Skills for a net-zero future in the UAE

Recommendations to shape the workforce

Advised by the GITEX Impact council

Matthew Aruch | Pramath Sinha
Wim Torfs | Dr. Diana Mangalagiu
Penelope Kypuros | Marlon Parker

CSO BUSINESS CLUB x GITEX IMPACT x CO-LOCATED WITH GITEX GLOBAL | THE LARGEST TECH AND STARTUP EVENT IN THE WORLD x SLP Sustain Labs Paris

16 - 20 OCT 2023 | DUBAI WORLD TRADE CENTRE

Report date 13/10/2023
Report title: Skills for a net-zero future in the UAE

Advised by the GITEX Impact Council
Dr. Diana Mangalagiu - Professor, Environmental Change Institute, University of Oxford, United Kingdom
Marlon Parker - Founder, Reconstructed Living Labs, South Africa
Dr. Matthew Aruch - Director, Indigenous Conservation Programs, International Conservation Fund of Canada, Canada
Penelope Kypuros - Head of HR Consulting, MENAT, HSBC, UAE
Dr. Pramath Raj Sinha - Chairman of the Board of Trustees, Ashoka University. Founder, Harappa Education, India
Wim Torfs - Founder, Glowfish Ventures, UAE

Under the supervision of
Dr. Miniya Chatterji, CEO, Sustain Labs Paris

This report is prepared for and by GITEX Impact. This white paper, titled "Skills for a net-zero future in the UAE" is intended to provide recommendations on the critical skills required to shape the workforce for the UAE's transition towards a net-zero future. Any extract or content, directly or indirectly used from this report should be referenced to 'Skills for a net-zero future in the UAE', GITEX Impact, 2023.

Suggestions, complaints, and feedback should be shared with **sustain@labsparis.com.**

Contents

Summary

There is a clear shift in the skills needed for establishing and maintaining net-zero emissions in the UAE, with robotics & artificial intelligence (AI), sustainability & climate action, and critical thinking emerging as pivotal pillars. Notably, it was found that 2 of the top 3 skills deemed relevant for a net-zero future, i.e., robotics & AI, and sustainability & climate action, do not adequately feature in the training offered to professionals and in the curriculum offered to university students in the UAE who are currently enrolled. The UAE is already ahead of many of its peers globally in offering sustainability and climate-related skills, yet more is needed to meet the skills demand. It was also found that the top motivator for acquiring new skills is jobs, which could therefore enable leveraging the climate jobs boom to make skills for the net- zero transition more attractive to students.

The UAE is already ahead of many of its peers globally in offering sustainability and climate related skills, yet more is needed to meet the skills demand.

In order to leverage the opportunities and overcome the challenges for establishing the skills needed for the UAE's net-zero future, this White Paper strongly advocates the following recommendations:

1. **Emphasize an interdisciplinary curriculum at schools and universities**

2. **Set-up policy incentives for educational institutions to invest in skills for the net-zero transition**

3. **Leverage the climate-related job boom to make the field attractive for study**

4. **Skill on AI for climate simulations**

5. **Address gender disparities in skills preferences**

6. **Establish a future-ready education policy**

7. **Enhance accessibility to learning skills for a net-zero future**

In the race towards a net-zero future, the winners will be those who heed the signals of change, preparing their workforce not just for jobs but for the dynamic, multifaceted careers of the future. The UAE is recognizing trends, addressing disparities, and fostering a commitment to lifelong learning for establishing and maintaining a world that abides to net-zero emissions. By doing so, the UAE is positioning itself at the forefront of a global movement towards a sustainable, technologically advanced, and agile workforce.

Introduction to this White Paper

The skills needed to enable the world to transition to net-zero emissions are now a necessity for fructifying any of the net-zero commitments by an increasing number of countries and organizations. The International Labour Organization (ILO) has identified increased automation, demographic transition, environmental change, and globalization as the leading factors that are rapidly redefining the nature of work and jobs.[1] However, the skills that workers and organizations need to thrive in the future depend on the evolving nature of work, jobs, and the trajectory to the achievement of net-zero emissions in different regions.

In the Middle East, transitioning to a net-zero economy will significantly impact the sectors that contribute the most to the region's GDP. This has its share of challenges, but also opens up new opportunities for the future of work. It will create the need for new technologies and for people to develop and run those technologies. It will thus provide employment and innovation in many sectors, including energy, agriculture, tourism, waste management, natural resource management, and climatic disaster prevention. However, the transition will require a deeper understanding of what it takes to build a net-zero economy, as well as the workforce required to do so. Envisioning the future of work has thus spurred the debate on what skills are needed in the future, how those skills should be acquired, and how training providers need to adjust. Future-ready skills are critical to innovating and scaling up climate

1. ILO. (2016). Background note for the Special Plenary Debate - "Skills for the Future". *16th Asia and the Pacific Regional Meeting Bali, Indonesia, 6 - 9 December 2016*. Geneva: International Labour Organization.

technologies. However, addressing the skills gap only from the supply side is insufficient. A greater understanding of the demand side of skills and the structures that influence the impact of skills is needed so that investment in skills development can be well directed.

This White Paper focuses on the UAE and its response to developing skills catering to a global shift, including the UAE's, to a net-zero future.

The UAE, as a forward-looking nation, seeks to understand and adapt to the evolving demands of the workforce. The UAE's focus on building skills for a net-zero future is driven by the UAE's net-zero emission targets for 2050 and its declaration of 2030 as the year of sustainability. A skilled workforce, equipped with the knowledge and expertise required for a net-zero economy, will be the driving force behind the UAE's transition to a sustainable, low-carbon society. The Ministry of Climate Change and Environment's "Green Jobs Programme" has also indicated that about 2% of the UAE's GDP per year in greening

the economy would create up to 165,000 new jobs by 2030 in the country.[2] This White Paper explores the skills needed for preparing for net-zero emissions in 2030 in order to be ready to achieve the country's 2050 net-zero target on time.

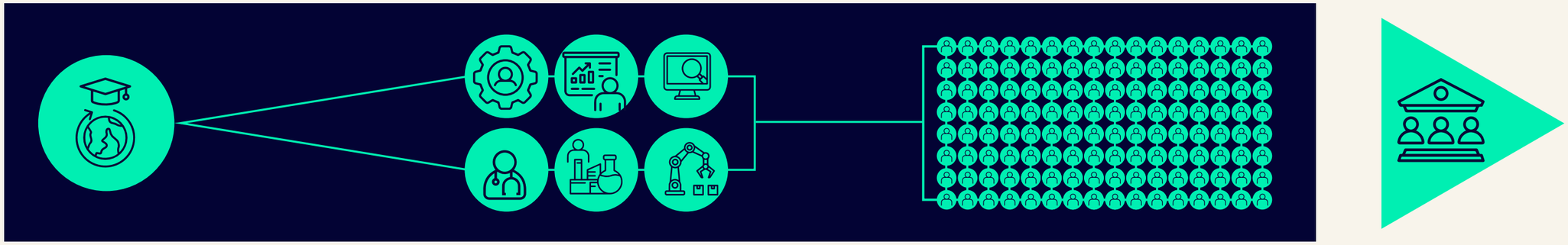
The research underpinning the White Paper spanned 10 months and was conducted by Sustain Labs Paris. It was advised by the GITEX Impact council members and was informed by secondary research as well as survey-based primary research.

What skills? The research for this White Paper delved into the skills essential for thriving in a low- emissions economy, considering the intersection of technology, sustainability, and human ingenuity. We considered sustainability and climate-related skills only as a subset of the skills needed for the transition to a net-zero future. For this, we defined sustainability and climate skills relevant to the UAE as skills to balance greenhouse gas emissions with carbon removal, scaling up low carbon energy sources, implementation of energy-efficient technologies, and adopting sustainable practices across sectors.

Supply side story: Information was collected on existing and planned initiatives for climate and sustainability-related skills with respect to 4 stakeholders as mentioned below. Studying the status quo of each stakeholder offered unique insights into the ecosystem of net-zero skills development, utilization, and governance.

2. *Environment ministry launches UAE Green Jobs Programme.* (n.d.). GGGI - Global Green Growth Institute. https://gggi.org/environment-ministry-launches-uae-green-jobs-programme/

Stakeholders relevant to net-zero skills



Providers

Educational institutions, universities, think tanks, and training centres in the UAE that offer programs and initiatives focused on equipping individuals with the knowledge and capabilities necessary for a net-zero economy.

Users

The youth and professionals in the UAE who engage with and apply net-zero skills in their respective domains.

Beneficiaries

Workplaces, entrepreneurs, industries, and employers in the UAE who stand to benefit from a skilled workforce adept in net-zero competencies.

Regulators

Government bodies and corporate governance entities in the UAE responsible for shaping the landscape of net-zero skills.

Demand side story: By exploring the perspectives of both working professionals and university students, the research for this White Paper aimed to understand gaps between current skill offerings and the emerging requirements of a workforce poised for the challenges and opportunities of a net- zero future. Secondary research was collected and a survey of university students and working professionals was launched to this end.

Recommendations: The GITEX Impact council, guiding this research, recognized the need for proactive measures not just for survival but for flourishing in a future where environmental stewardship is inseparable from economic prosperity. Against the backdrop of the UAE's push for sustainability, this White Paper provides actionable insights for stakeholders in the UAE in the form of recommendations.

Goals and methodology of the research underpinning this White Paper

The goals of the research underpinning this White Paper were intricately tied to understanding and navigating the evolving skills landscape in the UAE amid the global transition towards a low emissions economy.

1. **Identifying relevance:** Uncover the skills deemed most relevant for the workforce in 2030, particularly in the context of a low emissions economy.

2. **Skill acquisition aspirations:** Understand the aspirations of both working professionals and university students regarding skill acquisition.

3. **Educational offerings assessment:** Determine the prevalence of key skills in educational curricula, gauging how well institutions are aligned with the skills necessary for a net-zero future.

4. **Motivations for skill acquisition:** Unearth the motivations driving individuals to acquire new skills. Whether spurred by job availability, higher salary ranges, or personal interest, understanding these motivations is pivotal for designing effective skill development programs.

5. **Perception of future work:** Delve into the perceptions of respondents regarding the future of work. This includes

the influence of AI, the role of technology, and expectations regarding the nature of jobs in 2050.

As a first step in the research for this White Paper, discussions among the GITEX Impact council members led to a tighter definition of research questions and development of secondary and primary research. A comprehensive review of existing literature revealed several key trends, challenges, and opportunities associated with skills needed for the net-zero transition. As a second step, 5 focus group discussions were organized among 25 globally acclaimed sustainability experts to define a list of skills, in no particular order, that were most relevant in the UAE for a net-zero future. As a third step and based upon the results of steps 1 and 2, an extensive survey was launched in September 2023 to investigate relevant and aspirational skills among students currently enrolled at the university level in the UAE and working professionals.

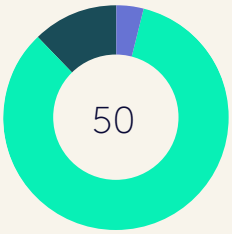
Sample size

50 working professionals currently upskilling through any means – online or offline, part-time or full-time courses. 50 college students pursuing undergraduate or post-graduate studies.

The survey was conducted in September 2023.

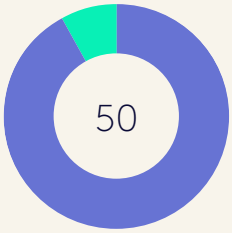
Age distribution of the respondents

Working professionals



- <18 years (0)
- 18 to 24 years (2)
- 25 to 45 years (42)
- 45 years+ (6)

Students

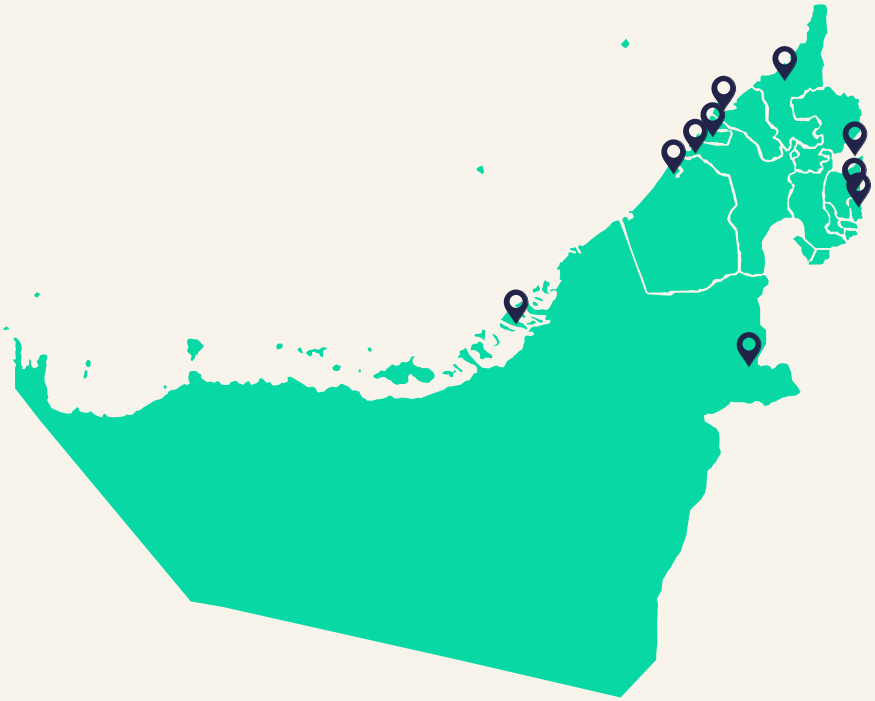


- <18 years (0)
- 18 to 24 years (46)
- 25 to 45 years (4)
- 45 years+ (0)

City and gender distribution of respondents

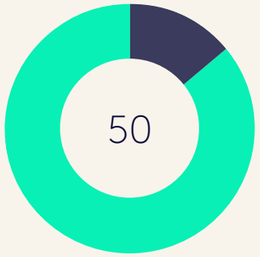
43

57

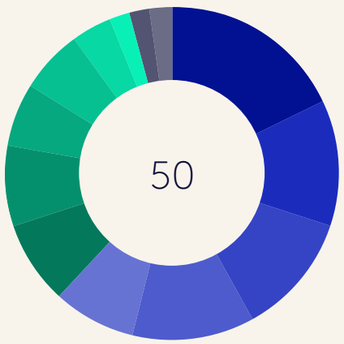


Source: Based on survey with 100 respondents conducted by Sustain Labs Paris, September 2023

Working professional respondents: occupation status, and the sector/primary domain of their organization

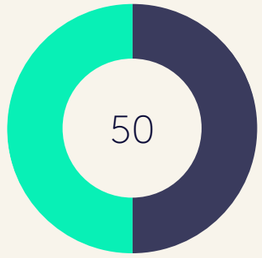


- Business / self-employed (7)
- Salaried (43)

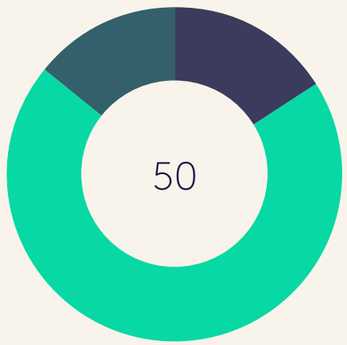


- Banking/financial services/insurance (9)
- IT/computer software/hardware (6)
- Manufacturing (6)
- Others (specify) (6)
- Construction /real estate (4)
- Healthcare/pharma (4)
- Hospitality/travel/tourism (4)
- Transportation/logistics (3)
- Education/learning (3)
- FMCG/CPG/retail (2)
- ITES/e-ccommerce/KPOs/BPOs etc. (1)
- Automotive (1)
- Energy/oil exploration/refining (1)
- Advertising/PR/marketing/market research/consultancy (0)
- Television/newspaper or magazine / other media (0)

Student respondents: education status



- Full time student (25)
- Student, part time and working, part time (25)



- Secondary school (0)
- University professional or vocational certification (8)
- University degree (35)
- Postgraduate, doctorate, or above (7)

Source: Based on survey with 100 respondents conducted by Sustain Labs Paris, September 2023

"Work" in 2030 will be more connected, technology integrated, and greener

The starting point for ascertaining the skills needed for a net-zero future must be to understand how the future is perceived to be. Accordingly, in the research conducted for this White Paper, nearly half of the respondents to the survey predicted significant AI involvement in work by 2030. Divergent opinions on AI's impact reflect a spectrum from making work easier to further complicating job structures. Respondents foresaw a technologically advanced future with robots, AI, and automation playing central roles. Remote work, reliance on AI, and a shift in job structures were also common themes.

The research has also indicated a notable trend towards the need for interdisciplinary skills to prepare for such a workplace. The complexity of addressing climate change requires professionals with a blend of technical expertise and an understanding of social, economic, and environmental factors.[3]

The emergence of green jobs also emerged as a prominent trend. These jobs span various sectors, from renewable energy to sustainable agriculture, creating a demand for skills related to environmental sustainability. The UAE recorded a 8% year-on-year growth in green talent in the finance industry, while Saudi Arabia

3. Hein, C. J., Hoeve, J. E. T., Gopalakrishnan, S., Livneh, B., Adams, H. D., Marino, E., & Weiler, C. (2018). *Overcoming early career barriers to interdisciplinary climate change research. Wiley Interdisciplinary Reviews: Climate Change, 9*(5). https://doi.org/10.1002/wcc.530

saw a 7% rise.[4] The share of jobs requiring at least 1 green skill grew by a median of 22.4% between 2022 and 2023, which is almost twice the speed with which green talent is increasing.[5] During the same period, LinkedIn data suggests the number of green job postings in the UAE increased by 6.97% - so there is a skills shortage looming and we are still far from the green skills penetration that we need. Green skills and jobs are weathering economic uncertainty, with the median year-on-year growth in the share of jobs requiring at least 1 green skill accelerating from 4% between 2020 and 2021 to 22.4% between 2022 and 2023.

There was also a trend found for the transition to a low emissions economy to be closely tied to technological advancements. The increasing integration of technologies such as AI and the Internet of Things in environmental management was found to necessitate a tech-savvy workforce.[6]

4. Finance industry green talent trends (pg. 24), *Global Green Skills Report 2023.* (2023).

5. Page 3, *Global Green Skills Report 2023.* (2023).

6. Hosan, S., Karmaker, S. C., Rahman, M. M., Chapman, A., & Saha, B. B. (2022). *Dynamic links among the demographic dividend, digitalization, energy intensity and sustainable economic growth: Empirical evidence from emerging economies. Journal of Cleaner Production, 330*, 129858. https://doi.org/10.1016/j.jclepro.2021.129858

The top 2 most relevant skills for 2030 are currently not offered adequately by educational institutions in the UAE

The professionals in the sample surveyed revealed that their educational institutions emphasized information technology (IT), business administration, and communication. A slight shift in education curricula over the years is noted in the responses from current students who chose IT, business administration, and also critical thinking as subjects most taught in their educational institutions. On the other hand, a significant majority of the sample surveyed perceived the most relevant skills for 2030 to be robotics & AI, IT, and sustainability & climate action leading the list.

Notably therefore, 2 of the top 3 skills deemed relevant for a net-zero future by the sample surveyed, i.e., robotics & AI, and sustainability & climate action, do not feature adequately in the training offered to professionals and in the curriculum offered to university students in the UAE who are currently enrolled. Despite sustainability and climate change being the top skills needed for the transition to a net-zero future, a substantial number (44%) among the sample surveyed dedicate only 2-5 hours weekly to sustainability learning and 36% spend less than 2 hours, underlining the need for increased focus on sustainability education.

Gender differences: Noteworthy variations emerge when comparing perspectives. While both genders prioritized robotics & AI as a top skill that will be needed for the workforce in 2030, women (37%) emphasized critical thinking and innovation more than the men (14%) in the sample did. Whereas men (44%) emphasized more on sustainability & climate action compared to women (23%).

Professionals vs students: Working professionals and students exhibited distinct preferences in the survey. Professionals favoured robotics & AI, sustainability & climate action, and IT, while students leant towards robotics & AI, IT, and communication.

Robotics & AI **58%**

IT **46%**

Sustainability & climate action **35%**

Robotics & AI, IT and Sustainability & climate action are deemed most relevant for the workforce in 2030.

IT

Business administration

Critical thinking

are commonly offered at educational institutions.

Discrepancies exist between skills offered and skills desired, signalling a potential gap in educational offerings.

Critical thinking is more valued by female professionals **22%**

compared to male professionals **12%**

Sustainability & climate action is perceived to be more crucial by working professionals **48%**

than univeristy students **22%**

Source: Based on survey with 100 respondents conducted by Sustain Labs Paris, September 2023

The top motivator for acquiring new skills are jobs

The emergence of green jobs is a prominent trend. These jobs span various sectors, from renewable energy to sustainable agriculture, creating a demand for skills related to environmental sustainability.[7] On the other hand, the top motivator for both working professionals and students for acquiring new skills was found to be higher job availability, with other motivators such as high salary range and self-interest that followed. This indicates the need for stakeholders to emphasize the green jobs boom in order to attract talent to gain skills in the fields of sustainability and climate change. Communications need to clearly emphasize the linkages between availability of sustainability and climate change related skills providers and the massive demand for these skills in the job market.

7. *These are the sectors where green jobs are growing in demand.* (2023, February 28). World Economic Forum. https://www.weforum.org/agenda/2021/09/sectors-where-green-jobs-are-growing-in-demand/

Motivations for skill acquisition

Higher job availability	**34%**	is the most important reason for both female professionals	**41%**	and students to acquire skills in that field	**27%**
Higher salary range	**24%**	is the most important reason for male professionals to acquire skills	**27%**	compared to female professionals	**18%**
Self-interest	**21%**	Overall, self-interest is a more important reason for females to acquire skills	**28%**	compared to males	**16%**
are motivators for acquiring new skills		This is reflected among professionals too, where self-interest is more important to female professionals	**24%**	compared to male professionals	**12%**

Popularity and availability of training facilities for a particular skill is a more valued reason for female professionals in acquiring that skill compared to male professionals.

Source: Based on survey with 100 respondents conducted by Sustain Labs Paris, September 2023

The UAE already offers sustainability and climate-related skills but more is needed

Institutions in the UAE, such as vocational training centres and technical institutes, play a significant role in providing net-zero skills through specialized training programs. Private independent institutions are the largest source of climate and sustainability-related skills in the UAE. Their focus is often on social sciences, offered largely sporadically. Technical and vocational education and training institutions in the UAE offer hands-on training in a variety of fields, including renewable energy, energy efficiency, and environmental management. These institutions in the UAE are increasingly incorporating net-zero skills training into their curriculum in response to the growing demand for skilled workers in net-zero industries. There are a number of professional development organizations in the UAE that offer courses and workshops on net-zero skills. A few corporate training providers in the UAE also offer a wide range of net-zero skills training programs, tailored to the specific needs of their clients.

Universities in the UAE are key players in providing net-zero skills through their academic programs, research activities, and collaborations. These universities not only equip students with theoretical knowledge but also provide practical opportunities for research and hands-on experience.

Think tanks in the UAE contribute to the development of net-zero skills through policy research, advocacy, and thought

leadership. These think tanks also offer a variety of training programs that could help professionals develop the skills they need to work in moving industries to net-zero emissions. The programs are typically offered in a variety of formats, such as online courses, webinars, and workshops.

		Skills/courses offered
Institution	Dubai Energy and Water Authority's Institute of Sustainable Development	Training courses on renewable energy, energy efficiency, and sustainability - practical skills in areas such as solar installation, energy auditing, and sustainable building practices
	Abu Dhabi Centre for Technical and Vocational Education and Training	Vocational training programs focusing on green technologies and sustainability, preparing individuals for careers in the renewable energy and environment sectors.
	Emirates Academy of Technology	Diploma in renewable energy/environmental engineering; diploma in sustainable energy management; certificate in green building design
	National Institute of Vocational Education and Training	Certificate in green jobs; diploma in fields like sustainable building design and environmental management; short courses on sustainability-related topics, such as solar energy, wind energy, and energy efficiency
	Sustain Labs Paris	Sustainability and climate-focused customized executive education programs; establishes sustainability and climate departments within universities.

		Skills/courses offered
Universities	Masdar Institute of Science and Technology	Emphasis on sustainable technologies; offers graduate programs in renewable energy, water and environmental engineering, and sustainable systems; collaboration with industry partners to conduct research and development projects focused on clean energy solutions
	United Arab Emirates University	Undergraduate and postgraduate programs in environmental sciences, sustainability studies, and renewable energy engineering
	Heriot-Watt University Dubai	Sustainability-related courses at both the undergraduate and graduate levels - Bachelor of Science in sustainable energy and the Master of Science in sustainable development
	Emirates University	Bachelor of Science in sustainable development and a Master of Science in sustainable energy - focus on the intersection of sustainability and business, preparing students for careers in the green economy

		Skills/courses offered
Think Tanks	Emirates Wildlife Society in association with the World Wide Fund for Nature	Conducts research, organizes workshops, and collaborates with stakeholders to influence policies and drive sustainable practices in the UAE
	Dubai Future Foundation	Supports research initiatives, innovation projects, and policy development related to sustainable technologies, smart cities, and clean energy
	Emirates Green Building Council	Variety of training programs on topics such as energy efficiency, water conservation, and waste management
	Mohammed bin Rashid School of Government & Mohammed bin Rashid Al Maktoum Solar Park	Training programs on topics related to public policy, governance, and sustainability; and training programs for solar technicians and engineers
	Emirates Environmental Agency	Training programs on topics such as climate change, waste management, and water conservation
	Future Energy and Water Security Lab - Khalifa University	Focuses on developing new technologies for energy and water security; offers a number of training programs for students and professionals in these areas
	Abu Dhabi Sustainability Week	Annual event that brings together businesses, governments, and thought leaders to discuss sustainability issues; offers a number of training programs and workshops on topics such as net zero, renewable energy, and sustainable development

Source: Based on secondary research conducted by Sustain Labs Paris, September 2023

There are challenges and opportunities for establishing the skills needed for the UAE's net-zero future

There is growing agreement that moving to a net-zero economy will have advantages beyond arresting the increase in global temperatures. Prominent among them is employment generation. Changes in technologies, consumer demand, production methods and productivity, macroeconomic conditions, and global trade will all contribute to the creation and destruction of jobs during this transition. Although the change is anticipated to have an overall beneficial impact on employment, it is likely to be unevenly distributed among sectors. How can companies and policymakers create skills training and policies that enable clean and resilient growth across a range of transition pathways to net zero? Jobs are therefore indeed changing across sectors and affecting the demand for skills.

While the trends towards green jobs, technological integration, and interdisciplinary skills are evident, the challenges such as the skills gap and resistance to change must also be addressed. The opportunities for innovation, global collaboration, and targeted upskilling present a pathway for individuals and organizations to thrive in the evolving job market shaped by environmental imperatives.

Challenges for establishing skills needed for a net-zero future in the UAE:

1. **Skills gap:** Multiple studies highlight the persistent challenge of a skills gap.[8] Existing educational systems often fall short in providing the specific skills required for roles in sustainable and low emissions industries.

2. **Resistance to change:** Transitioning to a low emissions economy encounters resistance at both individual and organizational levels. Research by Plan International 2022 identified the reluctance to adopt sustainable practices and the need for new skills as a significant challenge.[9]

3. **Policy implementation:** The challenge of effective policy development and implementation that support the growth of green industries and the corresponding skills, is another important trend.

4. **Organizations may not be adequately well equipped:** Organizations are often ill-equipped when it comes to managing workforce transitions, which include the transition to include skills needed for a net-zero future at

8. Alvis, S., Fotherby, J., Bennett, H., & Avi, Z. (2022). *Closing the UK's geen skills gap*. Green Alliance Trust. London: Green Alliance.
Plan International. (2022). *Young people and green skills: Preparing for a sustainable future.* United Kingdom: Plan International.
ILO. (2016). *Background note for the Special Plenary Debate - "Skills for the Future"*. 16th Asia and the Pacific Regional Meeting Bali, Indonesia, 6 - 9 December 2016. Geneva: International Labour Organization.

9. Plan International. (2022). *Young people and green skills: Preparing for a sustainable future.* United Kingdom: Plan International.

the workplace. We acknowledge that workforces need to have skills to transition to a net-zero future. However, transitioning to this approach is not happening as fast as required due to lack of skills providers, strategic workforce planning capability, infrastructure, technology, accurate insights, and long-term thinking. This makes it difficult to reliably map current and future workforce skills in real time.

Opportunities for establishing skills needed for a net-zero future in the UAE:

1. **Innovation and entrepreneurship:** The shift towards sustainability opens avenues for innovation and entrepreneurship. The research for this White Paper indicates an important trend for rising opportunities for individuals with skills in sustainable innovation and the ability to create eco-friendly solutions.

2. **Global collaboration:** There are substantial opportunities to be unlocked in global collaboration. The interconnected nature of environmental challenges requires a globally aware and collaborative workforce capable of navigating international frameworks and partnerships.

3. **Upskilling and reskilling:** The necessity for upskilling and reskilling the existing workforce is a recurring theme found in our research. Opportunities abound for educational institutions and training programs that facilitate the transition of workers from traditional roles to those aligned with a low emissions economy.

Recommendations

1. Emphasize an interdisciplinary curriculum

- Interdisciplinarity is critical for transitioning to a net-zero future. Integrate robotics, IT, sustainability and climate-related skills, and critical thinking into the curriculum. This approach also aligns education with both future needs and student preferences.

2. Set-up policy incentives for educational institutions to invest in skills for the net-zero transition

- Advocate for policies incentivizing schools and universities to include sustainability and climate change in their curriculum. This can be achieved through integration into existing courses or offering dedicated programs to raise awareness and build relevant skills.

3. Leverage the climate-related job boom to make the field attractive for study

- Jobs emerged as the top motivating factor for acquisition of new skills in the research for this White Paper. Highlight the potential for a job boom in climate-related sectors. Emphasize the relevance of sustainability and climate studies in the context of emerging opportunities, ensuring alignment with the skills landscape identified by the survey.

4. Skill on AI for climate simulations

- Introduce AI-focused coursework for students, particularly in the context of climate-related simulations. This not only prepares students for future challenges but also aligns with the growing influence of AI in the workforce.

5. Address gender disparities

- Tailor education to cater to diverse needs and perspectives. Recognize the gender disparities in skill preferences. Design educational programs that cater to a diverse range of perspectives, emphasizing critical thinking, innovation, and technical skills, fostering inclusivity in the skills landscape.

6. Establish a future-ready education policy

- Stay ahead of the curve and establish a dynamic education policy that adapts to evolving skill requirements. Regularly assess the relevance of offered skills, ensuring educational institutions remain at the forefront of preparing students for the future job market.

7. Enhance accessibility to learning skills for a net-zero future

- Create accessible and flexible platforms for sustainability learning. This includes online courses, workshops, and resources that cater to varying time commitments, encouraging a wider audience to engage in sustainability education.

Conclusion

In the background note for the special plenary debate on "Skills for the Future" by the ILO, there was a prevalence found of "under skilled mismatches," or workers performing roles for which they lack the necessary education and experience. The ILO also found that in the Arab states, the co-existence of high youth unemployment and the lack of skilled workers for some jobs points to a high skills mismatch. Despite high youth unemployment, it found that Arab employers commonly indicate the inability to find employees with the right skills. In addition, the pattern of investment in training by enterprises in the MENA region suggested that companies that offer training tend to provide it to new recruits more than to existing employees. The policy implication from ILO's findings suggested the systematic analysis and anticipation of future skills needs should guide the supply of skills.[10]

Accordingly, the findings of the research for this White Paper also underscores the imperative of adequately preparing the workforce for a net-zero future in the UAE to counter such skills mismatch. It highlights a clear shift in the skills needed, with robotics & AI, sustainability & climate action, and critical thinking emerging as pivotal pillars for a net-zero economy.

Notably, it was found that 2 of the top 3 skills deemed relevant for a net-zero future, i.e., robotics & AI, and sustainability & climate action, did not adequately feature in the curriculum offered to

10. ILO. (2016). Background note for the Special Plenary Debate - "Skills for the Future". *16th Asia and the Pacific Regional Meeting Bali, Indonesia, 6 - 9 December 2016.* Geneva: International Labour Organization.

professionals and university students in the UAE who are currently enrolled. The UAE is already ahead of many of its peers globally in offering sustainability and climate-related skills, yet more is needed to meet the skills demand. It was also found that the top motivator for acquiring new skills are jobs, which could therefore enable leveraging the climate jobs boom to make skills for the net- zero transition more attractive to students.

This White Paper also identified the key challenges and opportunities for establishing the skills needed for the UAE's net-zero future. Further, for doing so, the following recommendations have been put forth:

1. **Emphasize an interdisciplinary curriculum in schools and universities**

2. **Set-up policy incentives for educational institutions to invest in skills for the net-zero transition**

3. **Leverage the climate-related job boom to make the field attractive for study**

4. **Skill on AI for climate simulations**

5. **Address gender disparities towards skills preferences**

6. **Establish a future-ready education policy**

7. **Enhance accessibility to learning skills for a net-zero future**

In the race towards a net-zero future, the winners will be those who heed the signals of change, preparing their workforce not just for jobs but for the dynamic, multifaceted careers of the future. The UAE is recognizing trends, addressing disparities, and fostering a commitment to lifelong learning for establishing and maintaining a world that abides to net-zero emissions. By doing so, the UAE is positioning itself at the forefront of a global movement towards a sustainable, technologically advanced, and agile workforce.

Bibliography

1. Alvis, S., Fotherby, J., Bennett, H., & Avi, Z. (2022). *Closing the UK's green skills gap*. Green Alliance Trust. London: Green Alliance. Retrieved March 2023, from https://green-alliance.org.uk/wp-content/uploads/2022/01/Closing_the_UKs_green_skills_gap.pdf

2. Atiq, M., Coutinho, A., Islam, A., & McNally, J. (2022). *Jobs and Skills in the transition to a net-zero economy.* Diversity Institute, Future Skills Centre, Smart Prosperity Institute. Canada: Smart Prosperity Institute. Retrieved March 2023, from http://files.fsc-ccf.ca/Research%20Reports/Jobs%20and%20skills%20for%20net-zero/Jobs_and_Skills_in_the_Transition_to_a_Net-Zero_Economy.pdf

3. Bowen, A., Kuralbayeva, K., & Tipoe, E. L. (2018, April 3). Characterising green employment: The impacts of 'greening' on Workforce Composition. *Energy Economics*, 263-275. doi:https://doi.org/10.1016/j.eneco.2018.03.015

4. Brookings Institution. (2023). *Top priorities for the Continent in 2023: Foresight Africa*, Chapter 03 - Education and skills: *Equipping a labor force for the future.* Brookings Institution, Africa Growth Initiative at Brookings. Retrieved September 2023, from https://www.brookings.edu/wp-content/uploads/2023/01/foresightafrica2023_fullreport.pdf

5. Broome, M., Cellini, S., Henehan, K., McCurdy, C., Riom , C., Valero, A., & Ventura, G. (2022). Net zero jobs: The impact of the transition to net zero on the UK labour market. Retrieved March 2023, from https://economy2030.resolutionfoundation.org/wp-content/uploads/2022/06/Net-zero-jobs.pdf

6. Cedefop. (2019). *Skills for green jobs: 2018 update. European Synthesis Report*. Luxembourg: Publications Office of the European Union, 2019. doi:10.2801/036464

7. Dubai Cares and Education Commission. (2022). *Rewiring education for people and planet.* Retrieved September 2023, from https://educationcommission.org/wp-content/uploads/2022/10/Rewiring-Education-for-People-and-Planet-Final-Version.pdf

8. Green Jobs Taskforce. (2021). *Green Jobs Taskforce: A report to the government, industry and the skills sector.* United Kingdom. Retrieved March 2023, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003570/gjtf-report.pdf

9. ILO. (2016). Background note for the Special Plenary Debate - "Skills for the Future". *16th Asia and the Pacific Regional Meeting Bali, Indonesia, 6 - 9 December 2016.* Geneva: International Labour Organization. Retrieved March 2023, from https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_534144.pdf

10. ILO. (2018). *World Employment and Social Outlook 2018: Greening with jobs.* Geneva: International Labour Organization. Retrieved March 2023, from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf

11. IRENA. (2020). *Global Renewables Outlook: Energy transformation 2050.* Abu Dhabi: International Renewable Energy Agency. Retrieved March 2023, from https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Apr/IRENA_Global_Renewables_Outlook_2020.pdf?rev=1f416406e50d447cbb2247de30d1d1d0

12. IRENA and ILO. (2022). *Renewable energy and jobs: Annual review 2022.* International Renewable Energy Agency, Abu Dhabi and International Labour Organization, Geneva. Retrieved March 2023, from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_856649.pdf

13. Kwauk, C., & Casey, O. (2021). *A new green learning agenda: Approaches to quality education for climate action.* Paper, Brookings Institution, Center for Universal Education. Retrieved September 2023, from https://www.brookings.edu/wp-content/uploads/2021/01/Brookings-Green-Learning-FINAL.pdf

14. Murnane, R. J., & Levy, F. (1996). *Teaching the new basic skills. Principles for Educating children to thrive in a*

changing economy. New York, United States: Free Press. doi:ISBN-0-684-82739-5

15. Plan International. (2022). *Young people and green skills: Preparing for a sustainable future.* United Kingdom: Plan International. Retrieved August 2022, from https://plan-international.org/uploads/2022/11/ATB2877_PlanGreenSkills_Nov2022_ENGLISH.pdf

16. PwC. (2021). *Green Jobs Barometer - Q4 2021.* United Kingdom: PricewaterhouseCoopers. Retrieved March 2023, from https://www.pwc.co.uk/who-we-are/purpose/green-jobs-barometer.pdf

17. UN environment programme. (2021). *Global Guidance for Education on Green Jobs: Connecting Higher Education and Green Opportunities for Planetary Health.* United Nations Environment Programme, US Partnership for Education for Sustainable Development. Retrieved March 2023, from https://wedocs.unep.org/bitstream/handle/20.500.11822/35070/GGEGJ.pdf

18. UNESCO. (2020). *Education for Sustainable Development - A roadmap.* Paris: United Nations Educational, Scientific and Cultural Organization. Retrieved March 2023, from https://unesdoc.unesco.org/ark:/48223/pf0000374802/PDF/374802eng.pdf.multi

19. United Arab Emirates Ministry of Climate Change and Environment. (2019). *UAE Green Jobs Program: Jobs & Skills for the UAE's Green Economy Transformation.*

Ministry of Climate Change and Environment. United Arab Emirates Ministry of Climate Change and Environment. Retrieved March 2023, from https://mbrsgcdn.azureedge.net/cmsstorage/mbrsg/files/63/63c35146-4910-42ad-baaa-f948b5483b13.pdf

20. Vivid Economics Limited. (2021). *Skills for the Low Carbon Transition: Report prepared for HSBC Centre for Sustainable Finance.* Vivid Economics Limited. Retrieved March 2023, from https://www.sustainablefinance.hsbc.com/-/media/gbm/sustainable/attachments/green-skills.pdf