


Chapter 5

Developing Green Skills for Sustainable Careers

Satya Subrahmanyam

 <https://orcid.org/0000-0003-0441-2742>

Holy Spirit University of Kaslik, Lebanon

ABSTRACT

The growing emphasis on sustainability and climate action has elevated the need for green skills—specialized competencies that integrate environmental awareness, technological proficiency, and practical expertise. This chapter explores how Technical and Vocational Education and Training (TVET) can address this demand by equipping the workforce for sustainable careers. It examines the theoretical framework of green skills, their linkages with the green economy, and the transformative role of artificial intelligence (AI) in enhancing training methodologies. Key areas include curriculum integration, AI-driven innovations, and collaborative partnerships to overcome barriers such as outdated curricula and unequal access. Featuring global case studies and policy recommendations, this chapter offers a comprehensive roadmap for developing green skills to foster sustainable economies and resilient careers.

I. INTRODUCTION

1.1 Overview of the Concept of Green Skills

Green skills refer to the knowledge, abilities, values, and attitudes necessary to live, work, and engage in society in a sustainable manner. They encompass a broad range of competencies aimed at reducing environmental impacts, promoting resource efficiency, and addressing climate change. These skills are integral to transitioning towards greener economies, which emphasize low-carbon, resource-efficient, and socially inclusive practices (Cedefop, 2012). From renewable energy expertise to sustainable agriculture practices, green skills enable individuals to contribute meaningfully to a world increasingly focused on environmental stewardship.

DOI: 10.4018/979-8-3373-1142-5.ch005

1.2 Importance of Sustainable Careers in the 21st Century

Climate change, environmental degradation, and resource depletion are becoming more pressing issues, and sustainable jobs are essential to finding solutions. The United Nations' Sustainable Development Goals (SDGs)—SDG 8, which advocates for decent employment and economic development, and SDG 13, which demands immediate action on climate change—are in line with these global objectives (United Nations, 2015). The shift to sustainable professions in the modern era promotes social justice, economic development, and environmental protection. It promotes sectors that are essential for ecological and economic resilience in the long run, such as sustainable manufacturing, green building, and renewable energy.

As the demand for green jobs grows, so does the necessity for a workforce equipped with green skills. These careers are not confined to environmental sectors; they span across industries such as technology, finance, and healthcare, where sustainability is becoming a core principle. Organizations and governments worldwide are recognizing that sustainable careers can mitigate the adverse effects of industrialization while opening pathways for innovation and inclusive growth (OECD, 2020).

1.3 The Role of TVET in Addressing Global Sustainability Challenges

To ensure that people have the skills necessary to contribute to sustainable development, technical and vocational education and training (TVET) is essential. Training and vocational education and training (TVET) institutions play a pivotal role in educating students and graduates for jobs in the growing green economy by incorporating environmental literacy into their course of study and career paths.

TVET programs are uniquely positioned to address global sustainability challenges because they combine theoretical knowledge with practical application. This approach ensures that learners acquire the expertise required to meet the demands of green jobs. TVET initiatives, such as the Green TVET framework, have been instrumental in fostering skills like energy efficiency, waste management, and renewable energy system maintenance (ILO, 2019). TVET's emphasis on inclusivity and accessibility makes it an ideal mechanism for reaching diverse populations, including youth and marginalized communities, thereby promoting social equity alongside environmental goals.

Transversal skills, including critical thinking, problem-solving, and flexibility, are cultivated in TVET programs alongside technical abilities. These are crucial for tackling the complex sustainability concerns. Ensuring that green skills are relevant and usable across multiple industries, TVET may further boost its effect via public-private partnerships by matching training programs with industry demands (UNESCO, 2017).

1.4 Link Between AI, Green Skills, and Sustainability

Artificial Intelligence (AI) is emerging as a transformative tool in developing green skills and advancing sustainability objectives. AI technologies can optimize resource use, reduce waste, and enable predictive analytics for environmental monitoring, making them indispensable for modern green econ-

24 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/developing-green-skills-for-sustainable-careers/377114

Related Content

The Ethical Considerations of Micro-Credentialing: Data Privacy and Security in Micro-Credentialing Platforms

P. Selvakumar (2026). *Transforming the Workforce With Microcredentials* (pp. 243-274).

www.irma-international.org/chapter/the-ethical-considerations-of-micro-credentialing/391777

Algorithmic Control, Precarity, and Global Disparities: A Bibliometric Analysis of Platform-Mediated Gig Economy Research (2017–2025)

Sadhana Singhand Charu Khan (2026). *Transforming the Workforce With Microcredentials* (pp. 1-38).

www.irma-international.org/chapter/algorithmic-control-precarity-and-global-disparities/391769

Employability Skills for Civil Engineering: The Complexities of Equipping Students With 4th Industrial Revolution Skills

Thokozani Isaac Mtshaliand Sylvia Manto Ramaligela (2021). *New Models for Technical and Vocational Education and Training* (pp. 115-135).

www.irma-international.org/chapter/employability-skills-for-civil-engineering/268444

Key Processes for the Performance of Work-Integrated Learning in HE: Focusing on Talents With a Winning-Foursome

Walter Nuningerand Jean-Marie Châtelet (2022). *Research Anthology on Vocational Education and Preparing Future Workers* (pp. 355-385).

www.irma-international.org/chapter/key-processes-for-the-performance-of-work-integrated-learning-in-he/304494

Politics or Pedagogy?: The Emergence of Workplace-Based Learning in South Africa

Ronel Blom (2022). *Research Anthology on Vocational Education and Preparing Future Workers* (pp. 468-490).

www.irma-international.org/chapter/politics-or-pedagogy/304500