50
Newsletter	2.2	1.1	3.3
Internet	7.1	11.5	18.7
Don't know	0.5	1.1	1.6

The primary preferred future occupations as noted by young people surveyed were working in business, agriculture, and education, and design/media.

#### Preferred future occupations

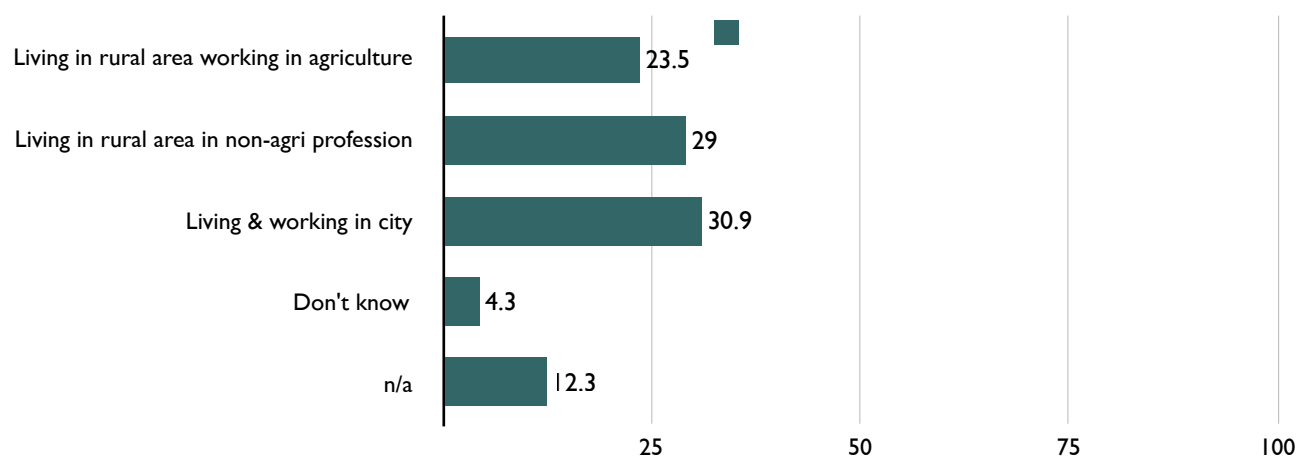
Occupation	Male % (n=71)	Female % (87)	Total % respondents (n=158)
Accounting/finance	3.2	2.5	5.7
Administrative	2.5	3.2	5.7
Agriculture	8.9	6.3	15.2
Building/construction	1.9	0	1.9
Business/management	9.5	8.2	17.7
Catering/hospitality	0.6	1.9	2.5
Charities	3.2	5.1	8.2
Design/media	2.5	10.1	12.7
Education	5.7	10.8	16.5
Engineering	2.5	3.8	6.3
Health	1.9	0.6	2.5
IT/software	0.6	1.3	1.9
Don't know	1.9	1.3	3.2

Long term working plans for those young people whose family lived in a rural area was found mainly to be living in a rural area working in a non-agricultural profession for young women, and living and working in the city for young men.

#### Long term working plans

	Male % (n=72)	Female % (n=90)	Total % respondents (n=162)
Living in a rural area and working in agriculture	11.7	11.7	23.5
Living in a rural area and working in a profession other than agriculture	9.3	19.8	29
Living and working in the city	14.8	16	30.9
Don't know	3.1	1.2	4.3
Not applicable	5.6	6.8	12.3

#### Long-term working plans



Survey respondents were asked if employers value applicants with green skills. Almost half of respondents felt that employers value those with green skills to some extent; almost a third felt that these skills were greatly valued.

#### Extent to which employers value applicants with green skills

	Male % (n=74)	Female % (n=98)	Total % respondents (n=172)
No, not at all	7	7	14
To some extent	23.3	23.3	46.5
Yes, to a great extent	8.7	23.3	32
Don't know	4.1	3.5	7.6

## Appendix 3: Data Forecasting

Data on rural youth was estimated by calculating the historical trajectory of urbanisation and applying it forwards to 2014 and 2019, based on the average annual change between 2009 and 2012 (as calculated from World Bank WDI data). The estimated remaining rural population was applied to figures for total youth numbers in each country for 2014 and 2019, as estimated by the UN Population Prospects (medium variant).

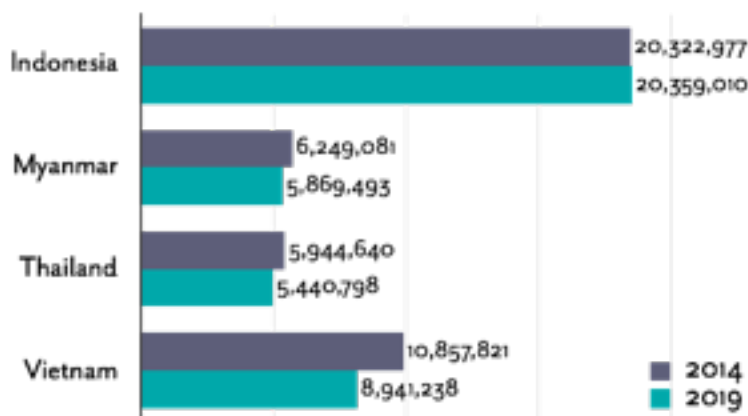
Sector change was estimated by applying historical annual change forward to 2014 and 2019, as sourced from national statistics sources. Green jobs data in the region was very limited; estimates had been made for Indonesia as a proportion of the total sector size by the Green Jobs Working Group, and these proportions were also applied to Vietnamese sector data. Limitations include the following:

- Historical annual change is only an indication of future patterns, which are likely to be influenced by a whole range of other factors.
- Data on jobs generally in the region is highly limited, especially for Myanmar; for green jobs, even more so.
- The structure of green jobs in Indonesia, for which a detailed study has been done, is likely to be different to the structure in the other study countries.
- There is no way of forecasting green jobs, even indicatively, without substantially more available data - it would otherwise be guesswork.

### Rural Youth

The numbers of young people living in rural areas is forecast to fall in all study countries apart from Indonesia, due to a combination of increased levels of urbanisation and falling numbers of young people. In Indonesia, the number of young people is forecast to increase over the next five years, and while more young people will move to cities, this number is not enough to prevent an estimated increase in young people living in rural areas.

#### Young People in Rural Areas, 2014 and 2019 Estimates



### Sectors and Green Jobs

Please note that due to the current unavailability of data from the National Statistics Office in Thailand, comparative analysis of sectors and green jobs between all countries is not possible at present.

## Indonesia

### Rural Youth

#### Young People in Rural Areas, 2014 and 2019 Estimates





## Sectors and Green Jobs

The mining and quarrying sector is projected to grow the most, albeit from a relatively small baseline; construction is the major sector which shows the most significant growth. Employment in agriculture, forestry, hunting and fishery is estimated to fall by around 5% over the next five years.

Sector	Labour Force 2014	Labour Force 2019	% Change
Agriculture, forestry, hunting & fishery	39,447,892	37,467,729	-5.0%
Mining & quarrying	1,700,021	2,425,045	42.6%
Manufacturing	15,342,169	17,789,629	16.0%
Energy (electricity, gas & water)	265,942	316,954	19.2%
Construction	7,511,278	10,638,181	41.6%
Wholesale & retail trade, restaurants & hotels	25,793,021	30,156,074	16.9%
Transportation, storage & communications	5,095,686	4,585,822	-10.0%

In 2008, the Asia Pacific Green Jobs Network estimated the numbers of green jobs in Indonesia to be as follows<sup>167</sup>:

1. Agriculture: 2,434,000 green jobs<sup>168</sup> (6.2% of total)
2. Transport: 603,000 green jobs<sup>169</sup> (9.8% of total)
3. Manufacturing: 331,000 green jobs<sup>170</sup> (2.6% of total)
4. Forestry: 242,000 green jobs<sup>171</sup> (17.6% of total)
5. Construction: 187,000 green jobs<sup>172</sup> (3.5% of total)
6. Fisheries: 97,000 green jobs<sup>173</sup> (18.1% of total)
7. Tourism: 11,000 green jobs<sup>174</sup> (no data on the percentage of total jobs)

<sup>167</sup> ILO Country Office Indonesia. 2013. 'Green Jobs Mapping in Indonesia: Advance Draft'. International Labour Office (ILO).

<sup>168</sup> Green jobs in agriculture were calculated by the AP Green Jobs Network by taking employment figures in the following green agricultural sub-sectors: Low impact crops cultivation; smallholder rubber; sustainable palm oil production; organic plantations for beverages; low impact poultry farming; and combination farming.

<sup>169</sup> Green jobs in transport were calculated by the AP Green Jobs Network by taking employment figures in the following green transport sub-sectors: Mass public transport; non-motorised transport; and rail, river and sea transport.

<sup>170</sup> Green jobs in manufacturing were calculated by the AP Green Jobs Network by taking employment figures in several green manufacturing sub-sectors, including: The production of sustainable edible oils; green agro-processing; lean manufacturing of garments; the manufacturing of materials that promote sustainability; and green cement production.

<sup>171</sup> Green jobs in forestry were calculated by the AP Green Jobs Network by taking employment figures in the following green forestry sub-sectors: Sustainable natural forestry; production of non-timber products; and forest services, protection and conservation.

<sup>172</sup> Green jobs in construction were calculated by the AP Green Jobs Network by taking employment figures in the following green construction sub-sectors: Green buildings; labour intensive transport infrastructure; irrigation and water management; and installation of renewables.

<sup>173</sup> Green jobs in fisheries were calculated by the AP Green Jobs Network by taking employment figures in the following green fisheries sub-sectors: Sustainable fishing; seaweed farming; and good practices in aquaculture.

<sup>174</sup> Green jobs in tourism were calculated by the AP Green Jobs Network by taking employment figures in the following green tourism sub-sectors: Sustainable accommodation services; sustainable tourism services; sustainable management of tourism destinations; and green spas.

- 8. Energy: 4,700 green jobs<sup>175</sup> (2.3% of total)
- 9. Mining: 300 green jobs (0.03% of total)

Due to a lack of detailed sector data, we have not attempted to project these figures forward to 2014 and 2019.

## Myanmar

### Rural Youth

Young People in Rural Areas, 2014 and 2019 Estimates



### Sectors and Green Jobs

There is no information available on employment sectors in Myanmar as there has been no national labour force survey since 1990. The ILO is assisting the Government of Myanmar with the establishment of a national labour force survey, the implementation of which is expected in 2015 or 2016.

## Thailand

### Rural Youth

Young People in Rural Areas, 2014 and 2019 Estimates



### Sectors and Green Jobs

Sector change for both the labour force as a whole and for the youth labour force (age 15-24) has been estimated for 2014 and 2019 by applying the annual change between Q3 in 2012 and Q3 in 2013 forward. The youth labour force size was estimated taking account of the shrinkage in numbers of young people over the next five years. The most significant growth sectors for young people are likely to be Finance and Insurance (growth of 69.4%); Electricity, Gas and Steam Supply (growth of 48.4%); and Administrative and Support Services (34.1%). While the agricultural sector is the largest employer in Thailand, its growth is predicted to decline in the next five years, with the youth workforce in the sector predicted to drop by almost 12%.

Sector	Labour Force 2014	Labour Force 2019	% Change	Youth Labour Force 2014	Youth Labour Force 2019	% Change
Agriculture, forestry and fishing	16,110,958	14,808,437	-8.1%	2,118,741	1,865,966	-11.9%
Mining & quarrying	58,399	47,742	-18.2%	7,680	6,016	-21.7%
Manufacturing	5,546,684	6,261,657	12.9%	729,440	789,012	8.2%

<sup>175</sup> Green jobs in energy and mining were calculated by the AP Green Jobs Network by taking employment figures in the following green energy and mining sub-sectors: Geothermal energy; renewable energy; and biomass.

Sector	Labour Force 2014	Labour Force 2019	% Change	Youth Labour Force 2014	Youth Labour Force 2019	% Change
Electricity, gas, steam supply	113,296	175,509	54.9%	14,899	22,115	48.4%
Water supply	218,415	6,710,476	2,972.4%	28,724	845,567	2,843.8%
Construction	2,193,078	1,865,075	-15.0%	288,410	235,012	-18.5%
Wholesale & retail trade	5,664,493	5,321,963	-6.0%	744,933	670,604	-10.0%
Transportation and storage	842,856	605,147	-28.2%	110,843	76,253	-31.2%
Accommodation and food service	2,050,360	1,507,303	-26.5%	269,641	189,931	-29.6%
Information and communication	174,206	104,645	-39.9%	22,910	13,186	-42.4%
Finance and insurance	484,727	857,145	76.8%	63,746	108,006	69.4%
Real estate	147,339	195,049	32.4%	19,376	24,578	26.8%
Professional, scientific & technical	268,488	367,135	36.7%	35,309	46,262	31.0%
Administrative & support service	435,843	610,019	40.0%	57,317	76,867	34.1%
Public administration & defence	1,563,179	1,350,398	-13.6%	205,572	170,160	-17.2%
Education	1,083,641	880,807	-18.7%	142,509	110,988	-22.1%
Human health & social work	668,581	706,744	5.7%	87,925	89,055	1.3%
Arts, entertainment	257,357	364,130	41.5%	33,845	45,883	35.6%
Other services	599,816	519,126	-13.5%	78,881	65,414	-17.1%
Activities of households as employers	134,898	29,766	-77.9%	17,740	3,751	-78.9%
Extraterritorial activities	2,367	222	-90.6%	311	28	-91.0%
Unknown	206,656	14,347,216	6,842.6%	27,177	1,807,849	6,552.1%

Using the proportions from the ILO Indonesia paper<sup>176</sup>, we estimate that there are currently around:

- 1,005,000 green jobs in the agriculture, forestry and fishery sector, of which around 132,000 are held by young people.
- Fewer than 20 green jobs in the mining and quarrying sector, of which around a tenth are held by young people.
- 144,000 green jobs in the manufacturing sector, of which around 19,000 are held by young people.
- 77,000 green jobs in the construction sector, of which around 10,000 are held by young people.
- 83,000 green jobs in the transportation and storage sector, of which around 11,000 are held by young people.

Due to a lack of detailed sector data, we have not attempted to project these figures forward to 2014 and 2019.

<sup>176</sup> [http://apgreenjobs.ilo.org/resources/resource.2013-07-22.0113256166/at\\_download/file](http://apgreenjobs.ilo.org/resources/resource.2013-07-22.0113256166/at_download/file)

## Vietnam

### Rural Youth

Young People in Rural Areas, 2014 and 2019 Estimates



### Sectors and Green Jobs

The estimated top five sectors for jobs for young people in rural areas are<sup>177</sup>:

1. Agriculture, forestry and fishery: 5,783,600 jobs
2. Manufacturing: 1,944,008 jobs
3. Wholesale and retail trade, repair of cars and other vehicles: 844,630 jobs
4. Construction: 734,769 jobs
5. Training and education: 221,858 jobs

Sector change for both the labour force (LF) as a whole and for the youth labour force (age 15-24) has been estimated for 2014 and 2019 by applying the average annual change between 2011 (2009 and 2010 data were not available) and 2013 forward. The youth labour force size was estimated taking account of the shrinkage in numbers over the next five years. For young people, the biggest sector growth is likely to be in real estate activities and technology and science (albeit from a small baseline). For sectors in which the youth labour force size is at least half a million, the biggest growth is likely to be in wholesale and retail trade, repair of cars and other vehicles; and hotels and restaurants. Almost a million jobs are likely to be lost by young people in agriculture, forestry and fishery. The most significant falls - again, from a small baseline - are likely to be seen in electricity and gas jobs, and domestic hired labourers.

Sector	Labour Force 2014	Labour Force 2019	% Change	Youth Labour Force 2014	Youth Labour Force 2019	% Change
Agriculture, forestry & fishery	24,825,741	25,605,306	3.1%	6,429,867	5,501,358	-14.4%
Mining & quarrying	243,924	172,252	-29.4%	79,031	55,810	-29.4%
Manufacturing	7,660,732	9,029,252	17.9%	3,370,722	3,295,677	-2.2%
Electricity & gas	99,766	51,665	-48.2%	26,139	11,229	-57.0%
Water, sewerage & waste	132,513	212,238	60.2%	26,370	35,036	32.9%
Construction	3,302,270	3,439,961	4.2%	1,060,029	916,007	-13.6%
Wholesale & retail trade, repair of cars & other vehicles	7,106,702	9,923,939	39.6%	1,734,035	2,008,696	15.8%
Transport & storage	1,591,230	1,952,056	22.7%	397,808	404,830	1.8%
Hotels & restaurants	2,351,141	3,056,149	30.0%	557,220	600,846	7.8%

<sup>177</sup> Based on the rural/urban divide in different sectors (2013) and the proportion of young people (aged 15-24) doing those jobs (2011). Data sources: 2013 (Q3) and 2011 Vietnam labour force surveys.

Sector	Labour Force 2014	Labour Force 2019	% Change	Youth Labour Force 2014	Youth Labour Force 2019	% Change
Information & communication	246,742	238,619	-3.3%	97,217	77,990	-19.8%
Finance, banking & insurance	328,539	378,307	15.1%	125,830	120,194	-4.5%
Real estate activities	210,460	788,516	274.7%	33,674	104,658	210.8%
Technology & science	295,495	574,533	94.4%	111,106	179,202	61.3%
Administration	213,555	235,597	10.3%	60,649	55,505	-8.5%
Politics/government	1,814,866	2,342,889	29.1%	410,160	439,238	7.1%
Training & education	1,798,159	1,952,430	8.6%	467,521	421,104	-9.9%
Health & social work	514,341	532,940	3.6%	136,300	117,156	-14.0%
Recreation, culture & sport	331,453	531,346	60.3%	68,279	90,800	33.0%
Other service activities	781,306	826,867	5.8%	292,990	257,221	-12.2%
Domestic hired labourers	176,331	141,751	-19.6%	38,440	25,634	-33.3%

Using the proportions from the ILO Indonesia paper, we estimate that there are currently around<sup>178</sup>:

- 1.5 million green jobs in the agriculture, forestry and fisheries sector; 400,000 of which are held by young people.
- 200,000 green jobs in the manufacturing sector; 90,000 of which are held by young people.
- 155,000 green jobs in the transport and storage sector; 40,000 of which are held by young people.
- 115,000 green jobs in the construction sector; 40,000 of which are held by young people.

<sup>178</sup> Asia Pacific Green Jobs Network. 2013. 'Green Jobs – A Key Concept for Sustainable Growth with Equity: Identifying and Estimating Green Jobs in Indonesia'. ILO Regional Office for Asia and the Pacific.

## Appendix 4: Field Research Respondents

### Indonesia

Stakeholder Group	Kupang	Soe	Kefamenanu
NGOs	<ul style="list-style-type: none"> <li>• WWF</li> <li>• CARE</li> </ul>	<ul style="list-style-type: none"> <li>• CIS Timor</li> </ul>	<ul style="list-style-type: none"> <li>• World Vision</li> <li>• Yayasan Mitra Tani Mandiri (YMTM)</li> </ul>
Policy Makers		<ul style="list-style-type: none"> <li>• Agency for Food Security</li> <li>• Social Service, Manpower and Transmigration</li> <li>• Regional Body for Planning and Development</li> </ul>	<ul style="list-style-type: none"> <li>• District Animal Husbandry Department</li> <li>• District Agriculture Office</li> <li>• District Fisheries Office</li> <li>• Social Service, Manpower and Transmigration</li> <li>• Women Empowerment, Family Planning and Family Welfare</li> <li>• Department of Social Welfare</li> </ul>
Young People		<ul style="list-style-type: none"> <li>• Graduates, teachers, students, farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Graduates, teachers, students</li> </ul>
Employers			<ul style="list-style-type: none"> <li>• CV Sumber Jaya Desa Tapenpah-Kab TTU</li> </ul>
Other	ILO (by telephone)	<ul style="list-style-type: none"> <li>• New Idol Farmers</li> </ul>	

### Myanmar

Stakeholder Group	Yangon	Mandalay
NGOs & Development Actors	<ul style="list-style-type: none"> <li>• ILO</li> <li>• Local Resource Centre</li> <li>• KT Care</li> <li>• Loka Ahlinn</li> <li>• YMCA</li> <li>• GIZ</li> <li>• FRED A</li> <li>• ADRA</li> <li>• Spectrum</li> <li>• Mercy Corps</li> </ul>	
Young People		<ul style="list-style-type: none"> <li>• Community health worker; Leprosy Mission Myanmar</li> <li>• Law graduate</li> <li>• Maths graduate, working in parents' shop</li> <li>• Traditional medicine graduate, working with diseases</li> <li>• Social scientist and learning centre manager</li> <li>• First year university student studying Myanmar literature and working in a community based organisation focusing on HIV</li> <li>• Maths graduate working in micro finance with World Vision</li> <li>• Medicine graduate and employer, hoping to work as a medical counsellor, and currently running a company trading glass and kitchen ware.</li> </ul>

Stakeholder Group	Yangon	Mandalay
Training Centres	<ul style="list-style-type: none"> <li>• Comprehensive Development Education Centre</li> <li>• Centre for Vocational Education</li> </ul>	

## Thailand

Stakeholder Group	Chiang Mai	Chiang Rai
Policy Makers	<ul style="list-style-type: none"> <li>• Chiang Mai Employment Office (in a focus group with the training institutions below).</li> </ul>	
Training Institutes	<ul style="list-style-type: none"> <li>• Chiang Mai Centre for Skill Development</li> <li>• Fang Vocational Education College</li> </ul>	<ul style="list-style-type: none"> <li>• Chiang Rai Vocational Skill Development Centre</li> <li>• Nirand-Ratana Beauty and Dressmaking School</li> <li>• Women's Vocational Skills Training Centre</li> </ul>
Young People	<ul style="list-style-type: none"> <li>• Youths in Chiang Dao</li> </ul>	<ul style="list-style-type: none"> <li>• Students of healthcare, hospitality and catering, bakery and beauty.</li> </ul>
Employers		<ul style="list-style-type: none"> <li>• Chiang Rai Interproduction</li> <li>• Le Meridien</li> <li>• Mazda</li> <li>• Toyota</li> </ul>

## Vietnam

Stakeholder Group	Ha Noi	Da Nang
NGOs & Development Actors	<ul style="list-style-type: none"> <li>• GIZ</li> <li>• ILO</li> </ul>	<ul style="list-style-type: none"> <li>• Youth Union (staff)</li> </ul>
Young People	<ul style="list-style-type: none"> <li>• REACH (students)</li> <li>• Nguyen Binh Khiem Voced School (students)</li> <li>• Hoa Sua School (students)</li> <li>• Agricultural University (students)</li> </ul>	<ul style="list-style-type: none"> <li>• REACH Danang (students)</li> </ul>
Employers	<ul style="list-style-type: none"> <li>• Mövenpick Hotel</li> <li>• Boo Fashion</li> </ul>	<ul style="list-style-type: none"> <li>• Business in Danang</li> </ul>
Vocational Trainers	<ul style="list-style-type: none"> <li>• REACH (staff)</li> <li>• Live and Learn</li> <li>• Nguyen Binh Khiem Voced School (staff)</li> <li>• Hoa Sua School (staff)</li> </ul>	<ul style="list-style-type: none"> <li>• REACH Danang (staff)</li> </ul>

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