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Green Skills Landscape in Nepal

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Abbreviations

CDC	Curriculum Development Center
CEHRD	Center for Education and Human Resource Development
CNI	Confederation of Nepalese Industries
CTVET	Council for Technical Education and Vocational Training
ETC	Education Training Centers
ENSSURE	Enhanced Skills for Sustainable and Rewarding Employment
FCAN	Federation of Contractors' Association of Nepal
FGD	Focus group discussion
FNCCI	Federation of Nepalese Chamber of Commerce and Industries
FNCSI	Federation of Nepalese Cottage and Small Industries
GGP	Going Global Partnerships
GSAB	Green Skills Advisory Board
GoN	Government of Nepal
HAN	Hotel Association of Nepal
ILO	International Labor Organization
KII	Key informant interview
NAVT	National Academy for Vocational Training
NAP	National Adaptation Plan
NDC	Nationally determined contributions
NSTB	National Skills Testing Board
NTCF	National TVET Curriculum Framework
OECD	Organization for Economic Co-operation and Development
OJT	On-the-job training
RPL	Recognition of Prior Learning
SDG	Sustainable development goals
TITI	Training Institute for Technical Instructions
TSSP	TVET Sector Strategic Plan
TVET	Technical and Vocational Education and Training
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational education and training

EXECUTIVE SUMMARY

The British Council commissioned this study to assess the green skills-related landscape in Nepal's technical and vocational education and training (TVET) sector and make recommendations for future interventions. The study reviewed green skills concepts and international practices, and Nepal's green skills-relevant policies and practices. The study adopted desk study, observation and stakeholder consultation as its core methodology. Stakeholders consulted included policy makers, planners, practitioners, learners, employers and employees/ self-employed workers. For a structured analysis of the findings, the study refers to six of the eight TVET system dimensions identified by the British Council, including policy coherence, labour market intelligence and skills anticipation, employer engagement, curriculum and assessment, learner engagement and support, and institutional strengthening as a framework.

Green skills concepts

The green skills concepts can be better understood in the context of green economies and green jobs. The United Nations Environment Program (UNEP) defines a green economy as 'a low carbon, resource efficient and socially inclusive economy where growth in employment and income are driven by public and private investment into economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services'. Green jobs, on the other hand, as defined by the International Labor Organization (ILO), are 'decent jobs that contribute to preserving or restoring the 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 skills, as defined by UK Parliament Post, are 'the knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment'.

Mainstreaming green skills in the TVET system

A wide range of concepts and approaches have emerged in recent years, such as green economy, green industry, green jobs, green TVET, and green campus. While efforts are being made to implement these concepts, this will only be possible when these approaches are instilled in the existing and future workforce by incorporating green skills approaches in TVET processes. These skills can be developed through various channels, including formal education, short courses, on-the-job training, and other learning and employment generation opportunities such as micro enterprises development. The starting point for mainstreaming green skills can be the identification of relevant occupations and the development/revision of standards and curricula, which align with different green skills categories.

Findings on green skills in Nepal

The key findings of this study on the status of green skills in Nepal, including a summary of the desk review findings, and stakeholders' inputs and field observations, are presented below:

Policy coherence

Green Skills are a relatively new concept in Nepal, but respect for nature and its conservation is deeply seated in the country's culture and population. Nepal's constitutional provision on environmental protection serves as a guiding framework supporting the development of sectoral legislations and policies. Various legislations, such as the Environmental Protection Act 2019, the Environmental Protection Rule 2020, the Local Government Operation Act 2017, and the Disaster Risk Reduction and Management Act 2017, form a comprehensive framework addressing climate and environmental concerns.[43] Similarly, several sectoral policies and international commitments have provisions on environmental conservation and climate change, including the National Environment Policy 2019, the National Climate Change Policy 2019, Nationally Determined Contributions (NDC) and the National Adaption Plan (NAP) 2021-2050. Similarly, the country intends to implement its policies and the NDCs through the 16th Plan (2024/25-2028/2029) with provisions for environmental conservation and climate change.

All these policy provisions are important for green economic development, environmental protection, and combating the climate change crisis. However, except for the environmental policy, none of these documents mentions how to mobilise TVET/skills development systems in support of these policy intents.

The green skills-relevant education sector legislation, policies and plans include the Council for Technical Education and Vocational Training (CTEVT) Act 1989, the National Academy for Vocational Training (NAVT) Executive Order 2023, the National Education Policy 2019, and the TVET Sector Strategic Plan (TSSP). However, none of these policies are properly aligned with the nation's commitment expressed through NDCs and provisions made in other sectoral and cross-cutting policies. This indicates a disconnect between the green economic transition and education sectors, particularly within the TVET sector. Similarly, the absence of a procedural document (karyabidhi) has prevented TVET stakeholders from taking proactive actions to incorporate green skills in TVET. CTEVT has started the discussion on green skills during its last management conference in 2024 (BS 2081). Accordingly, initiatives like development of EV curricula, completion of teacher training, and preparation of training package for teachers and administrative staff were initiated. Formation of a Green Skills Advisory Board (GSAB) under CTEVT's leadership is another significant development. Some green campus-relevant actions have been initiated by few TVET institutions, but they have not yet been scaled up or expanded.

Labour market intelligence and skills anticipation

The TVET system must align with evolving market demands to remain relevant, especially with the growing importance of green skills. However, the existing TVET agencies (CTEVT, CEHRD, and NAVT) either don't have the research capacity or lack resources. Institutions like CTEVT have some capacity, but regular research activities and tracer studies are limited. CEHRD and NAVT lack dedicated labour/skills market research wings. As a result, market intelligence and skills anticipation system for green jobs and skills demand is weak. Sectors like renewable energy, green construction, and eco-hospitality show growing demand, but without a structured labour market intelligence system, the TVET sector may struggle to meet future skills demand.

Employer engagement and support

Business and industry representatives have been engaging in the TVET/skills development process through membership in governance structures and Sector Skills Committees, although efforts are needed to institutionalise employer engagement in TVET. Employers and their expert workers also collaborate with CTEVT in the standards and curriculum development process. The business and industry representatives we spoke to mentioned that such engagements are getting better these days compared to the past, and therefore, offer an opportunity for partnerships to mainstream the green skills concepts in the world of work. Their participation in the recently established GSAB supports this increasing engagement and interest.

Awareness and workplace practices

The employers/association leaders we consulted were aware of the need and issues around resource conservation and efficiency. Employers' awareness of green skills was primarily linked to those required for environmentally sustainable business practices. Respondents demonstrated limited knowledge about future green jobs or how the green transition of economies will shape future skills demand. Respondents also shared that capacity building of businesses and industry/employers on green skills is challenging due to limited awareness among many members of these associations.

A 2021 study by Lamichhane and Neupane found that green skills are still a new and uncommon concept among surveyed enterprises. Sectors like grill, aluminium, furniture, and auto repair face criticism for pollution and waste. Consultations revealed that even simple practices, like selling residual workshop materials, could generate income while benefiting the environment. However, workers often prioritise convenience over sustainability. This highlights a lack of awareness and innovation in applying green practices. To address this, targeted training, both in soft and technical skills, is essential to promote reuse, repair, and environmentally responsible behaviour in workplaces.

Standards and curricula, and assessments

A large number of standards and curricula have been developed for education and training purposes. Neither the long-term nor short-term courses offered are in modular form or credit-based. To strengthen the curriculum development process, CTEVT could include green skills provisions while finalizing the national TVET curriculum framework (NTCF). Review of some of the CTEVT curricula suggest that they can be converted/ developed into at least one of the green skills categories. CTEVT has recently developed entry-level EV curricula for one year and 3 months (1696 hours) and is in the process of developing hospital-waste disposal training curricula for 1696 hours. Analyses of technical stream in secondary school and NAVT curricula suggest that the green skills status of curricula from these institutions is not different from CTEVT.

Sample curricula and standards reviewed show potential for 'greening' and can be mapped under light, mid, or dark green categories as defined by of the Green Skills classification by the UK Institute

for Apprenticeships and Technical Education (2020). However, an actual revision is unlikely to take place soon due to policy gaps and limited funding. The current education systems, as noted by the World Bank (2024), focus on outdated curricula, which lack sustainability principles. Without systemic reform, integrating green skills and updating teaching-learning materials will remain a challenge, leaving graduates unprepared for green industry demands.

Both the Office of Controller of Examinations (for CTEVT long term training graduates) and the National Examination Board (for the technical stream of CEHRD) have an assessment system where a paper-based written examination is a must. The short-term training under both CTEVT and NAVT or other projects is assessed and certified by National Skills Testing Board (NSTB). Depending on the occupation and levels, written examinations are included in the skills test process as well. Application of green skills approaches in the NSTB assessors' preparation is limited to the inclusion of a few orientation sessions, which, according to NSTB officials, needs to be enhanced. All these findings suggest that operationalising the green concepts in the TVET system will, sooner or later, require not only improving the assessment methods, but also preparing relevant assessors.

Learner engagement and support

A recent tracer study by the Enhanced Skills for Sustainable and Rewarding Employment (ENSSURE) project suggests the possibility of influencing learners through the career counselling mechanism. However, the counselling inputs provided to a prospective student/learner during the enrolment process, which at most include information about the course contents and employment potential, are insufficient in the context of our study topic. There is little scope for providing information about green skills relevance at this stage. As such, by adding the green skills concept to the counselling process, this agenda is more likely to reach students and TVET learners across the country.

Although our exchange with some students/learners revealed that they lack a deeper understanding of 'green skills' per se, initiatives such as green campus and green schools have created some awareness and practices on environmental conservation and resource efficiency. For example, both the trainers and learners have practised collecting the post-practical training residuals instead of dumping them as waste. These residuals are then sold, helping the institution generate some income. However, these are only ancillary activities which don't have a substantial impact.

Institutional strengthening and the TVET workforce

Green skills-relevant public agencies include CTEVT, CEHRD, and NAVT. Apart from them, due to their work on micro enterprise development, the Ministry of Industry, Commerce, and Supplies, is also an important government stakeholder. There are a number of TVET Programmes, supported by development partners, which contribute to skills development. The recently-established GSAB could work with all these institutions. According to the TVET Sector Assessment Report (2022), they could provide 107,411 long-term education opportunities. In parallel, many short-term training opportunities are also available in the country. These data imply that by including green skills practices in the TVET processes, many students/learners, the future workforce, could be equipped with green skills.

The Training Institute for Technical Instructions (TITI) has a critical role for training of TVET system teachers and staff. As an indication of TITI's engagement in promoting green skills, it has started to include 1-2 hour sessions on greening TVET in its regular instructional training activities. As NAVT also often collaborates with TITI for this purpose, the TITI green skills initiative is important. As green skills relevant knowledge, competency, and values/attitudes are relatively new and are not consciously included in most of the curricula, conducting teachers/trainers/staff training focusing on them is uncommon. Provincial Education Training Centers (ETCs), on the other hand, are teacher training facilities under the school system including technical stream under the secondary schools. Both TITI and ETCs are yet to be productively mobilised in the area of green skills. NAVT does not even have such a facility of its own and therefore, often collaborates with CTEVT for this purpose.

The lack of green skills-relevant training facilities at schools impedes proper practical training. For instance, as shared by CTEVT staff, the organisation is ready to roll out the EV curricula, but schools lack EVs and the

relevant machines and tools for practical training. The situation is not too different in schools and training facilities under the CEHRD and NAVT.

Conclusions and recommendations

Based on the analyses of findings, the following conclusions and recommendations are made.

Green Skills Dimension / Areas	Conclusions	Recommendations
Public awareness and conceptual clarity	Despite a significant level of culturally-triggered awareness around natural resources conservation in Nepal, it remains a relatively new concept among TVET stakeholders. Understanding of green concepts has been complex due to the co-existence of a myriad of terminologies, such as green skills, green TVET, green campus, and green jobs. Without public awareness campaign, variation in understanding among stakeholders and fragmented efforts of stakeholders may continue, adversely affecting green skills agenda.	Develop and implement a communication strategy for managing public awareness campaign targeting all the relevant stakeholders in a systematic manner.
Policy coherence	Following international commitments, Nepal has prepared sector policies and NDC. However, except for the environment policy and NDC 3.0, these instruments do not provide emphasis on education system, particularly the TVET teachers and students who could effectively transfer green skills concepts to households and communities.	Revise nature conservation-related policies (environment, forest, industrial) and climate change policies and relevant action plans to incorporate education and the TVET sector.

Green Skills Dimension / Areas	Conclusions	Recommendations
	The TVET system has also not aligned its policies with macro policies related to environment and climate. Unless these gaps are addressed, the deadlines-tied NDC targets and relevant policies will have difficulty in achieving their intended outcomes.	Revise the relevant policies (TVET policy under MoEST and skills development under NAVT, and Industrial Policy under the Ministry of Industry, Commerce, and Supplies) and related strategic plans to incorporate green skills.
	There is also a lack of guidelines in the TVET sector to facilitate the operationalisation of green skills. These guidelines could facilitate implementation of green skills-relevant practices even before the inclusion of green skills concepts in the national TVET policies.	Develop a guiding framework (karyabidhi) to assist the operationalisation of green concepts even prior to policy alignment.
	In order to smooth the above process, a policy dialogue process is a must, but currently it does not exist in an institutionalised way.	Conduct policy dialogue events targeting primarily the policy makers and senior-level administrators/managers.
Labour market intelligence and skills anticipation	Given the resource limitations, the TVET system has challenges in conducting green skills-relevant research. Further, the practice of workforce projections does not exist, which implies a lack of practices to tackle the green skills-triggered skills disruption.	Conduct sector-specific research to identify current and future green skills jobs, relevant skills gaps and shortages, and feed the data and information into the TVET/skills development system. Establish the workforce projection mechanism, also including green skills.
Employer engagement	Business and industry face not only the workforce shortage issues, but they are also affected by technological, conservation, and resource-efficiency related issues. Technology is changing fast, which outpaces the practices and facilities at the institute/school level. For instance, the number of EVs is increasing in the market at a high rate, but EV trainers are not necessarily sufficient.	Engage employers in the policy revision process to align them with NDCs and the green skills relevant workforce projection process. Similarly, engage them in the occupations identification and development/ revision of standards and curriculum, and their implementation.

Green Skills Dimension / Areas	Conclusions	Recommendations
Skills standards, curriculum, and assessment	By far most of the TVET standards and curricula have the possibility of falling into or converting into at least one of the green skills (light, mid, and dark) categories. However, so far, except for EV curricula, no such other resources have been deliberately prepared. Therefore, a detailed study of these resources is required to assess the possibility of revising these resources in view of these categories and support their implementation. Although the teachers/trainers at the school level demonstrate some resource-efficient/ conservation practices, they are yet to be optimally institutionalised. The situation is likely to continue unless they are provisioned as tasks under specific jobs/occupations.	Revise existing and develop new skills standards, and curricula by mapping and aligning with green skills categories (light, mid, and dark green skills). Through adding an awareness component, most curricula can be converted into the light category, and by adding some duties, some, if not all, can be converted into the mid-green category. Introduce/speed up the digitalisation of assessment processes and gradually prepare assessors with competency in green skills.
Institutional strengthening:		
Teacher Training	Teachers are the critical resource for translating the curriculum provisions into practice. Some green skills relevant training initiatives/events at TITI are in progress, but it is insufficient given the scale of national needs.	Institutionalise teacher/trainer/staff training through institutions such as TITI and ETCs. Include sessions on the conceptual clarity of terms around and/or related to green skills. Scale up and expand the lessons/ experienced learned at schools level through teacher training institutions.
Learners' engagement	Standards and curriculum specifies learners' green-skills relevant duties which the teaching-learning process is expected to cover. However, counselling is an important step in this process as the standard and curriculum will not have the scope to cover all these activities.	Include learners' counselling sessions before and/or the start of the education and training programmes, or when it is progressing.

Green Skills Dimension / Areas	Conclusions	Recommendations
Employers and employees' training	A large number of employer agency members are small and medium-scale enterprises. This fact underlines how much employers and management staff need external support for capacity building including awareness raising and training. Similar needs prevail for existing workers from almost all industries, irrespective of scale and sectors. Seemingly insignificant workplace practices at the individual firm level, such as collecting plastic or metal residuals, could bring a massive impact at the industry or national level.	Engage employers from relevant sectors in policy dialogues. Accelerate and expand awareness-related training events for employers and employees. Following lifelong learning principles, arrange sector-specific green skills training for existing workers in formal and informal sectors.
Capacity development plan	Given the need for stakeholders' contribution, all relevant stakeholders need to be trained. However, a comprehensive capacity development plan including green skills development does not exist.	Develop a comprehensive capacity development plan covering all stakeholders, including workers, employers, TVET practitioners, and policy-makers for green skills development.
Funding	Green skills is a new concept requiring additional funds for relevant research, analysis, and development of new standards and curriculum, teacher training, and setting up laboratories. However, the current scale of TVET funding is limited and therefore needs a change.	Avail additional resources for green skill-relevant activities, including research, standards, and curriculum revision/ development, teacher training, and workshop improvement.
Green skills roadmap	Despite a complex process demanding involvement of stakeholders ranging from practitioners to policy makers with a myriad of activities starting from research for occupation identification to assessment and certification, the relevance of green skills is unanimously accepted by all stakeholders. However, for a systematic and consolidated effort of all stakeholders, a comprehensive plan/roadmap is necessary, which currently does not exist. Therefore, to address the country's own needs through a coordinated approach and learning from similar initiatives from other countries (Cambodia, Vietnam, and the Philippines), Nepal needs a green skills roadmap.	Develop a roadmap ensuring multistakeholder participation, including women, youth, socially excluded communities, and marginalised groups, for the development and institutionalisation of green TVET system. This roadmap should provide future direction for green skills agenda in Nepal.

CHAPTER ONE
INTRODUCTION

1.1 Introduction and Background

As a result of the global climate crisis, economies are transitioning towards greener and more sustainable systems to meet both internal policy goals and international commitments such as the Paris Agreement. This shift supports climate change mitigation efforts and is vital for climate adaptation, ensuring communities can better absorb environmental shocks. The transition to low-carbon models will see a surge in demand for green jobs and skills across different sectors[1]. This can significantly impact labour markets and calls for skills systems to adapt to meet reskilling and upskilling demands in order to prevent rising unemployment, poverty, and inequality. Consequently, the development of green skills becomes critical. It will enable the workforce to thrive in emerging sectors and drive inclusive, climate-resilient growth.

The concept of sustainable development first emerged in 1972 and was defined by the World Commission on Environment and Development in 1987. It is a form of development that meets the needs of the present generation without compromising the ability of future generations to meet theirs[2]. The United Nations (UN) adopted the Sustainable Development Goals (SDGs) in 2015, including quality education (SDG 4), decent work and economic growth (SDG 8) and climate action (SDG 13)[3]. Technical and vocational education and training (TVET) is considered critical in addressing knowledge and skills challenges and achieving the SDGs, particularly SDG 4 and 8.

Education empowers learners of all ages with the ability to address interconnected global challenges, such as climate change, biodiversity loss, unsustainable resource use, and inequality[4]. The Organisation for Economic Co-operation and Development (OECD) defines green skills as skills required across all sectors and job levels to support the adaptation of products, services, and processes in response to climate change, environmental challenges, and regulations[5].

According to the World Bank (2024), climate change and mitigation policies are reshaping labour markets worldwide. Efforts to reduce emissions under countries' National Climate Action Plans are further accelerating the global transformation of labour markets. As noted by the World Bank, this transformation goes beyond job creation or displacement and highlights the growing demand for green skills, a new skills set that is essential to build a resilient and sustainable workforce.[6]

1.2 Objectives of the Study

This study was carried out as part of the British Council's Going Global Partnership – TVET, which is supporting the Government of Nepal (GoN) to establish and operationalise a Green Skills Advisory Board (GSAB), among other things. The study is intended to update the GSAB and wider TVET stakeholders on the status of

1 ILO.2019. Skills for a greener future: A global view based on 32 country studies.
2 https://www.un.org/en/academic-impact/sustainability
3 https://unevoc.unesco.org/home/SDGs+and+Greening+TVET
4 UNESCO. 2020. Education for Sustainable Development: A roadmap
5 OECD.2014, Greener Skills and Jobs, OECD Green Growth Studies.
6 World Bank. 2024. Navigating the Green Transition: Building Green Skills for a Sustainable Workforce.

green skills in Nepal.

The objective of this study was to assess the status and landscape of green skills in Nepal. The specific objectives of the study were to:

- Assess current policies, strategies, and plans related to green development in Nepal.
- Assess current practices from various relevant stakeholders on green skills training and employment.
- Broadly assess emerging areas under green skills for future skills training and employment.
- Recommend actions for future interventions in green skills.

CHAPTER TWO
METHODOLOGY

2.1 Research background

The development of green skills is an important contributor to environmental sustainability/natural resources conservation. Eventually, it contributes to sustainable development and ways to tackle the global challenges of climate change. Various countries have been making targeted efforts, through policies and programmes, to promote green skills through innovations in TVET/skills development. However, only limited assessments have been made so far of green skills-related policies, programmes and practices in Nepal. We conducted this study to address this gap.

2.2 Research framework

The research design is informed by the British Council-identified TVET systems dimensions at both the supply and demand side[7]:

1. Policy coherence
2. Labour market intelligence and skills anticipation
3. Employer engagement
4. Curriculum and assessment
5. Learner engagement and support
6. Institutional strengthening and the TVET workforce
7. Financing
8. Quality assurance, monitoring, and evaluation

Taking guidance from the British Council's green skills assessment framework, this study covers six out of these eight dimensions as presented in Table 2.1

Table 2.1: Assessment areas and assessment methods

SN	Green TVET dimensions	Assessment variables/areas and activities	Assessment methods		
			Desk review	Consultation	Observations
1	Policy coherence	Government's sector policies and TVET policies and their linkages	√	√	
2	Labour market intelligence & skills anticipation	Market assessment systems and TVET strategies; and stakeholders' perceptions on demands for green skills	√	√	
3	Employer engagement	Employers engagement in governance, mechanism for dialogue between employers and TVET systems; and employers' engagement in curriculum development and training delivery including work based learning and apprenticeships	√	√	

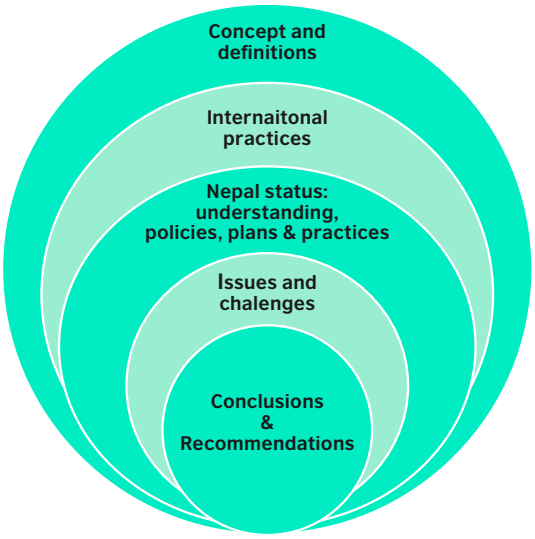
7 British council. 2023. Going Global Partnerships. Developing a Comparative Analysis Tool for Greening TVET Systems. The British Council.

4	Curriculum and assessment	New curriculum development and/ or revision; assessment methods and assessors	√	√	
5	Learners' engagement and support	Career counselling, training models and the RPL provisions		√	√
6	Institutional strengthening	Training provisions for trainers and staff and flexibility for training institutions in training delivery	√	√	

The variables in Table 2.1 are examined in the following sequence:

- What are the green skills concepts and definitions?
- How is it practiced internationally?
- What is Nepal's status in terms of understanding relevant policies and plans, and practices?
- What are the issues and challenges?
- What are the conclusions and possible recommendations?

Figure 2.1 Research Framework



2.3 Research design

This study started with a desk review followed by a stakeholder consultation. Where feasible, we also observed learners' and workers' practices.

2.3.1 Research questions and indicators

Based on the assessment areas identified as relevant to this study (Table 2.1), we developed assessment questions with potential indicators/variables, source of data and information, type of data/information, and data collection methods (Annex 1). In order to facilitate the desk review and consultation, we developed a checklist with assessment questions and indicators and questions (Annex 2).

2.3.2 Sampling design

Purposive sampling of respondents and documents for review was made. The literature we reviewed, given the TVET dimensions presented in Table 2.1, includes the Constitution of Nepal 2015, sector policies, cross-cutting policies, and the 16th Development Plan. In order to assess green skills elements in the TVET policies, we reviewed the CTVET Act 1989, the NAVT Development Board Executive Order 2023 (Gathan Aadesh BS 2080), the Education Policy 2019[8] and the TVET Sector Strategic Plan 2023-2032. The summary of policy review is presented in Annex 3. Construction, agriculture, and hospitality/tourism sector curricula (4 from CTEVT and 3 each from CEHRD and NAVT) were taken as a sample to assess elements of green skills. Similarly, the five skills standards under the National Skills Testing Board (NSTB) were reviewed. The findings of standards and curricula we reviewed are summarised in Annex 4. All the relevant references of the desk review are attached as footnotes.

In order to validate the desk review findings, we interviewed senior officials from MOEST, CTEVT, and NAVT. To collect inputs of Business and Industry Associations (BIAs), we interviewed the leaders of the Federation of Nepalese Chamber of Commerce and Industries (FNCCI), Federation of Nepalese Cottage and Small Industries (FNCSI), Confederation of Nepalese Industries (CNI), and National Automobile Dealers Association (NADA). We also consulted learners in the training place and a few workers in the actual workplace.

2.3.3 Data/information collection methods

As explained in Table 2.1, we collected relevant data and information from the desk review, consultation, and observation. In order to facilitate this process, we developed research questions, which were further simplified by developing questions and checklists for KIIs and FGDs. In order to validate the above findings and gaps, as a second step of the study, we identified and consulted relevant stakeholders (Annex 5). We re-interviewed some of the respondents for further information and clarity. The research questions guided our selection of stakeholders for this process.

2.4 Limitations of the study

The assignment was mainly based on a desk review of TVET-relevant policies, plans, systems, and practices on green skills. The review of the skills standards and curriculum was limited to a few samples from relevant sectors. Consultation was limited to key leaders from TVET system and business and industry associations. Apart from them, few trainers, trainees and workers were also consulted. Considering the scope of this study and the possibility of TVET systems to mainstream green skills in the existing and future workforce, this study focuses on the assessment of the existing situation in terms of awareness and practices on green skills among learners and workers.

8 TEVT Policies are nestled into the Education Policy 2019.

CHAPTER THREE
GREEN SKILLS CONCEPTS AND INTERNATIONAL PRACTICES

This chapter starts with the concepts of green economy and green jobs before detailing green skills. Finally, we also provide some examples of efforts in the field of green skills in other countries.

3.1 Definitions/concepts

Green economy. The United Nations Environment Programme (UNEP) defines a green economy as 'a low carbon, resource efficient and socially inclusive economy where growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services'. According to UNEP, the green economy provides 'a macro-economic approach to sustainable economic growth with a central focus on investments, employment and skills'.[9]

Green jobs. The International Labor Organization (ILO) defines green jobs as 'decent jobs that contribute to preserving or restoring the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency'.[10] As such, green jobs contribute to building a green economy, which, in turn, contributes to building a healthier environment.

Green skills. UK Parliament Post defines green skills as 'the knowledge, abilities, values and attitudes needed to live in, develop and support a society which reduces the impact of human activity on the environment'.[11] This definition is close to that of the World Bank Group which refers to it as the knowledge, abilities, values and attitudes required to support and promote the sustainable development of society and economy in a liveable planet.[12] The definition used by OECD/CEDEFOP (2014) is not very different: it describes green skills as 'the skills needed by the workforce, in all sectors and at all levels, to help the adaptation of the products, services, and processes to the changes due to climate change and to environmental requirements and regulations'.[13] So, green skills are about both: i) technical knowledge and skills that enable professionals to effectively use resource-efficient

9 https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy
10 https://www.ilo.org/topics-and-sectors/just-transition-towards-environmentally-sustainable-economies-and-societies/what-green-job
11 https://post.parliament.uk/research-briefings/post-pn-0711/
12 World Bank Group 2024. Navigating the Green Transition: Building Green Skills for a Sustainable Workforce.
13 OECD/Cedefop (2014) cited in TVETipedia Glossary. Green skills. UNESCO. https://www. unevoc.unesco.org.

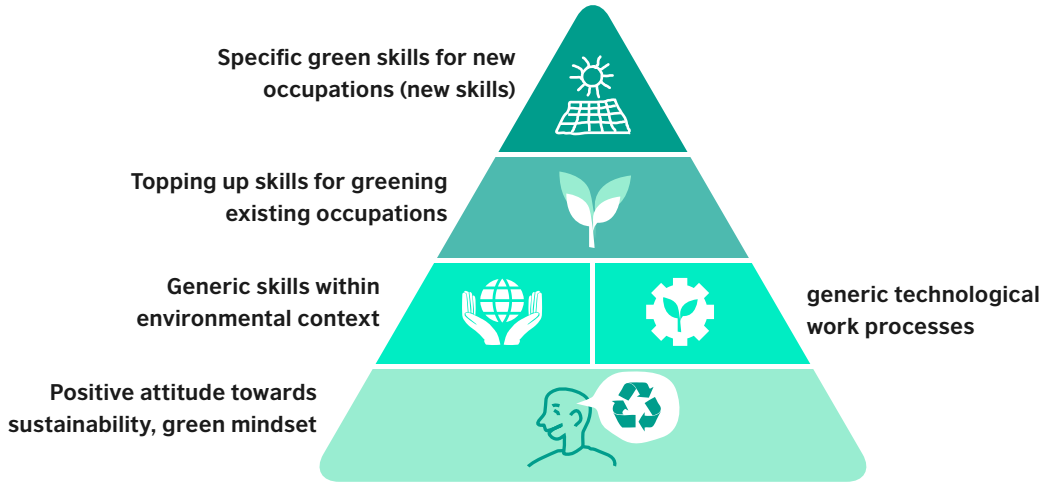
technologies or processes that reduce waste and minimise the environmental impact of human action; and ii) transversal skills, as well as knowledge, values, and attitudes that help them take pro-environmental decisions in their work and lives.[14]

According to the International Vocational Education and Training (IVET) 2009, green skills (skills for sustainability) are 'the skills, knowledge, values, and attitude needed in the workforce to develop and support sustainable socio-economic and environmental outcomes in business, industry and the community'[15]. For the United Nations Industrial Development Organization (UNIDO)[16], green skills are the knowledge, abilities, values, and attitudes needed to live in, develop, and support a sustainable and resource-efficient society.

In summary, green skills, in the context of TVET/skills development, are required competencies (in terms of skills, knowledge and values/attitude) for policy makers, planners, teachers/trainers, learners and institute/training centre managers, and employers and employees, which contribute to reducing carbon emissions, ensuring an efficient use of natural resources, and preserving nature and natural resources.

According to Pavlova (2017)[17], green skills can be considered at four levels (Figure 3.1) starting from i) a positive attitude towards sustainability and a green mindset; ii) generic skills within an environmental context; iii) topping up skills for greening existing occupations; and iv) specific green skills for new occupations.

Figure 3.1 Levels of green skills in TVET



The Green General Skills Index, developed by UNIDO, has four groups of green skills:

i. Engineering and technical skills (hard skills, encompassing competences involved with the design, construction, and assessment of technology, usually mastered by engineers and technicians. This know-how is needed for eco-buildings, renewable energy design, and energy-saving research and development projects.

ii. Science skills (competences stemming from bodies of knowledge broad in scope and essential to innovation activities, for example, physics and biology);

iii. Operational management skills (know-how related to change in organisational structure required to support green activities and an integrated view of the firm through life-cycle management, lean production and cooperation with external actors, including customers);

iv. Monitoring skills (technical and legal aspects of business activities that are fundamentally different way from the remit of engineering or science).

14 ETF (2022). cited in TVETipedia Glossary. Green skills. UNESCO. https://www.unevoc.unesco.org.
15 IVET (2009) cited Colombo Plan Staff College. Training Manual on Greening TVET. pub.cpsctech.org.
16 Arthur, C. 2022. What are green skills? UNIDO. https://www.Unido.org.
17 Pavlova (2017) cited in Jolita, M. 2024. Transforming and Modernizing the Technical Vocational Education and Training (TVET) system in Cambodia to Digital and Green. https://www.sea-vet.net.

UK Parliament Post identifies three types of green skills[18]:

i. Practical (e.g., heat pump installation, domestic recycling, energy grid engineering);
ii. Enabling (e.g., project management, collaboration, public engagement, digital skills); and
iii. Understanding/attitudes: scientific (including carbon and climate) literacy, systems thinking, environmental stewardship.

3.2 Mainstreaming green skills in the TVET system

A wide range of concepts and approaches have emerged around environmental and natural resources conservation, aimed at contributing to sustaining the resources for future generations. Green economy, green industry, green jobs, green TVET, and green campus are all emerging concepts, and efforts are being made for their implementation. However, ensuring implementation of these concepts is only possible when they are instilled in the current and future workforce. This, in turn, requires the inclusion of green skills approaches in TVET processes. These skills can be developed through various channels, including formal education, short courses, on-the-job training, and other learning opportunities. We first need to develop standards and curricula which align with the green skills classification as presented in Table 3.1 below[19].

Table 3.1 Green skills classification

Green skills classification	Description
Light green occupations	Occupations such as care, hairstyling, or marketing, where 'the nature of the occupation is unchanged, but there may be additional duties that are done differently or in a consciously sustainable way'. For example, a hairdresser may need to pay attention to the sustainability of the materials used while delivering services.
Mid green occupations	These occupations broadly remain unchanged, but require new knowledge, skills, and behaviours to enable the use of new technologies and approaches. In engineering, construction, or transport, for example, this may involve using more alternative technologies and materials instead of carbon-based resources.
Dark green occupations	These occupations are directly 'embedded within the green occupational landscape and delivering sustainable outcomes' such as roles working on wind turbine engineering, recycling, or sustainability management.

These classifications and categories are close to the three green skills (GS) levels (awareness as GS1, specific as GS2, and highly specialised as (GS3) identified by the Dakchyata Project.[20]

18 https://researchbriefings.files.parliament.uk/documents/POST-PN-0711/POST-PN-0711.pdf
19 Institute for Apprenticeships and Technical Education (2020) cited in British council. 2023. Going Global Partnerships. Developing a Comparative Analysis Tool for Greening TVET Systems. The British Council.
20 Dakchyata. 50 shades greener. Creating action based educational programmes for carbon emissions management to help a Net zero Society. MoEST/CTEVT/British Council/EU.

3.3 Green skills-relevant sectors and occupations

According to UK Parliament Post 2024, Green skills are often associated with sectors that will play a major role in reaching net-zero greenhouse gas emissions by 2050, such as power, home heating, waste, and resources. Issues linked to skills gaps and shortages are also expected to surface in some sectors.[22] Morely (2025)[23] identified construction, agriculture, manufacturing, and renewable energy as green skills-relevant sectors, but green skills are relevant in many other industry sectors. The World Economic Forum[24] believes that green jobs span across a wide range of industries, ranging from renewable energy to finance, fashion technologies, and transportation. Health care, agriculture, construction, and manufacturing are other relevant sectors.

In its guidance tool for greening TVET and skills development[25], the ILO highlights the competency standards, curricula, training, assessments, and school/institute campus, teacher training, entrepreneurs, and informal sector as areas with relevance to green skills.

One example of green skills is from the construction industry, where construction sector professionals must possess the knowledge and skills to design and construct energy-efficient buildings, including understanding green building materials, implementing renewable energy systems, and utilising water-saving techniques.[26] It also involves the conservation of resources in routine tasks by following the principles of reduction, reuse, and recycling[27].

As revealed in 'Factsheet: Green Jobs in Nepal'[28], a sustainability approach will affect employment in at least four ways:

- Additional jobs will be created, for example to manufacture pollution-control devices, which are added to existing production equipment;
- Some employment will be substituted, for example by shifting from fossil fuels to renewables, from truck manufacturing to rail car manufacturing, or from land filling and waste incineration to recycling;
- Certain jobs may be eliminated without direct replacement, for example if certain packaging materials are banned and their production is discontinued;
- Many professions (such as plumbers, electricians, metal workers, and construction workers) will simply be transformed and redefined, as day-to-day skill sets, work methods, and profiles become more green.

The change envisaged in the first three bullets points will create new occupations requiring green skills. The implications of the last bullet is that existing curricula for these professions need to be updated by adding new skills, which will most probably place these occupations in the 'mid green' category.

3.4 Country initiatives and practices

The desk review indicates that, despite a relatively new concept, countries have been making efforts to initiate green skills initiatives and practices. According to the Center for Sustainability and Excellence (CSE) (2025), due to limited access to training, gender disparity and lack of awareness, even Europe faces a significant challenge in bridging the green skills gap and the shortfall in sectors like renewable energy, sustainable construction, and manufacturing need to be addressed urgently. In response, according to the CSE, European governments and businesses are making concerted efforts to close this gap through initiatives like up-skilling programmes (for example in Germany's renewable energy sector).[29] Germany has done a remarkable job in greening its manufacturing sector, leading to a boost in green skills.[30] As shown by the CSE (2025), other policy provisions include tax incentives for sustainable construction (for example in France), and green investment policies (for example in Portugal). Portugal has even demonstrated the effectiveness of such measures by achieving a 71.3% increase in green job demand between 2023 and 2024.[31]

22 Ibid.
23 Morely, S. 2025. The Role of TVET in Developing Green Skills. Green Skills in TVET: Preparing for Sustainable Jobs.
24 World Economic Forum. Forum Institutional. These are the sectors where green jobs are growing in demand. 23 September 2021. Weforum.org. Accessed: 06 April 2025.
25 International Labor Organization (ILO). 2022. Greening TVET and skills development. A practical guidance tool.
26 Green Skills for a Green Future Project. Importance of Green Skills in Today's Society. Syllabus. Green Skils for a Green Future. Co-funded by European Union. https://www.Unido.org. ec.europa.eu.
27 ILO. 2022. Greening TVET and skills development. A practical guidance tool.
28 AusAID/ILO. Factsheet: Green Jobs in Nepal.
29 https://cse-net.org/the-green-skills-gap-in-europe-a-critical-challenge-for-sustainability/
30 Falck, Oliver. and Kaura, A. 2023. Green Skills in German Manufacturing, EconPol Policy Brief, No. 55, CESifo GmbH, Munich.
31 https://cse-net.org/the-green-skills-gap-in-europe-a-critical-challenge-for-sustainability/

In addition to these examples, some more country practices are presented in this section.

United Kingdom. To respond to the net-zero ambition by 2050, the UK government, and its devolved nations, have introduced a number of reform initiatives from policies, understanding demand, green skills planning to developing partnerships for delivering green skills initiatives. Implications of net zero on skills training and jobs in the UK include growth in renewable energy jobs, energy efficiency and building retrofits, electrification of transport, green finance and carbon trading, upskilling of fossil fuel workers, green tech, and public awareness and education. The UK Government's 10-Point Plan for a Green Industrial Revolution, released in 2020, set out to create up to 250,000 green jobs by 2030.[32] Similarly, UK Parliament Post 2024 highlights a number of opportunities and challenges to embed green skills in education and employment. It also discusses low public awareness of green skills and the available training options, which has been attributed to inconsistent definitions for green skills.[33]

Cambodia. Cambodia has been working towards Green TVET[34], which includes the government's collaboration with stakeholders to integrate green TVET in the workplace and relevant curriculum, and the 'Greening the Campus' campaign in energy, water, and waste sectors. Similarly, awareness campaign events across various provinces aiming to raise awareness among young people, are important. The country has a green skills-relevant roadmap that intends to integrate green TVET both in TVET curriculum and the workplace. It aims to promote environmental protection in TVET institutes through the 'Greening the Campus' campaign and events across various provinces to raise awareness among young people and promote vocational education.

Vietnam. According to the Reform of TVET in Vietnam Program (2022)[35], Vietnam's Green Growth Strategy (VGGS) 2021-2030 with Vision 2050 is expected to demonstrate its commitment to a more sustainable development path. The country's progress to this end by June 2022 includes: i) issuance of an action plan of the Ministry of Labor Invalids and Social Affairs (MoLISA) on the implementation of the VGGS with greening TVET as one of the core components; ii) the issuance of a series of minimum requirements by MoLISA for the knowledge and skills levels of TVET graduates; iii) the integration of greening elements in the learning outcomes; and iv) a benchmark for TVET institutes to develop curricula and assess students.

32 UK Government. 2020. The ten point plan for a green industrial revolution. UK Government.
33 Simmonds, P. and Lally, C. 2024. Green skills in education and Employment. UK Parliament Post.
34 Jolita, M. 2024. Transforming and Modernizing the Technical Vocational Education and Training (TVET) system in Cambodia to Digital and Green. https://www.sea-vet.net.
35 Reform of TVET in Vietnam Program. 2022. Greening TVET of Technical and Vocational Education and Training (TVET) in Viet Nam. GIZ/MoLISA. https://www.tvet-vietnam.org.

Philippines. In 2018, the country started its engagement in green TVET to support the government's move to promote a green economy[36]. The Technical Education and Skills Development Authority (TESDA) has developed the Greening TVET Framework and issued Labor Market Intelligence Reports to promote green jobs and competencies in the workforce. The country has various green policies, which include the Philippine Development Plan (PDP) 2023-2028, and the National Green Jobs Human Resource Development (NGJ-HRD) Plan 2020-2030. Major TESDA actions towards greening skills include the Green TVET Framework.[37] These policies and regulatory instruments influence the scaling up of green skills under TVET.

Australia. Through the Green Skills Agreement[38], the country seeks 'to build the capacity of the vocational education and training (VET) sector to deliver the skills for sustainability and required in the workplace and to enable individuals, businesses, and communities to adjust to and prosper in a sustainable, low-carbon economy'. The strategies to achieve this intent include embedding skills for sustainability practice and teaching in VET, within the requirements of the national regulatory framework; the upskilling of VET instructors and teachers to deliver skills for sustainability; the strategic review of Training Packages to embed sustainability knowledge, skills and principles; and implementing a transition strategy to re-skill vulnerable workers.

36 Arayata, M. 2018. TESDA gears up for "green" tech-voc training. http://www.pna.gov.ph. 06 March 2018.
37 TESDA. 2023. Labor Market Intelligence Report. Green Skills for Green Jobs 2.0. Expanding green TVET Infrastructure for the skilled workforce.
38 Australia Green Skills Agreement (2009) cited in UN Department of Economic and Social Affairs. Green Skills Agreement. SDG Action 39509. http://www.sdgs.un.org.

CHAPTER FOUR
Green Skills in Nepal

This chapter presents the findings on the green skills landscape in Nepal from the desk review and inputs collected from stakeholders. The consulted stakeholders include policy makers, planners, administrators, managers, teachers/ trainers and students/learners, and workers. The findings are presented according to the study assessment framework (policy coherence, labour market intelligence and skills anticipation, employer engagement and support, curriculum and assessment, learners' engagement and support, and institutional strengthening and the TVET workforce). It is important to note that not all the indicators of the British Council framework could be covered due to the limited study scope.

4.1 Policy coherence

Green Skills is relatively a new concept in Nepal, but respect for nature and its conservation is deeply-seated in the country's culture and population. This is the reason behind Nepal's commitment to nature conservation and is demonstrated by the facts that nearly a half (44%) of its land area is declared as forest[39] and almost one-fourth (23.39%) as protected area[40]. Despite these remarkable achievements, carbon dioxide emission has increased from 0.02 tons per capita in 1971 to 0.59 tons in 2020[41], indicating an average annual growth rate of 8.18%, and therefore, has been a concern in Nepal. In response to global call for combating these issues through policy provisions, as explained in the following sections, Nepal has promptly aligned its macro-level policies.

4.1.1 Green skills-relevant macro-level policy provisions

This section briefly presents the green skills-relevant policies and legislations, including education sectoral policies.

Constitutional provisions. The Constitution of Nepal, Article 51 *(chha)*[42] has specific policy provisions on the protection, conservation, and utilisation of natural resources, and is, therefore, the highest-level framework to guide the development and implementation of legislations, policies and plans relevant to the conservation of nature and natural resources and climate change agenda.

Relevant legislations. Apart from the constitution, various legislative documents, such as the Environmental Protection Act 2019, the Environmental Protection Rule 2020, the Local Government Operation Act 2017, and the Disaster Risk Reduction and Management Act 2017, form a comprehensive framework addressing climate and environmental concerns[43]. Skills development and workforce development are not adequately covered in these legislations as they primarily focus on environmental safeguards, impact assessments, pollution control, climate-change adaptation, establishing inspection and compliance frameworks, and disaster risk management.

Sectoral policies. This section presents sector policies with resources conservation and climate change mitigation as one of the key objectives.

39 WWF. Forests. wwfnepal.org (homepage). Download: 31 May 2025.
40 National Trust for Nature Conservation. Protected Areas and Ecosystems. ntnc.org.np. Download: 31 May 2025.
41 World Bank. (2023) cited in SMS Engineering Pvt Ltd. 2024. Baseline Report on Carbon Footprint Assessment and Mitigation Plan in Manmohan Memorial Polytechnic. Enhanced Skills for Sustainable and Rewarding Employment (ENSSURE) Project. CTEVT Complex, Sanothimi, Bhaktapur.
42 Constitution of Nepal 2015. Kathmandu.
43 AYON and British Council. 2023. Youth Participation in Climate and Environmental Protection: A Review of Federal Government Policy Instruments.

Industrial Policy 2011[44]. This policy has two important objectives (Objective 7.2: 'mobilising local resources, raw materials, skills and means'; and Objective 7.3: 'environment-friendly production process'), and policy (Policy 8.10: 'Special measures shall be taken to promote green industries and to make the established industries pollution free and zero to carbon emission') are highly important in the green skills context. Particularly because micro enterprises primarily use and rely on locally available resources, these policy provisions are highly relevant to environmental and resource conservation plans and practices. However, limited information is available on how far these provisions are being implemented.

National Forest Policy 2018[45]. The objectives of this policy with implications on green skills include an increase in forest services (Objective 1); conservation, rehabilitation and sustainable use of forest, wildlife and biodiversity (Objective 4); conservation of forest and its multidimensional use (Objective 5); and contribution to national target to reduce carbon emission (Objective 9). However, in the absence of a systematic evaluation of the policy's implementation, we know little about to what extent these objectives are being reached.

National Environment Policy 2019[46]. This policy is aimed at environmental conservation, sustainable management of natural resources, and the reuse and reprocessing of resources. Strategies with green skills implications include efficient building methods, control of chemicals used or associated with raw materials such as mercury, cadmium, and lead, and the use of electric vehicles. This policy has a strategy to include the environment as a subject in the educational curriculum. Again, in the absence of a systematic evaluation of the policy's implementation, we know little about to what extent these objectives are being reached.

National Climate Change Policy 2019. This is an important policy steering the climate change agenda in the public sphere. Its third objective is to promote a green economy by adopting the concept of low-carbon emission development. Its sixth objective is to mainstream or integrate climate change issues into policies, strategies, plans, and programmes at all levels of state and sectoral areas. It also has a strategy to incorporate subject matters related to the causes and impacts of climate change and climate-friendly traditional knowledge, skills, and practices into formal and non-formal educational curricula (Strategy 8.10b).[47] This strategy creates space for the inclusion of climate change-relevant concepts in the TVET processes.

Nationally determined contributions (NDC). As a signatory of the Paris Agreement 2016, Nepal developed its NDC, now in its third iteration,[48] for the period up to 2035. Under the NDC aim to achieve net-zero greenhouse gas emission by 2045, the country's green skills/ jobs relevant targets under energy, agriculture, industry, and waste sectors are determined. NDC 3.0 (unveiled in May 2025) sets ambitious climate goals: 27% GHG reduction by 2035, net-zero by 2045, and major clean energy expansion. It promotes electric vehicles, clean cooking, resilient infrastructure, and forest conservation, relying heavily on international support for financing and capacity building to ensure sustainable, inclusive climate action.

Among other initiatives, NDC puts forward ambition to integrate green jobs and green skills into all levels of education by 2030. By 2035, climate change knowledge, including traditional and indigenous adaptation practices, will be fully embedded in local curricula. Achieving NDC targets requires, among other things, an appropriately trained workforce. This, in turn, requires amended TVET policies and plans that are properly implemented.

National Adaption Plan (NAP) 2021-2050[49]. The NAP is another government instrument in support of the Climate Change Policy. Although the NAP 2021 has not covered education and skills development as one among its sectors, the successful roll out of several NAP actions, referred to as Summary of Actions in the NAP, are related to skills development activities. They include, for example: develop guidelines for green jobs based on a public-private partnership model in mountains (Action 19.4); establish solar power plants in each of the provinces considering the current and

44 GON.2011. Industrial Policy 2011.
45 Government of Nepal/Ministry of Forest and Environment. 2018. National Forest Policy 2018 (2075). Kathmandu.
46 Ministry of Forest and Environment. 2019. National Environment Policy 2019 (2076).
47 GON.2019. National Climate Change Policy, 2076 (2019)
48 GoN. 2020. Second Nationally Determined Contributions. 08 December 2020.http://www.climate.mohp.gov.np.
49 Ministry of Forest and Environment. Government of Nepal. National Adaption Plan 2021-2050. Summary for Policy makers. http://www.mofe.gov.np.

future climate change scenario and impacts in the power plant locations (Action 25.2); prepare capacity building packages and promote the skill development activities through tailor-made training, hands on exercises, and establishment of learning center at seven provinces (Action 31.10); establish renewable energy centers and power hubs (Action 36.5); promote and enhance the local and traditional knowledge and skill to diversify tourism products and Services (Action 37.6); identify and diversify complementary/alternative employment and income sources for and particularly involve marginalized groups, women and youth through skill development training (bakery, local cuisine, home-stay, nature guide, handicrafts, cooking) (Action 37.7). As such, successful implementation of the NAP requires collaboration between the TVET system and the NAP stakeholders

The 16th Plan. Several provisions of the 16th Plan (2024/25 – 2028/2029)[50] have implications for environmental conservation and climate change. Among them, 'Biological diversity, climate change and green economy' as one of the 'major areas of structural transformation' is important. Accordingly, the Plan has a dedicated chapter on this theme. Chapter 13.5 section 1 specifically explains the plan for the green economy promotion programme. It includes encouraging banks and financial institutions to invest in green projects. It also has a provision to provide incentives for investments made to increase energy efficiency in private residences and industrial buildings to reduce carbon emissions and increase adaptability. It encourages loans with concessional rates and tax concessions to green enterprises. Similarly, the plan document intends to encourage the use of electric stoves while reducing the existing subsidy on liquid petroleum gas (LPG). Similarly, it continues to promote electric vehicles, including its use in public transport, and determine electricity charges based on time and consumption to increase consumption during lean hours. The plan intends to apply a green tax on commercial users of groundwater. Considerations of green projects, energy efficiency, green enterprises, electric stoves, and electric vehicles requires adapting the TVET curriculum, education and training, and the assessment and certification of students.

Building on the 16th Plan and its emphasis on green development, follow-up meetings have been held involving different Ministries to prioritise climate change in the budget for a green and climate friendly development, a first of its kind in the country.[51]

Green Resilient and Inclusive Development (GRID) Strategic Action Plan: The Action Plan, endorsed by the government and 16 development partners, aims to scale up GRID investments and policies. It prioritises sustainable management of land, water, and forests, renewable energy, urban greening, and disaster resilience. A key focus is equipping people with new skills for resilient livelihoods, job creation, and economic inclusion. The plan leverages public, concessional, and private financing to support a sustainable and shock-resistant Nepali economy[52].

All these provisions are important in the context of nature conservation and responding to the global climate crisis. However, except for covering green skills indirectly, none of these policies explicitly highlight TVET or workforce development processes. Nevertheless, the analysis indicates that the government prioritises green economic development, environmental protection, and combating climate challenges, all of which will have major implications for green skills development in Nepal.

50 GoN/National Planning Commission. 2024. Sixteenth Plan (2024/25-2028/2029). Kathmandu.
51 https://www.spotlightnepal.com/2025/02/11/green-economy-priority/
52 https://theannapurnaexpress.com/story/46562/

4.1.2 TVET policies with green skills implications

This section presents findings from education sector policies and plans.

CTEVT Act. The CTEVT Act 1989[53] does not have any specific provision on green and digital skills. However, Article 6.8 entrusts CTEVT with the responsibility to implement and ensure the implementation of specified curricula from institutions engaged in providing skills training. Similarly, Articles 6.9 to 6.16 have provisions for various kinds of skills training, assessment, and certification. All these processes have actions relevant to green skills, but they are not explicitly mentioned in the Act. Addressing this gap would require an amendment of the Act. Its proper implementation could bring significant changes in the TVET system and its operations concerning green skills across the country.

NAVT Executive Order. The National Academy for Vocational Training (NAVT), established in 2023 through the government's Executive Order, is responsible for managing and facilitating the preparation of a skilled and entrepreneurial workforce. Among other things, NAVT's responsibilities with implications for green skills include: i) approval of standards and curriculum of skills training, ii) conducting skills training; iii) testing and certification; and iv) implementation of an integrated information system. However, as revealed in the 'curriculum and assessment' chapter, no deliberate action in developing green skills relevant curriculum has yet been taken. This finding was substantiated by the stakeholders we consulted.

National Education Policy (NEP) 2019[54]. The NEP also nestles the TVET Policy whose overall intention is to facilitate the implementation of the CTEVT Act and help CTVET and CEHRD develop a competent workforce (Policy 10.11 and Policy 10.12.1). Therefore, the policy provisions have implications for workforce development, apparently also with competence in green skills. Policy 10.12.5 is on the implementation of apprenticeship, internship, and on-the-job training (OJT). As these learners are in the real world-of-work, their knowledge of and practices on resource conservation and efficiency will be important. Policy 10.12.6 is important given the environmental conservation as it is on the 'development of the workforce necessary for the exploration of minerals and its geo-scientific study and research'. Further details of the policy review have been presented in Annex 3. However, to mobilise the TVET system for an implementation of green skills, the current TVET policy needs a revision.

TVET Sector Strategic Plan (TSSP)[55]. In order to develop the TVET sector, the government has devised the TSSP 2023-2032 which is in the process of implementation. The TSSP's vision for 'skilled human resources for sustainable development' is highly relevant to the green economy, green jobs, and green skills agenda. The document with four components and 14 objectives focuses on the TVET sector reform. However, it has only limited and indirect actions with the potential to contribute to environmental conservation and resource efficiency. In line with the expected revision of the CTEVT Act and TVET Policy, the TSSP too would require a revision. Such a revision would be an opportunity to also reflect on the country's NAP and NDCs and contribute to achieve the 16th Plan targets.

In summary, all the discussions made above suggest that Nepal's macro-level policies have a strong commitment to nature conservation and sustainable development and also support international call for addressing issues resulted from the environmental degradation and climate crises. However, translating these policies into practice remains a challenge, also due to stakeholders' limited awareness of these issues. Also, the sector policies (CTEVT Act, Education/TVET Policy, TSSP) should be revised to align with national commitments. Analogous to this situation, following the UNESCO/CTEVT workshop in 2024[56] , a

53 CTEVT Act. 1989. Kathmandu.
54 Government of Nepal/MoEST. 2019. Education Policy 2019. Kathmandu.
55 Government of Nepal/MoEST. 2022. TVET Sector Strategic Plan 2023-2032.
56 UNESCO/CTEVT. 2024. Policy Recommendation Note. UNESCO-UNEVOC National TVET Policy Dialogue.

recommendation note including greening TVET was submitted to MoEST. However, further action against the recommendation has yet to take place. Employers too noted that the policy intervention is a must to mainstream such developments. HAN officials in particular responded that policy processes are slow, and it will be costly to wait for the government until relevant policies are formulated and implemented. To address this gap, employers must become proactive as soon as possible.

Some TVET system respondents claimed that people have some awareness of green TVET/ skills, but the lack of a formal guideline/procedural document has prevented them from taking proactive actions. Such documents can guide TVET processes such as revision/ development of standards and curriculum, and teacher training incorporating the green skills elements. This is one of the reasons why mainstreaming green skills elements in TVET has remained a voluntary activity. For instance, Pokhara Technical School had initiated green practices such as reducing plastic and paper use, and greening the school campus under its Strategic Plan 2021-2024 which it continued under the EU/ British Council supported 'Strengthening Employer Engagement in Schools (SEES)' project. The school also introduced initiatives such as the installation of a solar power system. This development has helped the school to remove electricity generators and reduce generator-triggered noise and air pollution from the school campus. These types of good practices, however, have yet to be scaled up and expanded across the CTEVT system.

Often, new concepts and interventions disappear with the closure of projects that introduced them. Therefore, the green skills initiative should not have a similar fate. All the green skills-related interventions should be built into the education and training policy, allowing them to continue even in the absence of external support. Realising this necessity, with support from the British Council, a Green Skills Advisory Board (GSAB) has been recently established under CTEVT leadership with participation of public and private stakeholders. The GSAB will use a public-private partnership approach to promote green skills.

4.2 Labor market intelligence and skills anticipation

Keeping abreast of market demands is a must to ensure relevant TVET services. However, the existing TVET research actions under TVET agencies either suffer from resources constraints or do not exist at all. For instance, CTEVT has a full-fledged Research and Information Division which operates under the leadership of a Director. However, as revealed during a consultation at CTEVT, despite its capacity to analyse the relevance of courses offered and conduct tracer studies, resource constraints have adversely affected even its regular research activities. A similar situation exists at CEHRD and NAVT. Even tracer studies, that could indicate graduates' employment status and could also provide indications for course relevancy are not regularly carried out.

In the absence of regular and reliable research, there is only scant information about the demand for green skills and availability of green jobs. The World Bank (2022)[57] has identified sectors such as solar and hydro with green jobs demand for technicians (civil, mechanical, electrical) and skilled construction workers (such as heavy machinery operators, welders, pipe fitters). Similar information, presented below, is shared by the Institute for Professional Training and Management[58] which shows a growing demand across green economy-relevant sectors.

57 World Bank/ICF.2002. Skills Needs Assessment for Green Jobs in Nepal.
58 Institute for Professional Training and Management. 2025. Review of Curriculum in Dual VET Apprenticeship Programmes with Green Perspective Towards Sustainable Workforce Development. ENSSURE/CTEVT.

Field	Occupations/Roles
Automobile engineering	Electric Vehicle Technician, Battery Maintenance and Recycling Technician, and Green Auto Workshop Operator
Electrical engineering	Solar PV System Installer, Electric Vehicle Charging Infrastructure Technician, and Renewable Energy Technician
Information technology	IT Support for Renewable Energy Projects, Web Developer for Eco-Friendly Businesses, and Green Office IT Technician
Hospitality management	Waste Management Assistant, Sustainable Housekeeping Attendant, and Eco-Friendly Food and Beverage Staff
Mechanical engineering	Solar installation and EV infrastructure
Building construction	Green Building Technician, Waste Management Assistant, and Green Construction Materials Sales Representative
Tea technology	Organic Tea Cultivation Technician, Sustainable Processing Technician, and Composting/Waste Management Technician

This information presents only partial picture of the green skills demand. This is mainly because no deliberate market research has been conducted in view of the green skills concepts. Reversing this situation requires more resources than are available today. This is also one of the UNESCO/CTEVT policy recommendations. Hence, the mechanism for understanding market demands and green skills gaps and shortages, and accordingly addressing these gaps through TVET/skills development programs, is weak. However, identification of the changes in employment brought about by application of sustainability approach is important and can occur in four ways[59]:

- Additional jobs will be created, as in the manufacturing of pollution-control devices, added to existing production equipment;
- Some employment will be substituted – as in shifting from fossil fuels to renewable, or from truck manufacturing to rail car manufacturing, or from land filling and waste incineration to recycling;
- Certain jobs may be eliminated without direct replacement, as when packaging materials are discouraged or banned and their production is discontinued;
- Many existing professions (such as plumbers, electricians, metal workers, and construction workers) will simply be transformed and redefined as day-to-day skill sets, work methods, and profiles are greened.

59 AusAID/ILO. Factsheet: Green Jobs in Nepal. ilo.org. Accessed: 29 April 2025.

4.3 Employer engagement and support

Employer Engagement in TVET processes. Business and industry representatives have been engaging in TVET/skills development activities in various ways. For instance, though small in number (4 out of 29 members), employers are represented in the CTEVT Assembly. NAVT also has board members from business and industry and has a collaboration with eight business sector associations (Federation of Nepalese Chamber of Commerce and Industries; Grill and Steel Association; Federation of Contractors' Association of Nepal; Hotel Association of Nepal; Computer Association of Nepal; Footwear manufacturing association; Handicraft Association, and Gold and Silver Association). Similarly, eight Sector Skills Committees (hospitality, construction, automobile, ICT, agriculture, manufacturing, beauty and wellness, and handicraft and jewellery) have been established under the private sector leadership. Its responsibilities include providing inputs relating to skills development policies, plans, and practices to CTEVT. In addition to these, a number of such collaboration and engagement platforms have been established with support from donor funded TVET programmes such as Dakchyata and ENSSURE.

Employers or their expert workers also engage with CTEVT in the standards and curriculum development process. This finding was confirmed by business and industry association leaders (CNI, HAN, and Grill and Steel Association) who were consulted for this study. They shared that they are engaged at the technical level too for the preparation of competency standards and curriculum updates. They elaborated that such engagements are getting better these days compared to the past. The CNI respondent also informed us that it is willing to mobilise its district-level networks for this purpose. Such collaborations between TVET and business and industry offer an opportunity to mainstream the green skills concepts in the world of work. As mentioned earlier, the GSAB, a TVET partnership with business and industry, has recently been established.

Employers' awareness of green skills. For employers and government to effectively engage on the green skills agenda, they would first need to have awareness of the importance and criticality of green skills. As mentioned in the 16th Plan document, Nepal, like many other countries, is moving towards a green economy. Achieving this transition requires employers' awareness on the sustainable business and green skills agenda. The consultations made with employers suggest that they have some level of awareness of the green skills needed and its urgency. Some of the employers, particularly in the hospitality sector, stressed that they must understand the demands of environmentally conscious customers. This will enable businesses to take proactive measures to improve sustainability. However, to create and foster such practices, as noted by a respondent from the hospitality industry, its members need more awareness and relevant training. It will also require an assessment of how employers can support the initiative and how green skills partnerships can be established in Nepal.

Demand-driven proactive actions

High-end tourists want to ensure that their hotel has environmental-friendly practices. They want to see a hotel's eco-audit report and, if they are unsatisfied, they might even cancel their booking. Therefore, hotel entrepreneurs need to be proactive and meet these standards.

- Binayak Shah
President,
Hotel Association of Nepal

Employers are also aware of the issues around resource conservation and efficiency, as they have challenges in being resource-efficient, cost-competitive, and keeping pace with technological advancements. For instance, they are aware of the benefits of solar power. As a result, practices for solar power system installation for saving energy in industrial establishments are becoming more common, albeit at a slow pace.

Employers are also increasingly aware of circular economy practices. For instance, technology for recycling of pavement waste is under discussion, and even discussion on plastic pavement has started. However, a shortage of relevant technology and skills is a common issue. They are also somewhat aware of the skills deficit in the current workforce, which impedes their capacity to implement the green skills in their workplace.

Shortage of technology and technicians

Recycling of pavement waste is under discussion in the construction sector. However, shortage of relevant technology and technicians has been an issue. Therefore, aligning TVET system with this concept is important. There is also need for more research on future skills.

- Birendra Pande
President,
Confederation of
Nepalese Industries

In conclusion, awareness among employers on green skills was mostly related to skills needed for environmentally sustainable businesses. Respondents were able to provide only limited information or understanding about future green jobs or how the transition to a green economy impacts future skills. This finding, as also noted by hotel sector entrepreneurs, underlines the relevance of awareness raising and capacity-building actions across the country.

Industry practices. A study by Lamichhane and Neupane in 2021 revealed that green skills is a new concept for surveyed enterprises. Although they rated environmental understanding, information, and knowledge, and green skills as top requirements, environmental-friendly practices were not visible in enterprises. Further, none of the enterprises they surveyed were concerned with the negative impacts of their activities on the surrounding environment, nor were governmental regulatory mechanisms in place to curb or mitigate the negative effects of environmentally unfriendly workplace practices. According to the study, although no specific environment-friendly practices were observed in most of the enterprises surveyed, employees were familiar with the term 'soft skills' and revealed receipt of some orientation in environmental issues through either external agencies or the industries themselves. The survey also revealed that most of the respondents (80%) in the survey indicated that, where possible, they followed standard workplace procedures specified in rules and regulations to minimise negative impacts on the environment, dispose of waste responsibly, and reuse it. Finally, the study revealed that some catering enterprises practise solid and liquid waste management, take precautions regarding food hygiene and a clean environment, and organise awareness programmes.

Workplace practices. Grill, aluminium, furniture, and automobile repair businesses, as reflected by a respondent, are often considered to generate workplace waste, and air and noise pollution harmful to the local environment. Similarly, the metal residues in the grill and aluminium workshops are ignored and dumped as waste, and their potential economic values are ignored. As suggested by the respondent, simply the collection and sale of used welding rods could make earnings for an individual firm and eventually for the industry. This practice will eventually contribute to the firm's economic efficiency and then to the industry. If this approach is applied by all the welding workshops/ firms across the country, savings at the national level will be significant. As such, seemingly insignificant efforts at the individual firm level, could bring a massive impact at the industry or national

Savings from green practices

Collection, proper handling/storage and sales of used electric-rods alone can save NRs 700 per month, which if calculated on the annual basis, will be over NRs 8000 per enterprise. If this practice is applied across the country, the country can make huge amount of savings from this simple and tiny practice alone.

- Mohan Katuwal
Vice-President,
Federation of Nepalese
Cottage and Small
Industries

level. A similar approach can be applied in other resource-intensive industries such as the construction and manufacturing sector.

Sporadic observations at the workplace of plumbers and electricians raise questions about innovations in technology and resources. For instance, plumbers today, do not reuse galvanised iron (GI) pipes after some repair (for instance making new threads in the remaining pipe rather than entirely dumping them as waste) and fitting accessories, unlike in the past. They prefer to discard polyvinyl chloride (PVC) pipes and accessories. It is easier and more time-efficient to dump these materials than to try and reuse them. This approach is not in line with the reuse and repair concept of green skills. Similarly, electricians, instead of repairing electrical accessories, such as wires and fittings, prefer to replace them with new ones.

The above examples suggest that the application of green concepts in the workplace could, to some extent, address these issues and raise the industry's reputation. As revealed during consultation, resource conservation practices in such business can be enhanced through training for managers and employees. From an employer's perspective, including green skills in training or even through awareness events is important to ensure environment-friendly practices in workshops and a safe working environment. Training of workers is even more important in this context and can be delivered through soft skills and proper technical/ vocational skills.

Not all the workers in small-scale businesses are aware that simple cleaning their tools/equipment could lengthen their life. These practices could be imparted as soft skills. Other approaches that could fall under soft skills are the collection of recyclable goods, such as plastic, glass and paper, or even noise reduction measures. Workers are not fully aware of the arrangement of tools and equipment safely after completion of the day's work. This practice could save workers time, as they now spend a lot of time looking for their tools and it also prevents workplace accidents. In the words of a respondent: 'awareness on handling machine tools could eventually contribute to an individual/firm's financial efficiency'.

Hard skills in education and training that could contribute to resource conservation include, for example, using precise measurement when cutting metals or using chemicals. According to a respondent, due to a lack of proper training, when a triangular-shaped metal sheet is needed, workers first cut the sheet in a square or rectangular shape and then, through a diagonal cut, create the triangular shape. This insignificant waste at the individual or company level becomes huge when considered at the industry or country level. Addressing such issues requires both hard and soft skills training.

Similarly, more awareness needs to be raised about the risks of harmful chemicals used in, for example, paint and cosmetics. For instance, avoiding lead-mixed lipstick could help reduce health-related risks. These skills need to be delivered as soft and/or hard skills. However, thorough research is required to identify methods of resource efficiency, the addition of new skills in the curriculum, or identifying management approaches relevant to green skills. All interventions should be through the business and industry for the sustainability and scaling up of the interventions.

4.4 Standards, curricula, and assessments

Standards and curricula provisions. A large number of standards (314 skills standards), long-term curricula (50 diploma, 33 pre-diploma, 5 technical stream), and 335 short-term training curricula[60] are used in the TVET processes under CTEVT, CEHRD, and NAVT. To strengthen the curriculum development process and the contents, CTEVT has drafted a national TVET curriculum framework (NTCF), which, through addition of green skills specific provisions, has high likelihood to contribute to updating / developing green skills relevant curricula. However, some of the CTEVT curriculum are green job related, such as, Diploma in Civil Engineering (specializing in Hydropower Engineering) and few short-term courses in solar and hydro sectors[61].

Green and soft skills in existing standards. With objectives to assess to what extent the skills standards under the National Skill Testing Board (NSTB) have incorporated relevant elements, 6 skills standards (Beautician, Solar technician, Refrigeration and Air Conditioning Mechanic, Livestock Junior Technical Assistant, Electrical motor rewinder, and Dairy technician) were analysed as a sample. The status of inclusion of green skills was analysed, using the light, mid, and dark green skills categories. According to the analyses in Annex 4, these skills standards have elements of green skills, and each of them can be categorised, at least, under light-green skills.

Green and soft skills in existing curricula. Similarly, ten curricula (4 CTEVT and 3 each of CEHRD and NAVT) were analysed as sample curricula under the engineering, agriculture, and hospitality sectors, including both short-term and long-term programmes. The status of inclusion of green skills was analysed in terms of light, mid, and dark green skills.

A review of the curriculum content revealed that most curricula are green-relevant and can be categorised as, or with addition of some 'duties' converted into, 'mid green'. For instance, the Civil Engineering Diploma level curriculum (under CTEVT) has subjects relevant to environmental conservation, natural resources efficiency, and sustainable development. Even duties and responsibilities in computer courses have the possibility to be modified to make them conservation-responsive, while the engineering, health, and hospitality occupational duties and responsibilities can be enriched by including them to make them resource-efficient and environmental-friendly. Occupations such as plant science, are almost 'dark green' in relevance. Although these provisions are important, the subjects and the contents in these curricula are not deliberately aligned with the green skills relevant concerns, such as re-use, recycle, reduce, repair, and avoidance.

Our analysis of CEHRD and NAVT curricula suggests that the green skills status of curricula from these institutions is not different from CTEVT. For instance, the CEHRD civil engineering curricula have 'mid green' relevant elements, while plant science has curriculum content that is highly relevant to green skills.

Similarly, most of the skills chart (actions) in the NAVT curricula are mid-green relevant. Some are more important than others, for instance, the cutting of metal sheets. However, no specific provisions exist in the curricula on these dimensions. The review also revealed that its curricula are not deliberately aligned with green skills, neither for new occupations nor for skills upgradation. This finding was confirmed by the NAVT respondents (leadership, instructors, and staff). NAVT intends to include green skills and relevant competencies in the upcoming curricula. NAVT is also willing to use CTEVT curricula if they already exist, which is an incentive for CTEVT to develop its work on

60 CTEVT. 2025. National Technical and Vocational Education and Training Curriculum Framework (NTCF). Bhaktapur.

61 World Bank/ICF. 2025. Skills Needs Assessment for Green Jobs in Nepal.

green skills-relevant curricula.

Both CTEVT and CEHRD/CDC are set to work towards the development of a green skills-relevant curriculum. According to the respondents, while green skills were not on the agenda in the past, more knowledge is available today. For example, CTEVT has developed an entry-level EV curriculum for one year and 3 months (1696 hours), which is an example of a training programme for a new green job. It is also in the process of developing hospital-waste disposal training curricula (1696 hours). CTEVT indicated the possibility to include these concepts by updating the curriculum or developing a new curriculum, as is the situation with the CDC's school system.

NAVT, in collaboration with the Handicrafts Association, intends to provide entrepreneurship training to 2000 individuals in the informal sector. The objective is to link traditional skills with modern competencies. The intended occupations are traditional metalwork. It also intends to provide entrepreneurship training for flaxseed farmers. While this could be an opportunity for NAVT to mainstream the green skills concept in its processes, this could be applicable in CTEVT and CEHRD process as well. Details of the curricula review have been presented in Annex 4.4.2.

Respondents also agree with the findings that many curricula have green skills-relevant activities/ provisions. For instance, climate change is one of the elements in the school level technical stream curriculum and teacher training programmes managed by CEHRD. However, specific provisions on green skills are limited in these curricula. But, due to the large number of subjects in the technical stream in schools, changing its curricula will not be easy and quick, as noted during the Curriculum Development Center (CDC) consultation. This finding is not too different in the case of CTEVT, as many curricula are waiting for revision, particularly to align them with the National Vocational Qualification levels[62]. Moreover, particularly at CTEVT, over 80 curricula are based on competency standards. This means that updating the latter by including green skills is a prerequisite for curricula revisions. All these findings mean that even updating the existing standards and curricula has been a longstanding issue. Aligning them with the 'light, mid, and dark' green skills concepts could be challenging as it will require green skills-relevant knowledge, competency, and attitude among policy-makers, and standards and curriculum developers. Consequently, preparing teaching/training-learning materials and organising teacher training also become challenging. Therefore, the immediate possibility is to add these concepts to the new curricula, provided a management decision is taken for this purpose. However, as in the case of CDC (in the school sector) and CTEVT, in practice, both the teachers/ trainers and learners in NAVT apply the green skills/ environmental conservation relevant activities during their training-learning processes.

In summary, given the relevancy of the reviewed curricula in terms of green skills, 'greening' these curricula to light green, dark green or mid green is a necessity. This finding is close to the Green Skills classification of reviewed Pre-Diploma/Technical School Leaving Certificate curricula by the Institute for Professional Training and Management[63]. However, the development and implementation of these provisions requires a revision of the current curricula in the context of the green skills categories, which is unlikely to happen soon. The reasons behind this situation include a lack of appropriate policy intervention and funding. As noted by the World Bank (2024), education systems prioritise traditional curricula that lack sustainability principles or updated technical knowledge and competency standards essential for meeting green industries' demands. As a result, relevant graduates might be unfamiliar with sector-specific sustainable practices. Closing these gaps will require a comprehensive transformation of the education systems at all levels to integrate green skills development. Until this happens, a revision/update of the teaching-learning materials remains out of question.

62 Pradhan, H., Neupane, N., Paudel, S., Shrestha, S.R., & Koirala, S. (2079a). Technical and vocational education and training sector analyses report (TVET SAR). MoEST/ European Union (EU)/The British Council (BC)/Dakchyata/Center for Public Policy Dialogue (CPPD).

63 Institute for Professional Training and Management. 2025. Review of Curriculum in Dual VET Apprenticeship Programmes with Green Perspective Towards Sustainable Workforce Development. ENSSURE/CTEVT.

Assessment methods and assessors. Both the Office of Controller of Examinations (for CTEVT graduates) and the National Examination Board (for the technical stream of school sector) have an assessment system with a paper-based written examination. This assessment is cumbersome as the papers used in the assessment need to be collected from across the country and assessed. Although some progress has been made by CTEVT in the digitalisation of some of the assessment stages. The assessment process still largely depends on hard copies. The short-term training under both CTEVT and NAVT or other projects is assessed by NSTB and issues skills test certificates.

Nepal also has a Recognition of Prior Learning (RPL) system, but so far, it is also issuing the NSTB skills certificates as provisioned in the CTEVT Regulation 1994 (2051 BS). Hence, there is no difference between the RPL certificates and skills test certificates. Depending on the occupation and levels, written examinations are included in the skills test process. For instance, Level 3 assessments require at Level 3, but much less or none for Level 1 and 2.

In summary, the gap in the identification and implementation of green skills-relevant occupations, as explained above, means a delay in the preparation of assessors for this purpose. Even the application of green skills approaches in the NSTB assessors' preparation is limited to the inclusion of a few orientation sessions, which, according to NSTB officials, needs to be enhanced. All these evidences suggest that operationalising the green concepts in the TVET system in support of the country's macro-level policies will, sooner or later, require not only improving the assessment methods, but also preparing relevant assessors.

4.5 Learner engagement and support

This chapter assesses the counselling provisions in the TVET system, education and training models, wrap-around services, and green skills-relevant practices at school and workplaces.

The success of a TVET learner depends on the courses they choose, which could be effective if they are provided with information about the pros and cons of a specific course. Although a prospective student/learner is provided with some information about the available courses by individual institute staff during the enrolment process, it is insufficient. In order to make this process more systematic, the ENSSURE project[64] is in operation and provides career counselling at four stages: school level, pre-training, during, and post-training. Recent tracer study of the project beneficiaries suggests that the majority (65%) of the students continued their further studies along the career paths they selected during the career guidance sessions[65]. This finding implies that there is a possibility of influencing learners through the career counselling mechanism. As such, by adding the green skills concept in the process, this agenda has the likelihood of reaching the school students and TVET learners across the country. However, the current issues regarding counselling are that i) it has so far remained project-based; and ii) the counselling content does not include the green skills.

The TVET system of Nepal (CTEVT, CEHRD, and NAVT) offers long-term programs using theoretical sessions followed by in-house practical training. Work-based training (WBT) is provided basically through two approaches: as OJT and as an apprenticeship. Apart from long-term qualifications, the country's TVET system also offers short-term training programs, providing flexible opportunities for training. Through the ENSSURE project, the CTEVT system also offers training opportunities to existing workers. However, these short courses are stand-alone training packages and lead to skills test certificates. Neither of the long-term and short-term courses is offered in modular form. In addition, the support for on the-job-training

64 https://ctevt.org.np/enhanced-skills-for-sustainable-rewarding-employment

65 Skill Nepal. 2025. Tracer Study Report on Career Guidance Program. ENSSURE Project. Bhaktapur.

(OJT), employment, and financial linkages also has issues. The TVET Reform Strategic Plan (TRSP) 2022[66] reported that only less than a quarter (23%) of the schools collaborated with the business and industry for OJT/Employment facilitation. Further, the TVET Sector Assessment Report (TVET SAR) 2022[67] reported that despite such student support mechanisms being in place, such support might not be systematic and sustainable.

Although consultation with some students/learners reveals that they lack a deeper understanding of 'green skills' per se, initiatives such as green campus and green schools have created some awareness on environmental conservation and resource efficiency. For instance, as presented earlier (Chapter 4.1.2), Pokhara Technical School (PTS) under CTEVT has initiated school green practices. According to the school's Principal, the implementation of this initiative was possible with the participation of both school staff and students. However, there is no standard guideline which has impeded the spread of the PTS learning across the CTEVT system. Similarly, green school-relevant actions under CEHRD can also be expected to generate awareness among school students.

At NAVT, both the trainers and learners informed that they collect the post-practical training residuals instead of dumping them as waste. These residuals are then sold, which generates some income for the institution.

MoEST has prepared a 'Green school guideline'[68] and a green school programme implementation directive 2018[69]. CEHRD has been working with UNESCO on its standards for green schools. As the technical stream operates under CEHRD, these resources can be expected to have an equal impact on learners under this stream as with students under the general education stream. At the local level, the Green club and Child club will help instil the greening concept among pupils. According to a CEHRD official, although undocumented, this agenda is supported by local NGOs in some schools.

Although all these actions are important, as explained in the Standard, Curricula and Assessments chapter, these are ancillary activities without a substantial impact. Unless green skills competencies are included in the standards and curriculum, the mainstreaming of green skills will not be fast and effective.

Collection of practical training residuals

Lot of residuals remain after practical training, rather than dumping as waste, we collect them for possible future use.

- Electrician trainees
National Academy for Vocational Training

66 Pradhan, H., Adhikari, R.P., Shrestha, C.B., Paudel, S., Chalise, B., Shrestha, S.R. and Shrestha, N. 2022. TVE Reform Strategic Plan (TRSP). Kathmandu: MoEST/EU/BC/Dakchyata/CPPD.

67 Pradhan, H., Neupane, N., Paudel, S.,Shrestha, S.R., and Koirala, S. 2022. Technical and Vocational Education and Training Sector Analyses Report (TVET SAR). Kathmandu: MoEST/EU/BC/Dakchyata/CPPD.

68 https://kathmandupost.com/national/2018/11/06/green-school-guideline-launched-to-promote-greenery-conservation-education-in-schools

69 MoEST. 2018. Green school program implementation directive 2018.

4.6 Institutional strengthening and the TVET workforce

TVET system/green skills relevant institutions. In general, the green skills initiative has implications for the TVET system and all its processes (research, standards, and curriculum development, teacher and staff training, management of institutes and laboratories, management of workplace-based training, and assessment and certification). From this perspective, institutions responsible for preparing the necessary workforce include the CTEVT, the CEHRD, the NAVT. While CEHRD delivers TVET stream education and training programs through community schools under local municipalities, CTEVT and NAVT engage both the public and private institutions for this purpose. Apart from these institutions, the Ministry of Industry, Commerce, and Supplies, and Helvetas Swiss Intercooperation have also been implementing enterprise development initiatives[70]. The Helvetas enterprise development initiative is particularly important as it works on green skills for relevant enterprises.

Training capacity for the expansion of green skills. According to the TVET Sector Assessment Report (2022), the annual enrolment capacity in the sector for long-term programmes was 107,411, with the largest share for the Diploma programme (46,024; 43% of the total), followed by Pre-Diploma (38,107; 35%), leaving the rest 22% with the Technical stream. Similarly, a large number of short-term training places, with the potential to provide pre-employment and existing workers' training, are offered annually. All these education and training programs are availed through TVET institutes/schools (1182 under CTEVT; 485 under CEHRD, and 3 under NAVT, including them in Ithari and Butwal). However, these institutes/schools are not authorised to offer new courses, including green skills, by themselves. They have to get permission from CTEVT or CEHRD.

These data imply that through the inclusion of green skills concepts and practices in the TVET teaching-learning processes, a large number of students/learners, could be made conscious of resource efficiency practices in their workplace. Further, through them, to some extent, the green skills relevant messages could be transmitted to their families and communities.

Teacher and staff training. The TITI, operating under CTEVT, is the responsible agency for teacher and staff training. As an indication of TITI's engagement in promoting green skills, apart from the other resource conservation practices, it has started to include 1-2 hours sessions in its regular instructional training activities. As green skills relevant knowledge, competency, and values/attitudes are relatively new and are not consciously included in the curricula, conducting teachers/trainers/staff training focusing on it is uncommon. An exception exists as CTEVT has developed two EV training curricula and with support from Hyundai Nepal and Sipradi Trading Private Limited, TITI has already conducted two training each for 5-days for CTEVT's instructors. Further, TITI with support from Korea International Cooperation Agency (KOICA) has developed EV training programme on Occupational Skills Upgradation model and intends to implement in the Far-West of Nepal. Moreover, its important work includes 5-days training package on green TVET on its own funding and has plan to start by training to teachers and administration staff.

Provincial ETCs are teacher training facilities under the CEHRD. The ETCs are responsible for the training of technical stream teachers. Under the CEHRD teacher training system, green skills/TVET-relevant concepts such as climate change, environmental awareness, and green schools are practiced. However, these training events are not categorically focused on green skills categories (light, mid, and dark green). Further, the ETC teacher training is entirely based on the approved teacher training curriculum. Hence, as noted by one of

70 https://www.helvetas.org/en/nepal Nepal

the respondents, it is not easy to formally include green skills elements.

Both the CTEVT and CEHRD have teacher and staff training institutes, but they are yet to be productively mobilised for the purpose. NAVT does not even have such a facility of its own and therefore often collaborates with CTEVT. This is another incentive for CTEVT to work on green skills-relevant training programmes for teachers/trainers.

School infrastructure. Lack of proper training facilities at schools impedes proper practical training. For instance, as shared by CTEVT staff, the organisation is ready to roll out the EV training curricula, but schools lack EVs and relevant machine tools for practical training. Therefore, planned training, as it appeared until the consultation time for this study, will apparently remain incomplete or less relevant to the workplace. The situation is not too different in schools and training facilities under the CEHRD and NAVT. However, the NAVT instructors responsible for managing training workshops and consumables were conscious of the improper management of workshops and consumables. Hence, the management, in collaboration with relevant industry association, intended to conduct some part of the practical training in the actual workplace. These were instinct-driven rather than driven by education and training policies and regulatory provisions or curriculum requirement. These practices were confirmed by the NAVT trainees during the consultation process.

4.7 Other TVET dimensions relevant to green skills

Although the research did not cover financing and quality assurance dimensions, it is worth presenting some findings under these dimensions.

Translating the green skills concepts into practice requires proper research, developing standards and curricula, preparing competent human resources (teachers/trainers, managers and administrators), and laboratories, to ensure relevant practical training. It also requires additional financial resources. However, as noted by a respondent, ensuring implementation of all these activities is not easy, as securing resources for maintaining even a basic education and training environment at the institute level is persistently challenging. This is mainly because, as revealed by the TVET Sector Assessment Report 2022[71], the TVET budget as a share of the education budget until 2022 has remained more or less stagnant at around 4% over the past decade and has never been higher than 6%. The report also revealed that resources allocated for both CTEVT and CEHRD were inadequate, given the critical work they are entrusted with. This also means that the government needs to raise the TVET budget to promote the development of green skills.

Similarly, assuring the quality of TVET services, including green skills, is important. As explained above, for proper intervention on green skills-relevant occupations identification, standards, and curriculum development and teacher training, having capable human resources in place is a prerequisite. As explained under Chapter 4.4, assessors are equally important for the competence assessment and certification. As mentioned, an insufficient number of assessors will negatively impact the smooth implementation of green skills-relevant occupations. In addition, a lack of sufficient resources to adequately compensate the services assessors provide is another issue which, as revealed by a respondent, will also influence the quality of assessment. With national commitment, these quality assurance actions can be expected to be in place in the long run. In the short run it will, understandably, be challenging, as pointed out in UNESCO's 2024 policy recommendation note.

Finally, in the absence of a green skills-relevant policy, the subsequent TVET processes (research, standards and curriculum development, teacher training and assessment) are yet to be aligned with the green skills concepts.

71 Pradhan, H., Neupane, N., Paudel, S. and Koirala, S. 2022. Technical and Vocational Education and Training Sector Analyses Report (TVET SAR). Kathmandu: MoEST/EU/BC/Dakchyata/CPPD.

CHAPTER FIVE CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Nepal's progress in operationalising green skills (Chapter 4) has been assessed in Annex 6, comparing the achievements against the indicators under the first six dimensions of the British Council greening TVET framework. Based on these findings, the following conclusions are made as a basis for making relevant recommendations (Chapter 5.2).

5.1.1 Policy coherence

Gaps in the operationalisation of the NDCs and national policies. Following international commitments, Nepal has prepared NDC with deadlines, paving the path for the development of macro-level policies such as the National Environment Policy 2019, the National Climate Change Policy 2019, and the National Adaptation Plan 2021. This evidence support the government's clear understanding of the long-lasting consequences of environmental degradation and the climate change crisis and its commitment to implementing international agreements. However, one of the critical weaknesses of the NDCs and these macro policies is that they do not recognise the TVET sector well as a potential contributor. For instance, the National Environment Policy 2019 has a strategy to include the environment as a subject in the educational curriculum, but it fails to specifically mention TVET. It seems the policy instruments have ignored the TVET system's possible role, through its teachers and learners, in transferring the green skills concepts to individual households and communities. On the other hand, the national TVET policies also do not reflect green concepts which support the national commitments, although all the policy-makers, planners, and administrators we consulted agree that this policy action is needed. Unless these gaps are addressed, the NDCs and other relevant policies will likely miss the TVET contributions.

Implementation guidelines for policy provisions. Our consultation with stakeholders revealed that the understanding of green skills varies among respondents. For example, some stakeholders repeatedly referred to actions such as campus greenery and other pro-conservation activities as green skills, but did not refer to green skills as an urgent requirement in the future labour market due to the transition to a green economy. Likewise, except for the preparation of the Green School Program Implementation Directive 2018, there is lack of guidelines covering green skills elements.

While there is an urgent need for revisions of macro policies to recognise TVET potentials to contribute to the agenda, the TVET policies, in turn, require amendment to reflect this agenda. As such, the successful implementation of the NAP and NDCs require collaboration between the TVET system and the NAP stakeholders. But this important symbiotic relationship apparently has not been understood and acted upon accordingly. Further, in order to internalise these global and complex agendas, policy dialogues among policymakers and practitioners are necessary but they have not even properly started yet. However, as these actions could take time, MoEST/CTEVT and NAVT could simply issue a guideline to teachers/trainers and staff to encourage green skills and relevant practices in the education and training environment.

Often, new concepts and interventions disappear with the closure of projects that introduced them. Therefore, the green skills initiative should not have a similar fate. All the green skills-related interventions should be built into the education and training policy, so that they can continue even without external support. Among others, the recently-established GSAB could play an important role in addressing this gap.

5.1.2 Labour market intelligence

A system of labour market research exists in CTEVT, but due to resource constraints, it has challenges even to conduct its regular research activities. CEHRD and NAVT have similar challenges. Hence, market research in Nepal's TVET system is weak and adds challenges to assess future green skills anticipation. According to respondents, no deliberate research has been conducted to identify new occupations focusing on green skills. Therefore, there is only scant information about the current or upcoming demands for green skills or green jobs. Hence, the likelihood of understanding market demands in general and green skills gaps and shortages, in particular, and accordingly addressing these gaps through TVET/skills development programmes is weak. Reversing this situation requires more resources than are available today, for staff capacity building and research and active participation and intelligence gathering by the employers. This situation must be changed as soon as possible.

5.1.3 Employer engagement

Business and industry representatives are engaged in Nepal's TVET/skills development system's governance and standards, and curriculum development. They also offer work-based training opportunities. Employers feel that these engagements have improved, even though the collaboration environment remains full of challenges. Employers are keen to continue this collaboration and even willing, if needed, to mobilise their own networks and resources. However, these collaborations need to mature and support in operationalisation of green skills. And although employers have a fair idea about the mismatch between demand and supply, evidence of their engagement for identifying future skills needs does not exist. Therefore, the effectiveness of all these engagements, including those in the context of green skills, is questionable. Nonetheless, such association between TVET and business and industry offer an opportunity to mainstream the green skills concepts in the world of work. In this context, the establishment of the GSAB, which includes private sector representatives, is an important step. It can mobilise industry leaders and associations, through policy dialogue and training workshops, and expand the green skills agenda to the industry sectors across the country.

5.1.4 Skills standards, curriculum, and assessment

Apart from the development of EV curricula, no other assessments are made pertaining to the identification of new green skills relevant occupation, or efforts are made to revise existing standards and curricula to convert them into at least one out of the three (light, mid, and dark green) green skills categories. This conclusion is in line with the World Bank (2024) finding, which informs that the TVET systems prefer to prioritise or continue with the traditional curriculum, and closing these gaps will require a comprehensive transformation of the education systems at all levels to integrate green skills development through a lifelong learning approach. Therefore, a detailed assessment of current standards and curricula is required to categorise the occupations into light and mid-green or identify occupations with dark-green skills relevancy. The most feasible strategy to ensure this process is to make this assessment a mandatory step in the curriculum revision or development process. Similarly, by updating RPL/skills testing processes, CTEVT has the scope to also include the green skills elements in its assessment processes. Otherwise, the gap in identification and implementation of green skills relevant occupations, as explained above, means a delay in the preparation of assessors for this purpose and a continuation of the current methods. In such a context it will be difficult to revise and update teaching-learning materials.

5.1.5 Learners' engagement

Despite some efforts, Nepal's TVET system in general suffers from the absence of an effective counselling mechanism for students/learners. The information shared by TVET institute staff during enrolment is the only exception, but this service is largely voluntary. Even the ENSSURE project work on counselling is project-specific and is not country-wide. The counselling support to learners is limited to some educational and job counselling. However, as learners can be an effective mechanism to transmit the green skills concepts into practice or transform messages to home and communities, effort is necessary to put a green skills-inclusive counselling mechanism in place. Current ad hoc and sporadic efforts are grossly insufficient for a big impact. This situation has a toll on learners' decisions on choosing a specific course.

Apart from long-term educational courses, the Nepal TVET system also offers short-term training.

Regardless of the duration of these courses, except for apprenticeship programs, by far most of them are institute-based, followed by some kind of work-based training. There is also an absence of systemic and sufficient wrap-around services covering OJT, employment placement, or financial linkages support.

Learners' engagement in green practices in school, albeit some exceptions, for instance, in Pokhara Technical School, is worth mentioning. Such practice is possible with the help from students/ learners. Similarly, the CEHRD's greening campus initiative can be expected to have an impact on educating the students of the general education and technical stream alike. Moreover, although not in the curriculum, learners are engaged in collecting the post-practical training residual or the waste instead of dumping it as waste. However, despite the importance of all these practices, making the green skills agenda effective will require the conversion of existing standards and curricula into, at least, light or mid-green categories and mobilising them for training.

5.1.6 Institutional strengthening

Awareness of green skills. Despite a significant level of culturally triggered awareness around natural resources conservation practices in Nepalese societies, green skills remain a relatively new concept across the TVET system stakeholders, ranging from teachers to employers and policymakers. Even if some level of awareness exists among them, evidence of their translation into practice is rare, if non-existent, and applies invariably to almost all TVET practitioners. Combating this situation requires dedicated capacity development events, such as training sessions exclusively focusing on the issue. However, unless awareness actions are specific to green skills categories, the risk of such interventions being and continuing to be ambiguous across the TVET system remains high.

The situation among workers is not too different, although employers are conscious of resource efficiency in the interest of being customer-responsive or cost-efficient. In this sense, employers are well ahead of the public sector stakeholders, but they still are in need of government policies. Employees' workplace practices relevant to green skills are subject to their employers' consciousness and emphasis on practices relevant to environmental conservation and resource efficiency. Hence, unless all these stakeholders, particularly those with policy and planning roles, are aware of the urgency of implementation of this concept, formulating or revising and rolling out policies remains highly challenging. Similar effort is required to encourage employers and employees in the implementation of the green skills-relevant policies.

Understanding of green concepts has been complex due to the introduction of a myriad of terminologies such as green skills, green TVET, green campus, green jobs, green industry, green employment, environmental conservation, climate change, conservation and nature and natural resources, resource efficiency, and sustainable development. All these concepts are related to and important for environmental conservation and in responding to global climate challenges. The implementation of green skills practices will be smoother once employers and employees understand the potential changes in workforce structures, the skills needed for the future, and the benefits of conservation, as well as the relevant terminology. However, there have been very limited or no efforts to clarify these concepts, allowing stakeholders to focus their attention on their relevant areas. Unless it happens, the difference in understanding among and fragmented efforts of stakeholders may continue to persist, undermining the potential benefits of the green skills concepts. As such, unless relevant stakeholders are aware of the urgency of applying green skills concepts

in their workplace, developing necessary policies and their implementation will be challenging. As shown by the CSE (2025), limited awareness is also a constraint even in Europe, but given the ecological fragility, it is not less urgent in Nepal. This requires, among others, all stakeholders' concerted and coordinated efforts, which, in turn, will depend on their capacity to understand the issue and make their part of contribution.

Teacher and staff training. Given the limited and preliminary efforts on the identification of new occupations and the development of corresponding standards and curricula, the current inadequacy of teacher training for this purpose is understandable. Nevertheless, implementation of the 'light' and 'mid' green skills relevant curricula could be implemented without much training effort. For instance, certain sessions addressing the green skills requirements pertinent to these two categories could feasibly be integrated into teachers' occupational skills upgradation training. Even in the absence of a formal curriculum encompassing these concepts, educators could strive to incorporate these skills back into the classroom environment. For example, the reduction or safe handling of chemicals in beautician training could potentially be accomplished without significant complications. Similarly, concepts on safe handling and maintenance of tools and equipment, or adding skills to handle the 'grease injecting equipment' for trainees under automobile training, could be helpful for efficient maintenance of these workplace resources.

Employers and employees' training. As informed by respondents, a large number of HAN members are small and medium-scale entrepreneurs, the employers and all the staff in the industry need external support for awareness and training. For instance, green skills relevant training is necessary for all departmental staff in the hospitality industry - production (kitchen/ chief staff), housekeeping, and repair and maintenance staff. Training focusing on environmentally friendly practices, including minimising the use of detergents, energy saving, and economic use of water and electricity, is important. The skills training in the automobile industry is equally important as the EV market is growing in recent years and will continue to do so. The situation of employers associated with FNCSI and even under FNCCI is not different either.

Moreover, owing to the country's huge informal sector, such training is even more important for its entrepreneurs and workers.

5.1.7 Other relevant dimensions

Funding. As green skills is a new concept, application of this concept, particularly for research, analysis, and development of new standards and curriculum, teacher training, and laboratories, has cost implications. As revealed during the consultation process, due to budgetary limitations, conducting even the regular research has been a persistent challenge. Updating and developing new standards and curriculum also have cost implications. Therefore, increasing government financial allocations and external support is necessary. To address this risk, in the medium and long term, all the related interventions should be built into the system so that they will continue even in the absence of external support. This is possible when there are additional resources to train the relevant staff, and help them internalise and institutionalise the practices in the existing systems.

Plan for green skills operationalisation. Green skills is found as a demand-driven concept without conflict among stakeholders on their importance. However, as presented in Chapter 3 (Concepts and international practices), Chapter 4 (Findings), and Chapter 5.1 (Conclusions), it is a complex process which involves a range of stakeholders from practitioners to policy makers with a myriad of activities starting from research for occupation identification to assessment and certification. Therefore, there is a need for a comprehensive plan/ roadmap in order to ensure systematic and institutionalised operationalisation of green skills concepts.

5.2 Recommendations

Based on the findings in Chapters 3 (Green Skills Concepts and International Practices), 4 (Findings on Green Skills in Nepal), and conclusions made in Chapter 5.1, this section makes recommendations for mainstreaming green skills in Nepal's TVET system.

Green skills dimensions	Recommendations	Explanations on recommendations
Policy coherence	Recognising the education/TVET sector's critical role in helping the government's objective to combat environmental and climate change issues, revise nature conservation-related policies (environment, forest, industrial, climate change policy, and respective action plan) to incorporate education and the TVET sector.	Macro-level sectoral policies related to environment and climate mostly do not recognise the education/ TVET sector as a vehicle to translate these policies into practice. This shortcoming hinders the mobilization of the education/TVET sector for the intended purpose.
	Revise relevant policies (Education / TVET policy under MoEST, skills development under NAVT, and Industrial Policy under the Ministry of Industry, Commerce, and Supplies) and related strategic plans to incorporate green skills	Policies and plans related to skills and enterprise development are not aligned with national sector policies as mentioned above. Therefore, prioritization and acceleration of the policies' revision is necessary. These processes and policies themselves need to unavoidably include the informal sectors and their concerns. These revised TVET/skills development policies will serve as a guiding framework for mainstreaming green skills in the TVET system across the country.
	Develop a guiding framework (karyabidi) for incorporating green skills in TVET system	Revising the policies as mentioned above and changing the standards and curriculum are time-consuming processes. Therefore, in order to expedite the process, TVET sector government agencies (like MoEST/ CTEVT and NAVT) can develop a guideline/work process document for common understanding and to encourage implementation to the possible extent. For instance, the respondents during the Curriculum Development Center and TITI consultation suggested a work procedure guideline that could consistently and coherently help teachers/ trainers maintain their responsibility towards environmental conservation and resource efficiency. As changing curricula in the short run is challenging, such instrument could be a quick solution to, at least, generate awareness and implementation of institute-level conservation and resource-efficient practices.

Green skills dimensions	Recommendations	Explanations on recommendations
Labour market intelligence and skills anticipation	Conduct sector-specific research to identify skills gaps and shortages, and feed data and information into the TVET/ skills development system and prepare new or revise existing standards and curriculum accordingly. This action should also focus on developing primarily micro enterprises.	CTEVT has a specialized wing for TVET research and is reported to have plans to conduct research focused on identifying occupations that require green skills. However, resource constrain may create some challenges. Therefore, increasing investment in research activities of CTEVT, CEHRD, and NAVT, particularly on green skills, leveraging expertise and resources from BIA for this process, is vital.
	Make projections of the workforce that will be necessary or displaced due to green transition, and additional anticipated skills for the future.	Collaboration between the public sector and Business and Industry is incomplete if it cannot support in labour market intelligence. The Business and Industry, for instance, the Sector Skills Committees and their relevant associations, need to be mobilised in the research process. Even a good research finding is less useful unless this information is fed into the TVET system and teaching and training resources are developed accordingly. Nepal must focus on green micro and small enterprise development. So far, the country has overwhelming focus on TVET/skills development targeting wage employment and at the most, on self-employment. Although there are some good learnings from some of the micro-enterprise programmes in Nepal, the TVET system has much less consideration for micro or small enterprise development.
Employer engagement	Engage employers/business and industry, particularly through the Sector Skills Councils, in the identification of green skills relevant occupations, development of standards and curriculum, and their implementation. Public sector and TVET providers to partner with business and industries to implement the newly identified occupations.	Business and industry face not only issues around skills gaps and shortage, but they are also affected by technological, conservation, climate change, and resource-efficiency related issues. They are aware that these issues need to be addressed through occupational identification, standards, and curriculum development. While they have priorities on issues raised by economic slowdown, their engagement in revising/developing green-skills relevant standards and curriculum will be necessary.
	Mobilise the newly established Green Skills Advisory Board for development of green skills in Nepal.	Technology is changing fast, which outpaces the practices and facilities at the institute/school level. For instance, the number of EVs is increasing at a high rate. However, resourcing the public sector training institute by putting EV trainers and the necessary training equipment and tools is challenging. As managing resources in training institution will be challenging in the context of rapidly changing technologies, work-based training model can be the only viable solution.

Green skills dimensions	Recommendations	Explanations on recommendations
Skills standards, curriculum, and assessment	Revise existing and develop new skills, standards, and curricula by including green skills.	Some standards, for instance, beautician and electrical motor rewinder, and curricula, for instance, civil engineering, have subjects relevant to environmental conservation, natural resources efficiency, and sustainable development. However, the subjects and the contents are not deliberately aligned with the green skills relevant practices such as re-use, recycle, reduce, repair, and reject.
	Map and put specific focus on the green skills category (i.e. light, mid, dark) while developing new or greening existing standards and curricula. Plan for developing teaching-learning materials and preparing assessors while greening curricula is progressing.	Despite these gaps, most of these curricula are green-relevant and can be categorised into light and mid-green. For instance, the engineering, health, and hospitality curriculum could, through the curriculum review process, be made mid-green by adding a few duties and responsibilities. Following green skills categorisation – light, mid, and dark green, there is a large scope for inclusion of green skills in curricula to make the occupations resource-efficient and/or preservation and protection-friendly. A deeper understanding of green skills reveals various ways to include green elements in the curriculum. For instance, the inclusion of 'grease injection' skills in automobile training can lead to the development of a mid-green curriculum. A similar possibility exists with converting the current 'civil engineering diploma course' into the 'mid-green' category. Further, a simple change in approaches in beautician tasks, such as efficient use of chemicals, could make the beautician curriculum 'light green'. Similarly, identification of a new occupation, such as 'electrical vehicle technician', could enrich the list of 'dark green' occupations.

Green skills dimensions	Recommendations	Explanations on recommendations
Learner engagement and support	Include green skills concepts in the career guidance process for learners/ students. Expand the counselling services outside the project arena.	As career guidance is not a common practice in the TVET sector in Nepal, it will be too optimistic to expect inclusion of green skills at required level. Therefore, this gap needs to be addressed by including green skills concepts in the career guidance process. The counselling service, being supported at project levels, needs to be scaled up to reach the whole TVET system across the country.
	Introduce modular and credit-based curricula incorporating relevant elements of green skills.	As planned by the TVET Sector Strategic Plan, modular and credit-based curricula should be developed to expand flexible education and training opportunities While developing such modular curricula, the potential of including elements of green skills can be assessed and included.
	Provide the green skills opportunity even to the existing workers, including those in the informal sector.	The short-term training can also be mobilised for skilling, reskilling, and upskilling of workers in both the formal and informal sectors.
	Include the green skills concept in RPL assessment processes.	Currently, assessors in the skills test system are not properly trained on green skills assessment. Hence, this gap needs to be addressed by incorporating green skills elements in their preparation process.
Institutional strengthening and the TVET workforce	Conduct policy dialogue for stakeholders such as law-makers, policy makers, senior bureaucrats, planners, administrators, managers, and practitioners on prioritizing green skills.	Limited awareness exists among policy makers and practitioners on how prioritizing green skills is necessary for combating climate crisis and responding to the future skills demand arising from green economic transition. This gap needs to be addressed for a proper understanding of green skills concepts and the inclusion of TVET in macro-level sector policies and plans.
	Include green skills components in TVET teacher/ trainer training programs	Though some initiations have been made on green skills development among teachers/trainers, a big gap exists, even in the knowledge dimension, let alone in skills/ competency. Although the teachers/trainers at the school level demonstrate some resource-efficient/conservation practices, that is not systemic and systematic. Hence, it is not optimally institutionalised across the TVET system. To address this issue: • Organise training on green skills to the existing staff in the institutes and teacher training facilities such as TITI, ETC, and • Collaborate with relevant businesses and industry to get the opportunity to interact with workplace practitioners and practice on actual machines and equipment.

Green skills dimensions	Recommendations	Explanations on recommendations
	Accelerate and expand green skills awareness for employers and employees	Though some employers are proactive in being resource-efficient, it cannot be generalised. Many employers struggle to understand green skills as a necessity to be competitive in the market and to respond to green transition of economy. Employers' capacity to analyse the future green skills and occupations and their application in their industry / enterprises is necessary. Currently, they have limitations in making such assessment. Similarly, workers in the workplace are key to translating industry policy into action. Therefore, awareness of relevant activities is necessary for these two categories of stakeholders.
	Apply a lifelong learning approach for/ upskilling of existing workers in both the formal and informal sectors.	Skilling, reskilling, and upskilling of existing workers is equally important as is the pre-employment training. It will be important to include the green skills concept during such training.
	Develop a comprehensive capacity development plan for green skills development	To systematically implement and institutionalise stakeholders' capacity development activities: • A comprehensive capacity development plan is necessary, covering all stakeholders explained above, and • A communication strategy is necessary to institutionalise and give continuity to the awareness activities.
Other recommendations	Avail additional resources for research, curriculum revision/ development, teacher training, lab improvement, and making necessary changes in assessment and certification.	Teacher training and curriculum development, and implementation are the crux for implementing green skills concept. However, there are limited resources from public sources and private sector investment is very low. This limitation must be addressed.
	Develop an action plan/road-map including elements of gender and social inclusion for the institutionalisation and operationalisation of green skills in the TVET system	As green skills concept in Nepal is new, in order to systematically and institutionalise the operationalisation of green skills, develop an action plan/road-map on green skills. The road map can provide guidance on actions to be taken in various aspects of TVET system from policy to quality assurance for greening TVET. As the roadmap/ action plan should be sensitive to needs of multiple stakeholders, including women, youth, socially excluded and marginalised groups, their inclusion right from the road-map preparation process will be important.