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International Centre for Technical and Vocational Education and Training

Greening TVET in the context of climate change policy developments

Draft summary report of the
UNESCO-UNEVOC virtual conference
02 November – 13 November 2015
Moderated by Nick Sofroniou

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Foreword

COP21 is in action now. The effects of climate change on countries is driving collective action to formulate green growth agendas, transform economic, social and environmental development goals and pass critical environment-sensitive targets, bills and legislations that enable the reduction of greenhouse gas emissions. Due to the complex nature of climate change, there is a need to shift to multi-stakeholder engagement. Indeed, issues related to climate change cannot be addressed by one viewpoint alone, but rather needs multiple perspectives and cross-sectoral engagement.

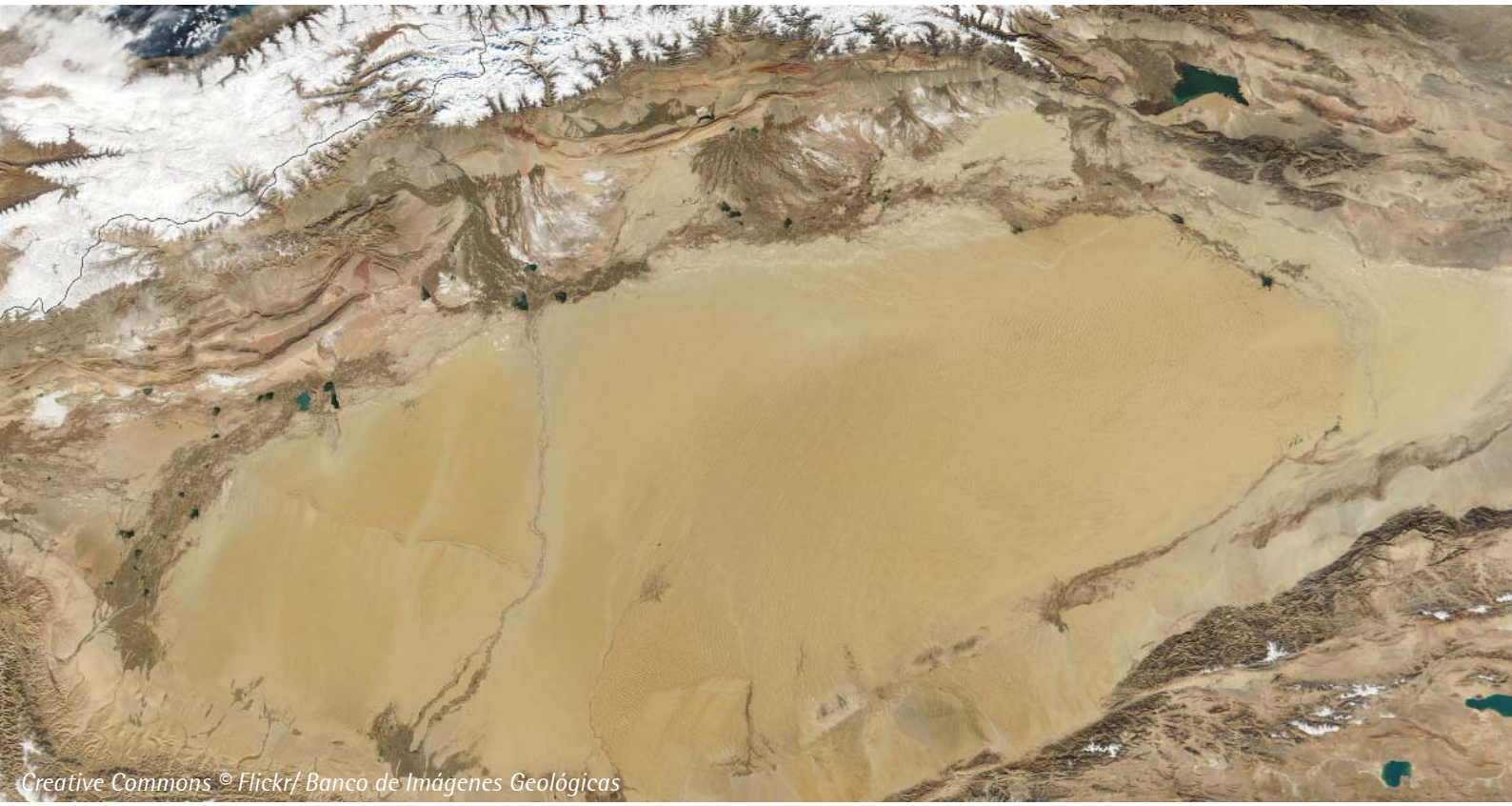
Education and training plays an important role in this regard. Indeed, equipping youth and adults with TVET skills for employment, decent jobs and entrepreneurship is an important sub-target within the transformative education vision set out in Sustainable Development Goal (SDG) 4, namely that of "inclusive, equitable quality education and lifelong learning opportunities for all." In this context, the need to transform the TVET sector to maximize its potential to contribute to the fulfilment of the SDG 4, as well as the promotion of green and sustainable economies and societies, is of high relevance.

UNESCO-UNEVOC contributes to this process through a number of activities, including advocating for a whole institution transformational approach to Greening TVET, curriculum development and 'topping-up' of green skills in existing curriculum, community-based approaches to promote social inclusion and sustainable development, and the sharing of promising practises. UNESCO-UNEVOC organized a virtual conference from 02 to 13 November 2015 on the UNEVOC e-forum. Moderated by Dr Nick Sofroniou, Principal Research Fellow at Institute for Employment Research of the University of Warwick and an expert in green skills development, this virtual conference acted as a forum to collect insights, hopes, expectations and concerns for raising TVET's relevance in the post-2015 development agenda. With an emphasis on action-oriented outcomes, the conference report provides an extra impetus heading into COP21 and will seek to define TVET's transformative role in developed, as well as developing countries, as well as its untapped capacities, through the sharing of promising practises and experiences.

This virtual conference was the eleventh in a series of moderator-driven discussions introduced by UNESCO-UNEVOC in 2011. Conducted on the UNEVOC e -Forum – a global online community of over 4,000 members – and guided by an expert, these discussions provide a platform for sharing of experiences, expertise and feedback and wish to inspire people to take further action. We would like to thank Dr Nick Sofroniou for sharing his expertise on greening TVET with the wider community. I would also like to also pass on Nick's acknowledgements for Katerina Ananiadou, Kenneth Abraham Barrientos, Wouter De Regt and Max Ehlers' contributions during the virtual conference. Lastly, we would also like to extend our sincere gratitude to all participants who took the time to share their experiences on the topic and contributed to the development of this report.

Shyamal Majumdar
Head of UNESCO-UNEVOC International Centre

Introduction



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The 21st Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) includes Pledges from 154 countries with National Climate Change Plans that lead to an expected global temperature at 2.7 to 3 °C above pre-industrial levels by the year 2100. With commitments to limit emissions to 4Gtonnes CO2 (by 2030) it marks a move away from the "business as usual" scenario, potentially yielding a virtuous circle in which technology change, capital shift and policy advance together. However, this marks a process, with further economic and societal adaptation required to reach the 2 °C ceiling thought necessary to avoid the most serious consequences of global warming. The recently adopted Sustainable Development Goals (SDGs)[1] set the tone for the post-2015 development agenda, while COP21 will provide the context for business, as well as cross-sector players, to develop solutions to cope with the implications of climate change.

These developments are likely to impact on many sectors of the economy by changing the nature of occupations and increasing the demand for new skills (Cedefop 2013[2] ; European Commission 2011[3] , Strietska-Ilina et al 2011[4]). A shortage of skills entailing

1 https://sustainabledevelopment.un.org

2 Cedefop (2013): Skills for a Low-Carbon Europe: The Role of VET in a Sustainable Energy Scenario, Research Paper No. 34, Thessaloniki: Cedefop http://www.cedefop.europa.eu/EN/publications/21701.aspx

3 European Commission (2011): A Roadmap for moving to a competitive low carbon economy in 2050, COM/2011/112. http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0112

4 Strietska-Ilina, O., Hofmann, C., Haro, M. D., and Jeon, S. (2011): Skills for Green Jobs – A Global View http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_159585/lang--en/index.htm

bottlenecks acts as an obstacle to this transition as the cost of climate change mitigation and adaptation increases. This transition from high-to-low carbon intensive production will involve a redistribution of labour that demands adequate preparation and enabling people to take this up. Industries need government support to efficiently adapt, while policy-makers and educationalists need to ensure that skills and training are aligned with these coming changes in the employment landscape. SDG4 focuses on the implementation of the Education 2030 Framework for Action which includes TVET skills for employment, decent jobs and entrepreneurship for youth and adults as an important sub-target. Challenges for green employment identified by the Inter-Agency Working Group on Greening Technical and Vocational Education and Training and Skills Development include the need for effective policy coordination and social dialogue that engages individuals, companies and institutions to take initiative.

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Objectives and Scope

From 2 to 13 November, UNESCO-UNEVOC e-Forum members and other stakeholders participated in a virtual conference on Greening TVET in the context of global climate change policy developments. The virtual conference considered global frameworks and agreements of the UN Summit 2015 in New York and particularly those to be made at COP21 in Paris as they challenge TVET to expand quality skills provision and to ensure skills relevance not only for the world of work, but also to support lifelong learning, social inclusion and low-carbon transitions of economies and societies. 130 participants from 57 countries participated in the virtual conference. 53 participants were female (41%) and the number from each region where as follows: Africa 37, Arab States 8, Asia and the Pacific 28, Europe and North America 36, Latin America and the Caribbean 21 participants.

Summary of virtual conference discussions

The discussion was carried out in three threads, addressing: (1) the role of TVET in a changing climate; (2) the greening of TVET institutions; and (c) TVET and vulnerable groups and Member States.

1. Role of TVET in a changing climate

The UNFCCC COP21 Synthesis Report[5] summarises National Climate Plans from

5 UNFCCC Synthesis report on the aggregate effect of the intended nationally determined contributions. http://unfccc.int/focus/indc_portal/items/9240.php

146 Countries (those received by 1 October 2015). Item 156 presents priority areas for implementation highlighted in the intended nationally determined contributions (land-use and forestry, methane and other non-CO2 gases, transport, energy efficiency, renewable energies), with a relatively small emphasis on carbon capture, use and storage. Priority areas and sectors for adaptation actions in item 282 included: agriculture, disaster risk reduction, ecosystems, energy, infrastructure, forestry, health and water.

Expanding TVET sectorial cover and skills set

Participants suggested that, in the context of adjusting to climate change policy and its implications for the changing occupational landscape, TVET will need to cover a wide range of sectors and skill sets. This goes beyond industrial manufacturing and the service sector, but also includes ecologically oriented courses, agriculture and wider environmental courses. It also requires including sustainability, energy efficiency and resource saving into the wider curriculum. A suggestion made, that all programmes should include environmental aspects, ties in with an emphasis on embedding sustainability in all aspects of TVET.

New technologies such as modernized and renewable energy generation require new or additional skills sets transferred through technical and vocational training stream or advanced skills training.. These requirements are also found in areas such as smart grids, vehicles using electric and fuel cell technologies, eco-design and low energy solutions for data processing and storage via cloud-based IT. With low-carbon economies and adaptation to climate change as drivers of occupational change, altering the balance of existing and additional skills required in those occupations or new job creation – developing new skills altogether to match the needs of new jobs – then aligning TVET to meet these changes in work seems key. A case was also made that the widespread knowledge of environmental and sustainable issues, entailed by the wider vision of Greening TVET, facilitates active reflection and discussion about how to implement change. The ethical dimension of work was brought out further, when points were made concerning obsolescence and excess consumption which, perhaps, can be aligned with the move to a circular economy, with TVET enabling the transition through meeting direct training needs as well as wider societal engagement.

Re-conceptualizing TVET and its potentials

The notion of TVET as a `system integrator' that facilitates the achievement of goals across the multiple domains of society, economy and environment was introduced. The dynamics of the labour market can be considered to reflect systemic links where both skills and technology gaps need to be addressed through appropriate education and training (tackling either in isolation not being sufficient).
The suggestion was made that TVET can be conceptualised as a proactive force in the dynamics of labour markets. Rather than TVET only responding to the needs of the labour markets (reactive), the point being whether TVET can also lead and influence labour markets and the emergence and adaptation of jobs (proactive). Considering linkages to climate change policy developments, this shift in emphasis (from reactive to proactive) could also help the TVET sector not only think about how policy developments influence its

activities, but also how such activities can influence policy developments themselves.

Situating TVET in national roadmaps and strategies

The gap between intentions, the policy agenda and final implementation was discussed in relation to short-term versus longer-term initiatives. Longer-term roadmaps and intermediate targets play an important role here, otherwise it becomes possible for short-term emission targets to be met by infrastructure changes (and side-effects of economic downturns) that leave a country's infrastructure ill prepared for the more severe changes required further down the line. Whether one is looking directly at energy generation and utilisation, or at sectors such as construction, agriculture, transport or tourism, it will be necessary to consider both the occupational and skills requirements as they may be expected to develop over time (long term), as well as meeting the immediate needs of the present labour market (short term). This was explored further in the context of monitoring and evaluation, both from COP21 and the Interagency Working Group on Greening TVET and skills development.

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2. Greening of TVET Institutions

In the UNFCCC COP21 Synthesis Report, items 158 and 296 consider training, education and information needs, while items 146 and 162 emphasise institutional arrangements, including structures and consultation processes, intersectoral/inter-agency dialogue, e.g., involving sectoral ministries, businesses, environmental non-governmental organizations, academia and local governments, as well as the general public.

Participants in the virtual conference discussed

three possible different modes/scenarios for Greening in curriculum development: First, integrate climate change considerations when designing the program through a Job Analysis Workshop (JAW), or a similar Developing A Curriculum (DACUM) process; Second, develop general competencies (or soft skills) on the integration of climate change considerations into the trade as a whole; and Third, while providing a general understanding of climate change and its application to society, a crucial element is to provide (and encourage reflection upon) the links to the students' particular vocations. This might be in terms of current best practice, regulatory frameworks, or the expected future impact of climate change policy, adaptation and technology, upon the nature of work in a given occupation. Examples were provided for ecotourism in Greece and the development of irrigation projects in Brazil through technical courses to poor backlanders, whose content develops a population knowledgeable about sustainable development.

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In the context of institution-based greening of TVET, it involves both making institutions environmentally friendly in terms of resources used, saving on water, energy, recycling, sustainable transport for staff and students, as well as ensuring it is a decent place to work and study. This requires bringing on board all members of an institution: leaders, managers, instructors, program delivery personnel, as well as students themselves. The complexities of TVET in relation to multi-stakeholder engagement were highlighted, where educational institutions can learn from different local examples. UNESCO-UNEVOC is prototyping approaches to the topping up of skills in TVET curricula and developing a practical guide for Greening TVET institutions, building on earlier work (e.g., Majumdar 2011[6]). Themes highlighted by participants included piloting initiatives, possibly on a small scale, monitoring performance/action plans and disseminating gains and results of applying greening processes and approaches in the many aspects of institutional operations. This draws attention to benefits to be gained from defining incremental steps that can be measured or rated, and actions which can be shared as examples of good practice, when successful in a given context.

3. TVET, vulnerable groups and Member States

The impact of climate change on vulnerable groups and countries is discussed in the UNFCCC COP21 Synthesis Report, e.g., item 259 on vulnerable populations: rural populations; poorest segments of society; women, youth, the elderly and the disabled and vulnerable sectors and zones: including areas liable to drought and desertification, low-lying coastal areas and small islands; land-locked countries

6 Majumdar, S. (2011). Developing a Greening TVET Framework. Bonn: UNESCO-UNEVOC.

and mountains. Examples include Small Island Developing States (SIDS) and Africa.

The discussion of TVET in the context of SIDS emphasised the need to include information and training for adaptation to climate change. The requirement for sufficient capital commitments is one key aspect of negotiations in COP21 with related resource and technology inputs being highly relevant. Further perspective was given from the Caribbean in relation to discussions of agriculture (including disaster risk management) and hospitality sectors and their sensitivity to climate change.

Different levels of uptake of particular TVET courses by each gender were highlighted. This approach can be further informed by research looking at the attractiveness of TVET that may be explored in relation to vulnerable groups such as girls and women, disadvantage social backgrounds, migrants (e.g., UNESCO-UNEVOC annotated bibliography[7]). The need was indicated for a shift to an inclusive vocational training system addressing the root causes of social unrest and poverty including making provisions for specialised training facilities, careers guidance counselling, as well as certification of current skills through recognition of prior learning. The notion of intra-generational equity was introduced and the potential highlighted for community based projects as a suitable vehicle for TVET provision.

There was emphasis on models of growth that are less dependent on cheap materials and energy, able to restore and regenerate natural capital. This requires bringing new paradigms of ecological business systems

thinking into school and TVET curricula. The discussion was broadened to unemployment, food and nutrition insecurity, areas of conflict, natural disasters and migration, including the role that TVET can play in bringing about innovative solutions, using technology and communication tools, including new developments in agriculture. Relevant here are small and micro-businesses benefiting from entrepreneurial skills and innovative financing models such as microfinance for those businesses lacking access to conventional banking and financial services.

Conclusion

The virtual conference gathered valuable input from the UNESCO-UNEVOC e-Forum community over a two-week period prior to COP21. The connection was made between the global level and its different facets at the country level, underlining the importance of considering how change is actually mediated both nationally and locally. There is a need for effective policy coordination and social dialogue, which will engage individuals, companies and institutions to take initiative. Greening TVET is a key point to be included in education and sustainable development agendas.

7 UNESCO-UNEVOC annotated bibliography on Attractiveness of Vocational Education and Training: Permeability, Successful School-to-Work Transitions and International Mobility http://www.unevoc.unesco.org/fileadmin/up/bibb_unevoc_bibliography.pdf

In adjusting to climate change policy and a changing occupational landscape, TVET needs to cover a wide range of sectors and skill sets. While research and policy discussions concerning the greening of occupations often focus on high-skilled, well paid jobs such as in the industries of renewables, energy efficiency and mass transit, in practice many green jobs include farmers and lower skilled workers as well as eco-tourism and waste management. These include small and micro-businesses benefiting from entrepreneurial skills. It is recommended that all programmes should include environmental aspects, which ties in with embedding sustainability.

TVET institutions need to adapt their capacities through greening, exploring skills and institutional monitoring mechanisms to ensure that they are prepared to equip learners and the workforce. Participants highlighted the vulnerabilities of certain groups in society and how certain countries are particularly sensitive to climate change impacts. Policies targeting disadvantage groups can address policy reduction objectives as well as sustainable development goals. TVET, by providing skills and knowledge for disadvantaged and vulnerable groups, can facilitate a just transition to sustainable societies.

Participation

Number of participants: 130
Number of countries from which participants came: 57
Male: 77
Female: 53

About the Moderator

Dr Nick Sofroniou is a Principal Research Fellow at Institute for Employment Research of the University of Warwick and an expert in green skills development. Nick has significant experience in policy-relevant research and analysis on education, training and skills and has worked as an expert in socio-economic research and analysis at Cedefop, the European Union agency for the development of vocational education and training (VET). During that time, he also represented the EU on the Interagency Working Group on Greening TVET.

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