حـــوار أبوظبـــي بين الـدول الآسيويـــة
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Abu Dhabi Dialogue among the Asian
Labour-Sending and Receiving Countries

Green Transition and Skills Development in the GCC

Leveraging Intra-Regional Mobility with Circular Migration

IOM UN MIGRATION

Policy Research Paper

Final Draft

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Executive Summary:

Enhancing Circular Pathways in the GCC for the Green Transition

1. Purpose and Structure

This paper proposes a framework to address the imminent labor and skills shortage in the Gulf Cooperation Council (GCC) caused by the region's accelerating green transition It argues that current national training pipelines are insufficient and that a collective, intra-regional approach to migration is required. The paper is structured into three main analytical sections:

- **The Green Landscape:** An assessment of economic diversification, national strategies, and the specific sectors driving the demand for green jobs.
- **Migration Architecture:** A review of current rigid GCC immigration policies contrasted against emerging best practices in the European Union (EU), specifically the EU Talent Partnerships and Blue Card systems.
- **The Roadmap:** A proposal for a "Green Talent Pool" with design principles, implementation phases, and financing mechanisms via green bonds.

2. Key Findings: The Green Transition and Labor Gap

- **Ambitious Targets:** Most GCC states have set net-zero emissions targets for 2050 or 2060 and are aggressively pursuing economic diversification.
- **Critical Sectors:** The transition is driving labor demand in five key sectors:
  - **Renewable Energy:** Particularly solar PV and wind.
  - **Carbon Management & Hydrogen:** Including CCUS hubs and massive green hydrogen projects like those in NEOM and Oman.
  - **Manufacturing:** Localization of EV production (e.g., Ceer, Lucid) and solar panel manufacturing.
  - **Sustainable Infrastructure:** Green buildings and smart city projects.
  - **Waste Management:** A shift toward circular economy and waste-to-energy projects.
- **The Skills Mismatch:** There is a significant gap between the demand for technicians and engineers and the supply available through local TVET programs.
- **Current Migration Limitations:** The GCC currently lacks a unified labor migration regime. Workers are tied to specific employers in specific countries, preventing the movement of skilled talent across borders to where it is needed most.

3. Strategic Recommendations: A GCC Green Talent Pool

The paper recommends establishing a jointly developed framework that combines skills training in origin countries with an intra-GCC mobility mechanism.

Core Design Principles: To succeed, the framework should adhere to six principles:

1. **Skills Development in Origin Countries:** Partner with source nations to train workers before they migrate.
2. **Intra-GCC Mobility:** Allow participants to work in multiple GCC countries without restarting the visa process, maximizing labor utility.
3. **Explicit Circularity:** Design the program so workers eventually return home, transferring skills back to their origin economies.
4. **Common Governance:** Establish a shared architecture to align visa regimes and talent matching.
5. **Unified Certification:** Develop mutual recognition of green skills and qualifications across the GCC.
6. **Stakeholder Involvement:** Actively include private sector employers and international organizations (ILO, IOM) in the design.

Implementation Roadmap

The paper suggests a phased approach:

- **Concept & Buy-in:** Ministerial discussions followed by endorsement from top political leadership.
- **Pilot Phase:** Launch initial skills agreements with key partners (e.g., India, Pakistan, Egypt).
- **Full Implementation:** Expand to all GCC states and a wider range of origin countries.

4. Financing Mechanism: The Green Bond

To fund this initiative, the paper proposes issuing a regional Green Bond25. The GCC green bond market is already maturing, with significant issuances by PIF, Masdar, and Qatar.

Utilization of Funds:

- **Training Costs:** Funding vocational training and certification programs in origin countries.
- **De-risking Employment:** Subsidizing apprenticeships or providing guarantees to GCC employers who hire from the pool to reduce perceived risk.
- **Infrastructure:** Building digital platforms for matching talent and ensuring ethical recruitment standards.

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1. Introduction

1.1 Research Objective

As the green transition unfolds, significant adjustments to labour markets worldwide are likely to take place. Meeting future targets for areas such as renewable energy, energy efficiency, and sustainable infrastructure will require large numbers of additional workers. However, current training systems and labour supply chains are not positioned to meet this need.

The International Renewable Energy Agency (IRENA, 2024) notes that labour shortages could slow renewable energy deployment globally unless countries scale up technical training pipelines in the coming years. Similar findings appear in international labour research, which expects millions of new jobs under green transition scenarios but also warns that skills mismatches and weak training capacity will limit how many of these jobs can actually be filled (ILO, 2024). The World Bank highlights the same challenge, stating that education and training systems are not well equipped to prepare workers for emerging green occupations, which raises the likelihood of future shortages as clean energy investment accelerates (World Bank, 2024).

These potential patterns of labour and skills shortages are strongly visible in the Gulf Cooperation Council (GCC) too. Regional green transition assessments point to large upcoming workforce needs across renewable generation, hydrogen, advanced grid systems, and energy efficient construction, while noting that skills pipelines and domestic supply chains in the GCC are still developing and, therefore, not fully responsive to national climate goals (IRENA, 2023). Small and medium-sized enterprises (SMEs) in particular are likely to face shortages of green skills more acutely, in line with global experiences (World Economic Forum, 2025).

Country level evidence highlights the gap even more clearly. For instance, workforce availability forecasts in Saudi Arabia show that planned renewable energy projects will need far more technicians, engineers, and certified specialists than existing Technical and Vocational Education and Training (TVET) and university programs can supply, and call for rapid expansion and updating of qualifications to avoid significant shortages in the coming decade (Ministry of Energy, 2024).

These findings indicate that the GCC is likely to face sustained pressure on the supply of its green-skilled labour force. To design an effective response, this paper examines the feasibility of a joint GCC migration policy framework that innovates on and evolves existing practices. This framework seeks to leverage existing patterns of circular migration[1] - which generally tend to be temporary - in the region and combine those with an intra-GCC labour mobility element, to attract and retain workers with green skills for potentially longer periods of stay. The framework would also include elements of skills development in migrant-sending (origin) countries and incentives for the timely return and reintegration of skilled workers.

[1] Circular migration refers to a pattern of repeated movement between two or more countries by the same person, generally for work-related reasons. A more detailed methodological definition is provided in Appendix A.

1.2 Background and Research Scope

A collective approach by GCC policymakers can help the region's labour markets attract, retain, and develop adequately skilled workers for the future green economy. This imperative is particularly pressing for the GCC, given that its member states are characterised by relatively small local populations and a high share of migrant labour in key economic sectors. Recent estimates indicate that the region was home to around 30 million foreign nationals in 2024, accounting for 52% of the total population. The six states - Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates (UAE) - together host an estimated 10% of all global international migrants, confirming the region's continued role as a major destination for labour migration (De Bel-Air, 2025).

In the GCC context, large-scale circular migration between South and Southeast Asia and the region began in the 1970s. This coincided with the growth in oil exports from the GCC, which generated high local demand for temporary labour in many economic sectors, in particular construction and logistics. These migration patterns remain predominantly temporary and contract-based, with workers from India, Pakistan, Bangladesh, the Philippines, and Nepal often returning home after limited employment periods (Kapiszewski, 2006). This highlights the enduring role of circular migration as a structured component of the GCC's labour market and long-term economic development. At the same time, it is pertinent to note that while these temporary, contract-based patterns broadly align with the International Organization for Migration's (IOM) definition of circular migration (IOM, 2024), they have also raised important questions about labour rights and protection which any future skills-based framework would need to address.

Building on the existing circularity of migration in the region, a jointly developed framework that adds elements of training and skills development in migrants' origin countries with an intra-GCC mechanism of pooling skilled migrant workers can prove to be an efficient way of meeting future human capital needs, in combination with other policies and programs at the country level. Such a framework would allow both high-skilled and medium-to-low skilled migrant workers employment-based intra-regional mobility with relatively longer and shorter periods of stay respectively, helping fulfil labour market needs for the green transition while being in line with national employment localisation policies.

The remainder of this paper investigates the feasibility of this proposed framework in light of the GCC's green transition and its current immigration policies, in relation to emerging global models of skills-based intra-regional migration schemes, utilising a comprehensive desk-based research methodology. Section 2 examines the green transition landscape in the GCC, identifying national green transition policies, the main economic sectors driving the transition, and future green jobs and skills needs. Section 3 then assesses the readiness of the GCC to meet the labour market needs of the transition by reviewing existing migration policies, labour laws, and visa regimes to allow for intra-regional mobility. This is followed by an analysis of recent developments in the European Union (EU) to promote skills-based intra-regional migration and a synthesis of its main components to extract emerging best practices from: the EU Talent Partnerships programme, the EU Talent Pool, and relevant visa regimes such as the Blue Card. Finally, Section 4 proposes the foundational design principles of a potential GCC-wide green talent pool and intra-regional circular migration scheme, laying out a roadmap for its development and exploring co-financing mechanisms such as green bonds.

2. Green Transition in the GCC

2.1 Economic Diversification and Green Transition Objectives

The six economies of the GCC continue to be major players in the global hydrocarbons market. Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the UAE collectively account for about one-third of global crude oil exports and 17-18% of global natural gas exports (Energy Institute Statistical Review of World Energy, 2025). Nevertheless, like most of the world, the GCC is undergoing the green transition. This is driven by the region's environmental vulnerability to climate change and a policy imperative of diversifying growth models away from a longstanding reliance on fossil fuel exports.

Most GCC economies are well on their way towards diversification and the green transition. In Saudi Arabia, the share of non-oil government revenues has increased from a little over 10% in 2014 to almost 40% by 2023 (Ministry of Finance Kingdom of Saudi Arabia, 2023). In Qatar, the non-oil and gas share of its GDP has increased from 46% in 2014 to 60% in 2023 (Planning and Statistics Authority, 2023). In the UAE, the non-oil and gas share of its GDP has averaged around 75% for more than two decades (Federal Competitiveness and Statistics Centre, 2022).

Going beyond just economic diversification, the region has embraced the green transition agenda. At the United Nations Climate Change Conference 28, or COP 28, held in December 2023, GCC nations agreed to accelerate climate action and transition from the use of fossil fuels to renewable energy. All GCC countries, except Qatar, set net zero emissions targets by either 2050 or 2060 (Table 1). Each country in the region has developed policies to support climate action and sustainable development and submitted Nationally Determined Contributions (NDCs) while setting renewable energy and emissions reduction targets (Table 2). The private sector is also involved in the green transition and business leaders have stated that sustainability and Environmental, Social, & Governance (ESG) standards are now core strategic priorities for them in the GCC, and not just an 'option' (KPMG, 2025).

Table 1: GCC Energy Transition Key Targets

Country	Target year of net-zero emission commitment	Renewable energy share in total energy mix (2022)	Target for renewable energy share in total energy mix (2030)
Saudi Arabia	2060	0.8%	50%
UAE	2050	7.0%	30%
Oman	2050	1.6%	30%
Qatar	No target	0.5%	20%
Kuwait	2060	0.2%	15%
Bahrain	2060	0.04%	10%

Source: (Sanfilippo, Vermeersch, & Benito, 2024)

2.2 National Strategies and Priorities

Each GCC member state has developed policies and plans to advance the green transition within their economies. These are described below, and summarised in Appendix B.

Saudi Arabia: Saudi Arabia's green transition strategy is rooted in its Vision 2030, a reform framework that integrates sustainability into governance, economic diversification, and social development (Government of Saudi Arabia, 2016). Under this, in 2021, Saudi Arabia announced a planned investment of USD 186 billion for the green transition to achieve net-zero emissions by 2060 (Ahmad, 2024). Companies have also set their individual targets. For example, Saudi Aramco has set a target of reaching net-zero by 2050, which is ahead of the national timeline. A key part of the overall climate mitigation strategy is the Circular Carbon Economy National Program that promotes reducing, reusing, recycling, and removing carbon emissions (Government of Saudi Arabia, 2021). The National Environment Strategy outlines plans to strengthen environmental governance, protect natural resources, conserve wildlife, and restore vegetation cover (Government of Saudi Arabia, 2023). Saudi Arabia's mitigation efforts also focus on shifting the national energy mix toward cleaner sources, with a target of producing 50% of electricity from renewable energy by 2030. The National Renewable Energy Program and the Saudi Energy Efficiency Program are central to this transition. The Kingdom is an active member of several international partnerships, including the Global Methane Initiative, the Clean Energy Ministerial, and the Net Zero Producers Forum. It is also developing large-scale Carbon Capture, Utilization, and Storage (CCUS) hubs, with a goal of reaching 44 million tons of annual CCUS capacity by 2035 (PS Market Research, 2025). Alongside this, the National Hydrogen Strategy (Government of Saudi Arabia, 2024) aims to position Saudi Arabia as a leading producer of green and blue hydrogen by using the country's strong solar and wind resources.

UAE: The UAE strengthened its global reputation for climate action in 2023 by hosting the COP28 conference. This positioned the country as a key player in the worldwide green transition and highlighted its ambition to be a leader in this regard. The UAE has set a net-zero goal and announced planned investments of USD 163 billion to help achieve this target (Ahmad, 2024). National oil companies are also contributing to the country's green transition. For example, ADNOC has accelerated its own climate target, bringing its net-zero year forward from 2050 to 2045 (Al-Sarihi, 2025). The UAE introduced its Green Growth Strategy in 2012, becoming an early mover in the region. The country was the first in the GCC to release a National Climate Change Plan in 2017, which connected climate action with national economic development goals. To guide and coordinate these efforts, the UAE adopted the Green Agenda 2015–2030 as the main framework for implementing its Green Growth Strategy (Government of the United Arab Emirates, 2012).

Qatar: Qatar has highlighted economic diversification and environmental sustainability in its National Vision 2030 plan (General Secretariat for Development Planning, 2008). This plan prioritizes environmental development and a shift towards a knowledge-based economy. Unlike the other five GGC member states, although Qatar does not have a 2050 or 2060 net-zero emissions commitment date, the Qatar National Environment & Climate Change Strategy and its accompanying Climate Change Action Plan does have Greenhouse Gas (GHG) reduction targets. Together with the additional target of significantly increasing the share of renewable energy in its total energy mix (Table 1), Qatar broadly aligns with the GCC region's green transition. The strategy and plan were developed and approved in 2021 (Ministry of Environment and Climate Change, 2021), with five key pillars: greenhouse gas emissions and air quality, biodiversity, water, circular economy and waste management, and land use.

Oman: The country's wider green transition is guided by Oman Vision 2040, which focuses on economic diversification, sustainable growth, and environmental protection (Oman Vision 2040 Implementation Follow-up Unit, 2020). This vision is supported by the Oman Energy Master Plan 2040, which outlines the steps needed to move towards a low-carbon economy (Ministry of Energy and Minerals, 2020). Oman has also developed its National Strategy for an Orderly Transition to Net Zero to coordinate national climate policies (Ministry of Energy and Minerals, 2023). In its latest update to the second NDC, the country has committed to reducing greenhouse gas emissions by 21% by 2030, with 7% of this reduction being unconditional. Oman has allocated approximately USD 190 billion through 2050 to fund its green transition and achieve carbon neutrality under the National Strategy for an Orderly Transition to Net Zero (Ministry of Energy and Minerals, 2023).

Bahrain: Bahrain's long-term development approach is guided by Economic Vision 2030, launched in 2008 (Economic Development Board, 2008). The vision focuses on diversifying the economy away from hydrocarbons and promoting environmental sustainability, competitiveness, and fairness. Several national strategies support both mitigation and adaptation. The National Energy Strategy outlines how the country will manage the energy transition by improving energy efficiency, diversifying the national power mix, and forming a decarbonisation pathway consistent with its 2060 net-zero commitment, including the target of a 30% emissions reduction by 2035 (Sustainable Energy Authority, 2017). The National Energy Efficiency Action Plan focuses on improving energy use across 22 sectors. The Environment Law of 2022 strengthens environmental governance by requiring Supreme Council for Environment (SCE) licensing for construction and ensuring the protection of natural and cultural heritage sites (Government of Bahrain, 2022). The National Renewable Energy Action Plan (NREAP) sets out the goal of reaching 10% renewables in the power mix by 2030 (Sustainable Energy Authority, 2017). Bahrain has also positioned itself as a regional leader in ESG standards. This progress is supported by the Central Bank of Bahrain, Bahrain Bourse, and the Bahrain Association of Banks. The ESG Reporting Guidelines help standardize environmental indicators such as emissions, energy intensity, and water use (Central Bank of Bahrain, 2023).

Kuwait: Kuwait Vision 2035 places strong emphasis on improving water management, promoting green infrastructure, encouraging innovation in low-emission technologies, and expanding the share of renewable energy in the national mix (General Secretariat of the Supreme Council for Planning and Development, 2017). The country issued its National Adaptation Plan 2019–2030 to place climate adaptation at the centre of national planning (Environment Public Authority, 2019). The second National Development Plan also introduced a strategic framework to support Vision 2035, based on seven pillars that create a comprehensive and integrated approach. Kuwait's National Renewable Energy Action Plan (REAP) focuses on increasing the share of renewables in total energy production capacity to 15% by 2030 (Kuwait Institute for Scientific Research, 2019). Kuwait has made major investments in green energy systems. The country invested USD 15.5 billion in the Clean Fuel Project, which modernized the Mina Al-Ahmadi and Mina Abdullah refineries and replaced the Shuaiba refinery with the Al-Zour refinery. The project aims to produce environmentally friendly petroleum products that meet global standards (Kuwait Direct Investment Promotion Authority, 2022). Additional measures support environmental resilience. The Agriculture Master Plan introduced more than 50 tree species and heat and salinity-resistant crops (General Secretariat of the Supreme Council for Planning and Development, 2017).

2.3 Leading Economic Sectors in the GCC's Green Transition

Guided by the overarching sustainability and green transition policies of GCC member states discussed above, this sub-section identifies the key economic sectors across the region that are likely to see growth. In turn, this will help identify the priority occupations and skills which could be the focus of a potential skills-based intra-regional talent pool.

Renewable Energy: GCC countries have made significant progress in expanding renewable energy, with installed capacity growing from almost zero in 2013 to more than 5 giga watts by 2022. Despite this improvement, renewables still account for only about 3% of the region's total installed power generation capacity (Bousrih & Elhaj, 2025). Saudi Arabia's flagship urban project, NEOM, is an essential part of this transition - planned as a new city powered entirely by renewable energy.

Due to plentiful sunshine throughout the year, GCC states have prioritized solar energy, especially solar photovoltaic (PV) systems. Solar PV has become the cheapest source of power in the region, and 90% of the GCC's renewable energy comes from solar PV systems, mainly in the UAE, Saudi Arabia, and Qatar. This trend is expected to continue because of its cost advantages (International Renewable Energy Agency, 2023). Saudi Arabia has made major advances in this sector through projects such as the Sudair solar park and the planned Al Shuaibah solar park, which will become the largest single-site solar power plant in the Middle East (Ahmad, 2024). The country also hosts local solar manufacturing facilities, including Masdar Solar by Bin Omairah Renewable with a production capacity of 1,200 MW per year, and Desert Technologies with a capacity of 5,000 MW (Al-Sarihi, 2025). The UAE has three major solar power facilities. Oman is also expanding its solar sector. In October 2024, it signed an agreement with Drinda, a China-based company, to establish a solar PV panel manufacturing project in the Sohar Freezone (Al-Sarihi, 2025). Oman's Ibri II Solar Power Plant is already operational and contributes significantly to renewable electricity generation, with more large-scale solar projects underway in Manah and Dhofar under the Independent Power Producer framework (Al-Shidhani & Hayyan, 2025). Bahrain has also launched a 100 MW solar farm at the Askar landfill and installed 50 MW of solar panels on government buildings (Oxford Business Group, 2024).

Apart from solar, there has been some progress in developing wind-based power. Saudi Arabia aims to generate 27% of its renewable capacity target of 58.7 GW by 2030 from wind energy. In 2023, the UAE launched its own wind program, which includes four wind farms, while Bahrain has advanced wind development through the Masdar–Bapco Energies partnership established in 2024, which plans up to 2 GW of wind capacity. The UAE is also the only state generating electricity from a nuclear plant, with the Barakah nuclear facility supplying 20% of the UAE's electricity and avoiding 22.4 million tons of carbon emissions each year (International Renewable Energy Agency, 2023).

Carbon Management and Hydrogen: Apart from the shift toward renewables, GCC states are also adopting carbon management strategies to lower emissions. These efforts focus on three technologies; i) energy storage, ii) carbon capture, utilization and storage (CCUS), and iii) hydrogen generation and storage.

- ***Energy Storage:*** Several GCC countries have begun using battery storage systems to support a stable supply of renewable energy. Qatar has taken early steps by running pilot storage projects at selected solar plants. Saudi Arabia has installed storage at a Red Sea tourism facility, and another project is planned for NEOM. The UAE is developing a large storage project (Ahmad, 2024).

- ***CCUS:*** Although CCUS is seen as an important tool for the region, its deployment is still in the early stages. Pilot projects and research efforts in Saudi Arabia, Qatar, and the UAE currently account for 10% of global carbon dioxide capture, equal to 3.7 million tons per year. Regional plans aim to scale this capacity to 56 million tons annually by 2030 (Ahmad, 2024). Because GCC states presently seek to balance their hydrocarbon industries with

the need to reduce emissions, CCUS has become a central part of national climate strategies. There are three major CCUS facilities operating in the region today, two in Saudi Arabia and one in the UAE. At COP27 in 2022, Saudi Aramco announced the construction of one of the world's largest CCUS hubs in Jubail Industrial City. The first phase will start operations in 2027 and will capture and store 9 million tons of carbon dioxide each year, contributing to the national goal of managing 44 million tons annually by 2035 (Al-Sarihi, 2025). Qatar is building the world's largest blue ammonia plant, expected to produce 1.2 million tons each year by 2026. It is also working to develop carbon capture and storage capacity that will allow it to capture up to 11 million tons of carbon dioxide annually by 2035 (Qatar Sustainability Overview 2024).

- ***Hydrogen Generation and Storage:*** The UAE, Oman, and Saudi Arabia are the most active developers of hydrogen, each in their own way. The UAE was the first country to produce clean hydrogen from solar power. Oman started its green hydrogen activity in 2020 with projects combining solar and wind elements, followed by establishing the national company Hydrom and designating several production sites as part of calls to attract foreign investment. Saudi Arabia is scaling up through large projects like the USD 8.4 billion NEOM green hydrogen plant. Regional export prospects are highly promising. The GCC could earn up to USD 130 billion per year from hydrogen exports by 2050, with export volumes potentially reaching nearly double LNG exports in energy terms (Boston Consulting Group, 2023). Oman stands out for its long-term planning, as it wants to achieve one million tons of green hydrogen production annually by 2030 and be able to maintain a hydrogen-based economy by 2040 by going as high as 8.5 million tons by 2050 - more than Europe's current hydrogen demand. Projections place Oman as the Middle East's leading green hydrogen exporter and sixth globally by 2030, supported by forecasts that Middle Eastern producers will export around half of their output by then (Deloitte, 2023; (UNESCO, 2024).

Manufacturing: Manufacturing in the GCC is rapidly adopting green technologies and localized supply chains. Saudi Arabia is developing domestic electric vehicle (EV) production under Ceer, its first home-grown EV brand, co-owned by the Saudi Public Investment Fund (PIF) and Foxconn (Saudi Press Agency, 2024). Lucid Motors has opened its first international plant in Jeddah Industrial City, targeting producing 155,000 vehicles annually at full capacity. The UAE's M Glory Holding launched the first all-electric vehicle assembly plant in Dubai Industrial City in 2022, with a 55,000-unit annual capacity (WAM, 2023). Oman's Sohar Freezone signed an agreement in 2024 with Drinda (China) to manufacture solar panels, while Bahrain's Alba is investing in low-carbon aluminium production using renewable electricity (Oman News Agency, 2024).These initiatives show how manufacturing is aligning with energy transition goals in the region while generating skilled technical jobs.

Sustainable Infrastructure: While the GCC on the whole is witnessing increasing activities related to sustainable buildings and infrastructure, the pace does vary from country to country. The UAE stands out as a market leader in the region in terms of the number of certified green buildings, with 869. Qatar is next with 140 certified green buildings, while Saudi Arabia, Kuwait, and Oman have 38, 12, and 12 respectively (Informa Markets, 2024). These trends are supported at the national level by Abu Dhabi's Estidama, Dubai's Green Building Regulations, Qatar's GSAS, and Saudi Arabia's emerging green codes. A number of states are also incorporating sustainability into large infrastructure projects. Kuwait has mandated that all public buildings power 10% of their needs from renewables, and its new airport Terminal 2 is being designed as the largest LEED Gold building in the world, complete with solar generation, wastewater recycling, and low-carbon materials. Bahrain is also pushing forward with such initiatives, including the solar-powered Khalifa Bin Salman Port and the Bahrain International Airport. Qatar remains at the forefront of green urban development through flagship sustainable districts like Lusail City and Msheireb Downtown (UNESCO, 2024).

Controlled Environment Agriculture (CEA): Most GCC countries import up to 85% of food items and face serious limits on arable land and freshwater availability (World Economic Forum, 2025). In response, national policies increasingly promote CEA-based domestic food production, including hydroponics, greenhouses, and vertical farming, to reduce exposure to external supply disruptions. In the UAE, the National Food Security Strategy 2051 places strong emphasis on innovation and local production, and this has supported the rapid growth of a private CEA sector. Companies such as Pure Harvest Smart Farms operate multiple high tech greenhouse facilities in the UAE and Saudi Arabia, while the US based vertical farming company Plenty has announced a large joint venture with UAE investor Mawarid to develop indoor farms in Abu Dhabi and elsewhere in the GCC (Pure Harvest, 2024; Reuters, 2024). Qatar has also made CEA a policy priority. Its National Food Security Strategy includes a specific target to expand vegetable production through the creation of a hydroponics greenhouse cluster aimed at achieving high self-sufficiency levels for selected greenhouse crops (FAOLEX, 2023). Similar approaches are visible elsewhere in the GCC. Bahrain has supported public and private greenhouse initiatives such as the Edamah and Badia Farms project, while Oman and Saudi Arabia have promoted pilot and commercial indoor farming projects and hydroponic systems through both private investment and government support (Construction Week, 2024; Hydroponics Factory, 2023; Muscat Daily, 2025).

Sustainable Tourism and Hospitality: GCC states are investing heavily in sustainable tourism as part of their diversification and green transition agendas. In Saudi Arabia, sustainable tourism is central to Vision 2030 with initiatives like The Red Sea Project, which aims to be powered entirely by renewable energy and achieve a zero-waste-to-landfill target. The developer, Red Sea Global, has reported that all 760,000 solar panels for off-grid energy are operational and the first resorts opened in 2023 (Red Sea Global, 2024). The UAE promotes sustainability across tourism facilities through the UAE Tourism Strategy 2031 and the Green Hotels Initiative led by the Ministry of Economy, targeting a 25% reduction in hotel carbon emissions by 2030 (UAE Ministry of Economy, 2024). In Oman, the National Tourism Strategy 2040 supports eco-tourism zones such as Jebel Akhdar and Wadi Shab, emphasizing low-impact development managed by the Ministry of Heritage and Tourism (Oman Tourism, 2023). Qatar continues to apply sustainability certifications from the Global Sustainable Tourism Council (GSTC) for major tourist destinations and facilities (Qatar Tourism, 2024).

Waste Management: The GCC waste management market was valued at USD 62 billion in 2023 and is estimated to reach USD 100 billion by 2032, as governments expand recycling, waste-to-energy, and modern treatment systems (Fortune Business Insights, 2024). The UAE leads this drive. Sharjah's waste-to-energy plant, launched in 2022, diverts 300,000 tons of waste a year and generates 30 MW of electricity. Dubai is scaling up through the Warsan Biogas project and the Dubai Waste Management Centre, which will be the world's largest. The UAE is also the first in the GCC to explore geothermal energy. Most of the region's commercial waste-to-energy capacity is held by Qatar, where its Mesaieed plant has an electricity generation capacity of 50 MW. The country's present recycling rate stands at about 54%, while a 95% target has been set for 2030 (U.S. International Trade Administration, 2023). Bahrain, Kuwait, Saudi Arabia, and Oman are also scaling up. Bahrain is developing zero-waste projects such as Alba's Spent Pot Lining facility. Kuwait's Sulaibiya plant covers more than a quarter of national wastewater demand. Saudi Arabia has invested significantly in Riyadh's waste infrastructure and various waste-to-energy projects, including a new plant at Jeddah Airport. Oman has integrated waste management into its diversification agenda, although investment remains focused in Muscat (UNESCO, 2024).

Information, Communication, and Technology (ICT): ICT is a cross-cutting enabler for the GCC's overall green transition. The UAE's Smart Dubai and Digital Government Strategy 2025 emphasize green data centres and smart-grid integration (Digital Dubai, 2024). Saudi Arabia's Digital Government Authority (DGA) launched a Green Data Center Program in 2023 to reduce public-sector IT emissions and expand renewable-powered facilities (Saudi DGA, 2023). Qatar's TASMU Smart Qatar Program, led by the Ministry of Communications and Information Technology, is implementing AI-driven solutions for waste management and water conservation (MCIT Qatar, 2024). Across the region, ICT investments are directly linked to smart mobility, energy management, and urban monitoring, making it a fastest-growing area for green-skilled employment.

2.4 Future Green Jobs and Skills in the GCC

As the foregoing discussion demonstrates, the unfolding green transition in the GCC will have a very broad impact across all of its economies, giving rise to new and specialised jobs and skill sets. While projections vary considerably based on the models and assumptions used, according to a report by the consulting firm PwC (2024), the green transition is estimated to create around 1 million jobs in the GCC region by 2030. This number is likely to be much higher in a net zero carbon emissions scenario, in which case the ILO (2024) estimates the creation of up to 37 million new jobs worldwide.

Based on the analysis in sections 2.2 and 2.3, these jobs are likely to be distributed across a range of specialised job types and skills. This is summarised for each GCC country in Table 2 below, with specific job types categorised by either high-skilled or medium-to-low skilled workers. Given the fairly wide range of job types required, there is scope for training and up-skilling of GCC nationals as well as potential migrants. These have inferred from the various policies, strategies, and projects that have been undertaken in each GCC state over the last decade.

Table 2: Specialised Green Job Types by Skill Level in the GCC

Country	Job Type (High-Skilled)	Job Type (Medium-to-Low Skilled)	Key Driver
Saudi Arabia	Renewable energy engineers (solar & wind)	Solar panel installers, wind turbine maintenance technicians, electricians	50% renewables target and mega solar/wind projects.
	Carbon capture & carbon management specialists	Plant operators, pipeline technicians, industrial safety workers	CCUS hubs expanding to 44m tons capacity by 2035.
	Hydrogen project engineers	Electrolysis plant operators, welders, mechanics	Large-scale hydrogen projects including NEOM.
	Environmental restoration experts	Tree-planting crews, nursery workers, irrigation technicians	SGI aims to restore 74m hectares and plant 10B trees.
	Energy efficiency & sustainable construction specialists	Construction tradespeople, HVAC installers, building retrofit technicians	Vision 2030 megaprojects need sustainable building expertise.
UAE	Solar energy engineers	PV installers, electricians, field maintenance technicians	UAE has mega PV plants.
	Waste-to-energy specialists	Waste sorters, plant operators, mechanical fitters	Sharjah & Dubai WtE plants drive demand.
	Sustainable building experts	Construction workers trained in Estidama/LEED, insulation and finishing crews	869 certified green buildings, Estidama & Dubai regulations.
	Battery storage & grid engineers	Electrical technicians, control-room operators	Growing storage projects for renewable integration.
Oman	Hydrogen project developers	Electrolyzer operators, welders, plant technicians	Hydrom zones, goal of 1m tons of green hydrogen by 2030.
	Solar & wind engineers	Solar farm assemblers, wind turbine technicians, maintenance staff	Largest wind share, major solar projects underway.
	Environmental planning experts	GIS assistants, environmental field surveyors	Vision 2040 & climate strategies require adaptation planning.
Qatar	Waste management specialists	Recycling workers, waste treatment operators, drivers	WtE capacity and 95% recycling target by 2030.
	Public transport electrification experts	Bus drivers, EV maintenance mechanics, charging-station attendants	Full public transport electrification by 2030.
	Carbon management & blue ammonia experts	Process operators, pipeline workers, safety inspectors	World's largest blue ammonia plant and CCS expansion.
	Solar PV technicians	Rooftop installers, electricians, maintenance crews	Solar capacity expansion and storage integration.
	Green building planners	Construction foremen, site workers trained in GSAS standards	Sustainable districts like Lusail & Msheireb.
Kuwait	Renewable energy engineers	Solar farm operators, electricians, maintenance technicians	15% renewable target, solar & early wind projects.
	Climate adaptation & water experts	Desalination plant technicians, irrigation specialists	National Adaptation Plan priorities.
	Sustainable construction engineers	Construction laborers, equipment operators	Green airport terminal & renewable mandates.
	Agricultural resilience specialists	Farm workers trained in hydroponics, greenhouse technicians	Heat/salinity-resistant crops in agriculture plans.
Bahrain	Renewable energy specialists	Solar panel installers, electricians	Solar & new wind partnerships, 10% renewable target.
	ESG reporting professionals	Administrative assistants for sustainability data collection	Strong ESG ecosystem with national guidelines.
	Energy efficiency specialists	Facility maintenance workers, retrofitting crews	Efficiency plan across 22 sectors.
	Environmental compliance professionals	Inspection aides, sampling technicians	Environment Law 2022 increases regulatory demand.
	Waste & circular economy specialists	Recycling plant operators	Zero-waste initiatives and recycling expansion.

Sources: *Note.* Sources: Government of Saudi Arabia, *Vision 2030* (2016); PS Market Research (2025); Ahmad, 2024; Government of Saudi Arabia, *National Environment Strategy* (2023); Government of Saudi Arabia, *National Hydrogen Strategy* (2024); General Secretariat for Development Planning, *Qatar National Vision 2030* (2008); Oman Vision 2040 Implementation Follow-up Unit, *Oman Vision 2040* (2020); Al-Sarihi, 2025; Bousrih & Elhaj, 2025; International Renewable Energy Agency, 2023; Qatar Sustainability Overview 2024; Boston Consulting Group, 2023; Deloitte, 2023; UNESCO, 2024; Informa Markets, 2024; Fortune Business Insights, 2024; IRENA, 2024; ILO, 2024; World Bank, 2024; IRENA, 2023; U.S. International Trade Administration, 2023; PwC, 2024; Government of the United Arab Emirates, 2024; KPMG, 2025; Economic Development Board, *Bahrain Economic Vision 2030* (2008); Government of Kuwait, *Kuwait Vision 2035 (New Kuwait)* (2017).

Apart from these specialised skills, future green economy workers will also need a broad set of cross-cutting skills and competencies - globally and in the GCC. These include digital literacy, basic environmental understanding, data handling, clear communication, teamwork, problem solving, adaptability, and the ability to coordinate projects or supply chains. Such skills make it easier for workers to adjust as new technologies and sustainability practices take hold in different industries (OECD, 2023; UNICEF, 2024). Many emerging green roles combine technical knowledge with these wider competencies (UNICEF, 2024; SOLAS, 2024). These global trends apply to the GCC as well. As GCC governments and employers expand requirements for ESG reporting, sustainable procurement, resource management, and the digital systems used in smart-city projects, the skills demanded in the labour market are also shifting. Regional assessments show rising demand for strong analytical and digital abilities, communication and coordination skills, and the capacity to apply sustainability principles in sectors such as energy, construction, transport, waste management, and public services. This suggests that cross-cutting skills will be just as important as specialised technical expertise in meeting the GCC's future green workforce needs (World Bank, 2024).

3. Immigration Policies in the GCC and Emerging Global Practices

Sections 1 and 2 established that a large number of jobs across a wide range of economic sectors and skills will be generated by the green transition in the GCC, and that the region is not fully prepared to fill them all given the current structure of its labour markets and supply chains. To meet this challenge, an intra-GCC mechanism of pooling migrant workers with relevant skills can serve as an effective policy tool. The first step in this direction entails a review of the current immigration and visa policies in the region.

3.1 GCC Overview and Recent Developments

The migration of labour to the six GCC member states remains regulated nationally by whichever country the migrant is headed for. Therefore, GCC countries do not yet operate a unified intra-regional labour migration regime for most migrant workers. In practice, work and residence permits and employer sponsorship are tied to a specific destination country, and moving to another GCC state generally requires returning to the origin country and obtaining a new work permit and visa. However, some GCC countries have started reforming strict migration systems. New rules in Saudi Arabia, Qatar, Bahrain, Oman, and Kuwait are reducing employer control and introducing fairer job transfer procedures. Governments are also replacing the term "absconding" with "work abandonment" to stop misuse of false reports against workers. These steps aim to make labour mobility safer and more transparent (ILO, 2017).

As of now, there are several ways of migrating and obtaining visas to work in any of the six GCC countries. Though the procedures are not identical across countries; employer sponsorship is the basic entry point into most of them.

Saudi Arabia: The main pathway is the employer-sponsored work visa, subsequently leading to the residency permit known as the *Iqama*. Migration and employment are regulated by two key pieces of legislation: the Labour Law and the Residency Law. The Labour Law (Royal Decree No. M/51 of 2005, amended 2023, Kingdom of Saudi Arabia) regulates employment contracts, working conditions, and worker protections, while the Residency Law (Royal Decree No. 17/2/25/1337 of 1952, amended 2021, Kingdom of Saudi Arabia) sets out the procedures for residence permits. As a result of ongoing labour reforms, including the Labour Reform Initiative (LRI), migrant workers can now use the Absher platform to apply for exit and re-entry visas directly; the Ajeer program lets workers with labour disputes work for other employers until their case is resolved. Employers who file false absence or work abandonment reports can be fined, while workers may apply for new jobs after 12 months without employer approval (Ministry of Human Resources and Social Development, 2025; ILO, 2023). The Premium Residency Law (Royal Decree No. M/106 of 2019, Kingdom of Saudi Arabia) also allows for an option without sponsor for investors and highly skilled people, admitting them free entry and exit with no visa required. The hiring of migrants is influenced by the Nitaqat job nationalization program, which dictates quotas for Saudi employment in private firms.

UAE: The UAE incorporates elements of employer sponsorship, alongside long-term and self-sponsored residence options. Labour relations are governed by Federal Decree-Law No. 33 of 2021 on the Regulation of Labour Relations in the Private Sector and Cabinet Resolution No. 1 of 2022. These brought in flexible categories of work and revised employment standards. The UAE now allows all employment contracts to be fixed-term, with clear notice rules for ending jobs. Workers can leave jobs without notice in cases of non-payment, assault, or unsafe conditions. Domestic workers can also change employers or leave the country while keeping their rights. These reforms simplify transfers and improve legal protection for migrant workers (Federal Decree-Law No. 33 of 2021, United Arab Emirates; Cabinet Resolution No. 106 of 2022, United Arab Emirates; MOHRE, 2022). The Ministry of Human Resources and Emiratization (MOHRE) is responsible for labour permits and employment relationships, while residence visas fall under the Federal Authority for Identity, Citizenship, Customs and Port Security (ICP). The most conventional pathway remains the company-sponsored work permit, followed by a residence visa and Emirates ID. Over time, the UAE has introduced self-sponsored visa pathways like the Golden Visa (Cabinet Resolution No. 56 of 2018, United Arab Emirates) and the Green Visa (Cabinet Resolution No. 65 of 2022, United Arab Emirates), coupled with remote and freelance permits that grant residence independently. National hiring quotas through 'Emiratization' policies continue to play their role in shaping hiring.

Qatar: Qatar has an employer-based system under Law No. 21 of 2015 Regulating the Entry, Exit, and Residence of Foreign Nationals (State of Qatar, 2015), with amendments removing exit visas in 2019 and increasing job mobility rights in 2024. Qatar removed the need for employer permission to change jobs or leave the country. All workers, including domestic workers, can now change employers anytime by giving notice through the Ministry of Labour system. Exit permits were cancelled except for limited security-related roles. These reforms have enabled hundreds of thousands of workers to change jobs safely (IOM, 2024). The Ministry of Labour is responsible for the issuance of work permits, while the Ministry of Interior handles residence and entry. Several full-time and part-time work permits, and some short-term permits are available, as well as residence by investment, under Cabinet Resolution No. 28 of 2020 (State of Qatar, 2020). Job localisation, or 'Qatarization' policies, prioritize employing nationals in all sectors. These newly issued amendments reflect a major step toward better worker mobility and being more in line with international labour standards.

Kuwait: In Kuwait, employer sponsorship forms the basis for the migration system. It is detailed under the Private Sector Labour Law No. 6 of 2010 (State of Kuwait, 2010), amended by Law No. 85 of 2017 and Law No. 32 of 2023, and the Residence Law No. 17 of 1959 (State of Kuwait, 1959). These laws define employment conditions and place residency requirements. In 2024-25, Kuwait made new rules for domestic and private sector workers. Domestic workers can now move to private sector jobs after one year of service, with a small transfer fee. The updated Residency Law bans residency trafficking and misuse of permits. Migrant workers over 60 years of age no longer need to pay extra fees, and all workers can now open bank accounts for wage deposits[2]. The Public Authority of Manpower (PAM) is in charge of work permits and employment relations oversight, while the Ministry of Interior (Residency Affairs Department) oversees the procedures regarding visas and residence. Employers facilitate work permits, entry visas, and residency processing upon arrival. Kuwait's job localisation policy of 'Kuwaitization', under Ministerial Decree No. 186 of 2022 (State of Kuwait, 2022), promotes national employment in selected sectors. In 2024, changes were made that introduced limited sponsorship transfers, allowing enhanced job mobility (Ministry of Interior, 2024).

Bahrain: The relevant legislative framework is based on the Labour Law for the Private Sector (Law No. 36 of 2012, Kingdom of Bahrain) and the Labour Market Regulatory Authority Law (Law No. 19 of 2006, Kingdom of Bahrain). These laws confer regulatory functions on the Labour Market Regulatory Authority (LMRA), which regulates the issue of work permits and the registration of migrants. The authority checks employer reports to prevent misuse of work abandonment claims. Workers can appeal false reports and are protected from deportation while cases are reviewed (Labour Market Regulatory Authority, 2025). The Ministry of Interior issues residence permits. Bahrain initiated the Registered Worker scheme in 2022, through which labour registration centres under the LMRA were set up to streamline the registration process for migrant workers and ensure adherence to relevant laws (Decision No. 1 of 2022, Kingdom of Bahrain). Current options for investment-linked residency fall under the Golden Residency Visa Scheme (Kingdom of Bahrain, 2021). The job localisation policies of 'Bahrainization' remain influential in labour allocation (Labour Market Regulatory Authority, 2024).

Oman: Migration and employment in Oman are jointly governed by the Labour Law (Royal Decree No. 35 of 2003, Sultanate of Oman) and Foreign Residency Law (Royal Decree No. 16 of 1995, Sultanate of Oman). The Ministry of Labour is responsible for issuing work permits, while Royal Oman Police manages visa and residency documentation. The process has two main steps, first being the labour permit and then the work visa and residence card. Oman allows workers to dispute false "work abandonment" reports through labour inspectors. Employers who file repeated false reports can face investigation[3]. The Investor Residency Program (Royal Decree No. 52 of 2023, Sultanate of Oman) introduced long-term stay opportunities for investors and skilled professionals. 'Omanization' policies remain firm, where local employment is compulsory for specific sectors (Ministry of Labour, 2024).

[2] Based on ongoing consultations of IOM staff with national authorities.

Table 3: GCC Immigration Laws and Visas[4]

Country	Main Immigration Laws	Responsible Ministry or Authority	Common Work Visa Type	Other Visa Types or Programs for Migration
Saudi Arabia	- Labour Law (Royal Decree No. M/51 of 2005, amended 2023) - Residency Law (Royal Decree No. 17/2/25/1337 of 1952, amended 2021)	- Ministry of Human Resources and Social Development (MHRSD)	- Employer Sponsored Work Visa - Iqama (Residency Permit)	- Premium Residency (no sponsor; for investors and highly skilled individuals)
UAE	- Federal Decree-Law No. 33 of 2021 (Labour Relations) - Cabinet Resolution No. 1 of 2022	- Ministry of Human Resources and Emiratization (MOHRE) - Federal Authority for Identity, Citizenship, Customs and Port Security (ICP)	- Employer Sponsored Work Permit - Residence Visa and Emirates ID	- Golden Visa (self-sponsored) - Green Visa (self sponsored) - Remote and freelance permits
Qatar	- Law No. 21 of 2015 (Regulating Entry, Exit, and Residence of Foreign Nationals)	- Ministry of Labour - Ministry of Interior	- Employer Sponsored Work Permit - Residence Permit	- Residence by Investment (Cabinet Resolution No. 28 of 2020) - Amendments (2019, 2024); increased job mobility and removed exit visas
Kuwait	- Private Sector Labour Law No. 6 of 2010 (amended by Law No. 85 of 2017 and Law No. 32 of 2023) - Residence Law No. 17 of 1959	- Public Authority of Manpower (PAM) - Ministry of Interior (Residency Affairs Department)	- Employer Sponsored Work Visa - Residency Permit	- Limited Sponsorship Transfers (2024)
Bahrain	- Labour Law for the Private Sector (Law No. 36 of 2012) - Labour Market Regulatory Authority Law (Law No. 19 of 2006)	- Labour Market Regulatory Authority (LMRA) - Ministry of Interior	- Employer Sponsored Work Permit	- Golden Residency Visa Scheme (2021) - Flexi Permit (2017–2024, now phased out)
Oman	- Labour Law (Royal Decree No. 35 of 2003) - Foreign Residency Law (Royal Decree No. 16 of 1995)	- Ministry of Labour - Royal Oman Police (ROP)	- Employer Sponsored Labour Permit Work Visa and Residence Card	- Investor Residency Program (2023)

[4] The sources for this table comprise those cited in-text from the beginning of section 3.1 until Table 4.

Despite ongoing reforms and growing coordination among GCC states, the region still lacks a shared framework for labour migration. Each country manages migration through its own national laws, sponsorship systems, and employment quotas, which restrict the ability of skilled workers to move freely across borders. While the GCC has introduced initiatives such as the unified tourist visa, there remains no equivalent for workers or professionals. As a result, skilled migrants entering one GCC country cannot easily take up opportunities in another without repeating the entire visa and sponsorship process. This limits the region's ability to make full use of its human capital at a time when demand for technical and green skills is rapidly increasing. The next section reviews the emerging migration management system in the EU, from which the GCC can draw lessons.

3.2 The Architecture for Skills-Based Intra-Regional Migration in the EU

GCC countries face two key challenges in fully executing their plans for a rapid green transition. The first is a likely shortage of workers with green skills in the coming years, and the second is the absence of legal mechanisms that allow these workers to move around easily between the GCC states. From the perspective of a regionally coordinated approach to migration, the experience of the EU is illustrative. Its approach combines three main components, i.e. Talent Partnerships, the EU Talent Pool, and the EU Blue Card, into a single, structured system that promotes legal migration, skills development, and movement of talent within the EU region.

This system, developed under the New Pact on Migration and Asylum (2020) and detailed in the European Commission's 2022 communication Attracting Skills and Talent to the EU, aims to address skills shortages in key economic sectors while ensuring ethical and well-regulated mobility (European Commission, 2022). The Talent Partnerships help prepare and train workers in partner countries; the Talent Pool provides a digital platform to match these workers with employers in EU Member States; and the Blue Card enables qualified migrants to live and work in different EU countries. Together, they create an interconnected policy framework that supports both economic growth and intra-regional mobility.

EU Talent Partnerships: Talent Partnerships were introduced by the European Commission in 2021 to strengthen cooperation with non-EU countries on skills development and legal migration (European Commission, 2025). Their main goal is to connect skills-related training opportunities in partner countries with job openings in EU labour markets. These partnerships are currently being implemented with origin countries including Morocco, Tunisia, Egypt, Nigeria, Senegal, Bangladesh, and Pakistan, and they focus on sectors where demand is high, including engineering, ICT, construction, healthcare, and renewable energy.

Talent Partnerships do not apply automatically across the entire EU. Participation is voluntary, and each member state chooses whether to join a specific partnership based on its labour market needs. As a result, migrants trained under a Talent Partnership are eligible to take up opportunities only in the EU countries that have opted into that particular scheme, rather than across all member states. Specific Talent Partnerships therefore involve different combinations of EU destination countries, with governments selecting sectors and origin countries that match their own skills-based labour needs (European Commission, 2025).

Training under the Talent Partnerships usually takes place in two stages: first in the country of origin through vocational education, and later in the EU through work placements or traineeships. This structure helps workers gain the qualifications and practical experience needed to work in the EU. Funding comes from a mix of EU programmes and departments, including the Directorate-General for the Middle East, North Africa and the Gulf (DG MENA), NDICI–Global Europe, and the Asylum, Migration and Integration Fund (AMIF), along with national and employer contributions (European Commission, 2025)

Talent Partnerships also promote circular migration, where workers gain skills abroad and can later return home with stronger qualifications. In this way, they benefit both EU labour markets and the development of partner origin countries.

The EU Talent Pool: The EU Talent Pool was launched in October 2023 as part of the European Commission's Skills and Talent Package, and will become operational in 2026-27 (European Commission, 2025). It is a digital job matching platform that will connect EU employers with skilled workers from non-EU countries. Managed by the European Labour Authority (ELA) and linked to the EURES job mobility network, the Talent Pool will allow employers to advertise vacancies and directly recruit qualified candidates from abroad. The key features of the EU Talent Pool are described below, with a focus on identifying information that can inform the design of a similar mechanism in the GCC.

- ***Main Sectors and Skills Covered:*** The EU Talent Pool is intended to help fill shortages of workers in various job types across the EU, covering various skill levels. The Commission's published list is heavy with engineering, ICT, and health roles, many of which are linked to the green transition, like civil and electrical engineering, and a range of technical and ICT jobs. More generally, the wider EU skills agenda links Talent Pool and Talent Partnerships to the green and digital transitions, placing much emphasis on renewable energy, efficiency, hydrogen, electrification, and green construction. Work on clean energy skills highlights wind, solar, heat pumps, hydrogen, and green-building roles as priority areas. In practical terms, the Talent Pool is broad, but the Commission's roadmaps give clear weight to green economy sectors (European Commission, 2025).

- ***Type of Workers Targeted:*** The system is designed to make recruitment faster, more transparent, and easier for both employers and migrants. The Talent Pool lists shortage occupations by ISCO codes, including engineers, ICT specialists, medical practitioners, and a variety of other technical positions. It is meant to be open to workers across the skill spectrum, depending on what each Member State needs. The Talent Pool is designed to take on a mix of low, medium, and high-skilled workers depending on shortages flagged by Member States. The platform also works closely with the Talent Partnerships, ensuring that those who complete pre-departure training in partner countries are visible to EU employers looking for their skills (European Commission, 2025).

- ***Certification and Recognition of Skills:*** The Commission has put forward measures to make the recognition of qualifications quicker and more harmonized, including guidance to Member States on simplification, EU-wide frameworks, and better access to information. The Talent Pool also calls for digital tools and cooperation with recognition bodies to make the process seamless (European Commission, 2025).

- ***Governance and Stakeholders:*** The Talent Pool is designed to involve employers, public employment services, training bodies, recognition agencies, and relevant multilateral institutions such as the ILO and IOM. It is expected that employers will utilize the Talent Pool platform to advertise their jobs and seek out candidates. Public employment services are supposed to support the screening and matching process. Business groups have largely supported the reforms, especially those aimed at facilitating the easier recruitment of high-skill workers. Safeguards on ethical recruitment and wider cooperation on immigration with origin countries also form part of the Talent Pool's overall agenda. The European Commission works closely with the IOM and the ILO to ensure that recruitment is fair and transparent, and that ethical standards are followed (European Commission, 2025).

The EU Blue Card: The EU Blue Card was first established under Council Directive 2009/50/EC and later updated by Directive (EU) 2021/1883, which entered into force in November 2023. It is designed for highly skilled non-EU nationals who hold a higher education degree or equivalent professional experience and a job offer that meets the required salary threshold for migration to a Member State. Typical Blue Card eligible roles are engineers, ICT professionals, senior technical roles, and medical specialists. Therefore, while anyone may register on the Talent Pool, only highly skilled professionals in various green skills will be able to obtain the Blue Card. Persons who do not qualify for the Blue Card may travel on other visas.

The Blue Card offers several advantages. It allows holders to live and work in an EU Member State and, after 12 months, to move to another EU country for work without applying for a new visa, making it the only EU work permit that allows intra-regional migration. The card has been reformed to make eligibility more flexible by lowering salary thresholds and expanding the list of eligible professions, especially in technology and engineering (European Commission, 2025). Beyond the Blue Card, several other pathways allow non-EU nationals to work in Europe, and each one targets different kinds of skills. The main ones are summarised in Appendix C.

Taken together, these rules show a clear structure: the Blue Card and the ICT permit are the only EU-level routes that offer some degree of intra-regional movement, and both primarily target highly skilled professionals. By contrast, the Single Permit, the Seasonal Workers route, and national visas only allow work in the country that issues the permit, reflecting the fact that most medium and low-skilled mobility channels remain nationally controlled. It is also important to reiterate that the ICT Directive allows migrants to work within a particular corporate group only, therefore, the Blue Card is the only regime that allows for true intra-regional work mobility within the EU.

The Talent Partnerships, Talent Pool, and Blue Card work together to form a coherent system that promotes skills-based intra-regional migration between the EU and non-EU origin countries globally. Training and certification under the Talent Partnerships prepare workers for EU standards. The Talent Pool connects them to employers through transparent digital matching. Once employed, the Blue Card allows them to move between EU countries in order to pursue opportunities in sectors where their skills are most needed. While this overall regime still has areas for further improvement and growth, its key features taken collectively can serve as a blueprint for the GCC to begin formulating a similar approach to meet its needs.

4. A Roadmap for GCC's Own Green Talent Pool

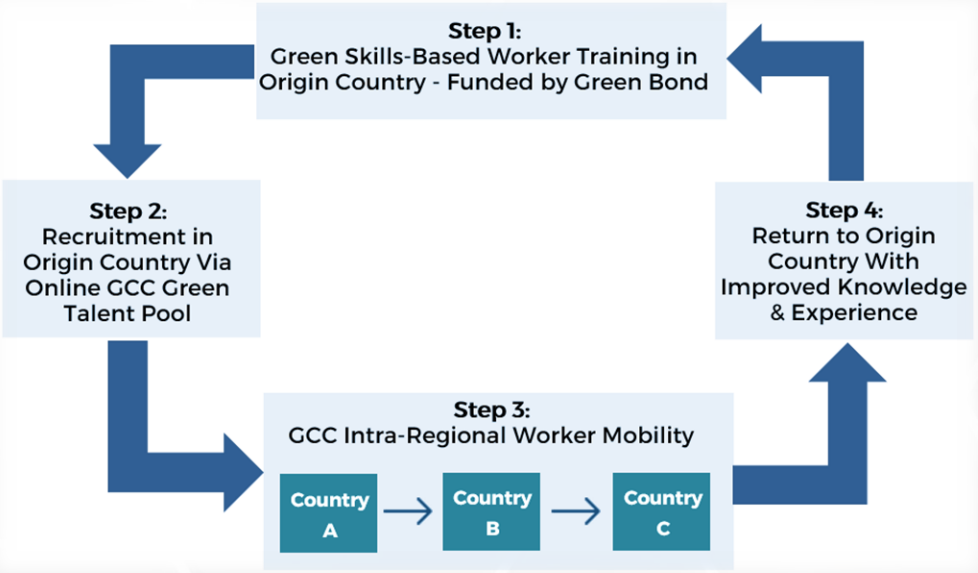
The evolution of closer regional integration in the EU over time, first internally and recently with respect to collective immigration policies, is a unique example. This is because no other bloc in the world has thus far developed an intra-regional migration system allowing immigrants to enter and work in multiple countries of the bloc over time, such as the one described in section 3.2.

Policymakers in the GCC can apply this perspective to their own planning and chart a gradual step-wise approach. There are encouraging signs already that governments in the region are pursuing this line of thinking. In 2024, the GCC confirmed plans to introduce a single GCC tourist visa by 2026. The new visa will allow visitors to travel to all six member states using one entry permit. Saudi Arabia's Minister of Tourism, Ahmed Al-Khateeb, explained that the unified visa will make travel within the GCC easier and more attractive, following a model similar to Europe's Schengen system (Gulf News, 2024). The initiative aims to strengthen tourism, encourage investment, and promote movement across borders within the region. Although it currently applies only to tourists, this program can be viewed as an important first practical step towards greater cooperation on intra-GCC labour mobility in the future.

4.1 Design and Implementation Recommendations

Based on the analysis in the foregoing sections, in particular the key lessons drawn from the review of the EU's architecture for its skills-based intra-regional migration system, the basic logic of a similar framework in the GCC is presented in Figure 1 below. To reiterate, the model adds intra-regional mobility and green skills training for workers to the existing circular mobility for migrants to the GCC. The figure is followed by seven fundamental suggested principles for its design.

Figure 1: GCC Intra-Regional Green Talent Pool Model



1. **Skills development in origin countries should be an essential element of the program.** In the case of the EU, migrants are either already highly skilled, or they are trained via Talent Partnerships in their country of origin. Ideally, GCC countries should collectively begin discussions with origin countries of interest to create similar arrangements. However, bilateral discussions to explore partnerships for skills development and migration should also be encouraged. Furthermore, these partnerships should include some level of skills development and training in origin countries.

2. **There should be an intra-GCC mobility component in the program.** The full benefits of a green talent pool in the GCC can only be realised if its participants are able to work throughout the region, or at least in more than one country, similar to the EU system. GCC member states can take a phased approach, similar to the EU Talent Partnerships, to allow gradual but meaningful progress.

3. **The program should balance green skills retention needs with the continued circularity of labour movement.** A tiered visa system based on the type of worker can be considered. To ensure that the most needed skills are utilised by GCC economies for longer periods, high-skilled workers (such as hydrogen project developers) could be given five years to work in the region before returning. Medium-to-low skilled workers, such as solar panel installers, could be awarded one year, which would help maintain their current circular flows.

4. **Circularity in the program should be explicit.** Along with helping GCC countries fulfil their green talent needs, the program should also help improve human capital in the origin countries' labour markets. To achieve this, immigration and visa rules should be flexible enough to allow migrants to move between the GCC and their home countries with relative ease. This will support origin countries' economies and help GCC employers by creating a steady pipeline of skilled workers who are familiar with the region.

5. **A common governance architecture should be evolved by the GCC.** The EU experience clearly shows the need to link multiple components together for an intra-regional circular migration scheme that includes skills development. The GCC should design the architecture for this based on its own political and economic imperatives, to align skills development, talent matching, and visa regimes. For instance, while the EU migration policies and visa schemes are of a supranational nature, an intra-regional labour mobility framework in the GCC would likely be more akin to a mutual recognition agreement.

6. **Intra-GCC alignment on priority skills and certification mechanisms.** A common green talent pool for the GCC will require significant coordination to arrive at common priorities for economic sectors, jobs, and skills. While recognising the differentiated and independent priorities of each country, the analysis in section 2 demonstrated significant overlap as well. This can serve as a solid foundation upon which to begin consultations to develop shared labour demand assessments and skills certification mechanisms. The latter will be necessary to support principle # 2.

7. **Public, private, and policymaking stakeholders should all be involved in designing the program.** While governments in the region are in the best position to drive this process, special attention should be paid to seek input from private employers, who are likely to have the most practical and market-informed views on current and emerging requirements for green skills. At the same time, local academia and relevant international stakeholders, such as the IOM and ILO, should be consulted for technical and policy-related advice.

In line with these key principles, high level milestones for the implementation of the green talent pool in the GCC are presented below. It is hoped that they will help spark more detailed deliberations amongst policymakers in the region.

Concept Formulation

- The first step should be policy and technical discussions at the ministerial level amongst GCC states, with early involvement of employers' and workers' organisations as well as relevant international organisations, to ensure broad-based input.
- This will help clarify the key concepts and issues, helping create a minimum yet sound common agenda which can then be used to initiate action.

Political Buy-In

- The agreed concept should then be presented to the top GCC political leadership.
- The objective should be to secure an in-principle agreement to create an intra-GCC green talent pool and circular migration framework.
- All six member states need not agree at this stage; even an agreement between two or three countries would be sufficient to take the process forward.

Detailed Design

- Intensive consultations amongst participating members would focus on core features.
    - An overall governance mechanism.
    - Key elements of a unified immigration policy and corresponding visa or visa types.
    - Detailed analyses for identifying and agreeing on priority green economy sectors, jobs, and skills to be included in the talent pool.
    - Detailed analyses on the skills development and training activities to be conducted in origin countries.

Initial Launch

- After approval by the political leadership, the green talent pool and its accompanying intra-regional migration program should first be piloted in a limited way.
    - This might involve, for instance, initial skills development agreements with a limited number of origin countries that send the most migrants to the GCC, such as India, Pakistan, and Egypt.
- This initial 'trial' period will yield valuable lessons that will help make improvements and adjustments, as needed.

Full Implementation

- In this final phase extending over the long term, most or all GCC countries would become part of the program.
- The number of partner origin countries would also expand.
- Policies, systems, and procedures would mature and stabilise.

4.2 Financing Potential through a Green Bond

To conclude the discussion, this sub-section will offer a high level concept of utilising a green bond to help fund the creation and development of the GCC's green talent pool along with a skills-based circular intra-regional migration program.

The green bond and *sukuk* markets in the GCC have witnessed growing momentum over the last five years. Saudi Arabia's PIF has been a major driver, issuing a debut USD 3 billion green bond in October 2022, followed by a second USD 5.5 billion green bond in February 2023 to finance renewable energy, green buildings, clean transport and water projects (Public Investment Fund, 2022, 2023; Renewables Now, 2024). In the UAE, green and sustainability-linked bonds and *sukuk* registered with the financial authorities reached over USD 4.2 billion in 2023, reflecting a broadening issuer base including banks and corporates (Arab News, 2023). Abu Dhabi's Masdar issued a USD 1 billion bond in 2025 to fund global solar and wind projects under its Green Finance Framework (Masdar, 2025). In 2024, Qatar launched a USD 2.5 billion sovereign green bond - the first and largest sovereign green bond offering in the Middle East (Crédit Agricole CIB, 2024).

These developments clearly show the growing appetite for green bonds amongst various investor types in the GCC to fund activities linked to the green transition. The strategies of private and institutional investors in general, and impact investors in particular, are likely to find strong alignment with an intra-GCC skills-based migration scheme and talent pool. This stems from three broad areas:

- Sustainability-minded investors seek long-term, stable return assets with measurable environmental or social outcomes.
- Skilled labour with green technical skills is increasingly seen as a form of infrastructure necessary for continued economic growth.
- Regulated, fair, and skills-based mobility pathways can help reduce supply chain vulnerabilities and create predictable workforce pipelines.

In lieu of more detailed research and analysis that can be conducted as a follow-on exercise in 2026, the key aspects of how a green skills-linked bond can and should be utilised is presented here.

Governance

For the green bond to be credible and attractive to investors, strong governance mechanisms and safeguards will be essential.

- The bond could be issued under a coordinated sovereign issuance framework comprising GCC states; it could also be done through a specialised vehicle managed by an institution like the Islamic Development Bank (IsDB) or similar regional fund, with clear allocation rules to the designated green talent pool program.
- Proceeds management and activity selection should be overseen by a multi-stakeholder committee, including representatives of GCC governments, employers, and, where appropriate, origin countries and independent experts.
- Annual allocation and impact reports should be published, detailing how funds were used, the number and profile of workers trained and then employed in the GCC, and progress toward agreed green transition objectives.

The green bond could be designed such that its proceeds fund the following main areas.

Vocational Training and Certification in Green Sectors in Origin Countries

- Vocational training, up-skilling and re-skilling, and certification programs in key countries of origin for migrant workers.
- Curriculum development and accreditation for short-cycle programs in the key job types and skills identified in section 2.4 could be prioritised.
- These programs would be developed in partnership with GCC authorities, public and private employers, and reputable training institutes in origin countries.
- To incentivise the timely and voluntary return of skilled migrants, a bond-related payment could be structured. For example, it could be a reintegration bonus or grant for high-skilled workers who return to their home country after their five-year rotation and start a business.

Public-Private Partnerships (PPPs) for Migrant Employment in the GCC

The key idea is to de-risk and co-finance PPPs that directly link trained workers to employment in the GCC green projects, through the following:

- Apprenticeship or trainee schemes, where bond proceeds subsidize part of the initial training, on-boarding, or wage costs, in return for firms committing to hire from the GCC green talent pool.
- Support for industry associations in the GCC, within the leading green sectors identified in section 2.3, enabling them to pool recruitment needs and convey actual labour demand more effectively.
- Risk-sharing mechanisms to reduce the perceived risk for individual employers in recruiting from the GCC green talent pool, which initially could be seen as new and untested. An example is a partial guarantee on early employee attrition.

Enabling Infrastructure to Support Fair and Efficient Employment in the GCC

This includes digital, institutional, and regulatory infrastructure:

- An online platform where all certified workers from origin countries, their skills profiles, and employment histories are recorded, and where GCC employers can post job openings.
- Existing national labour and work platforms, such as Absher and Ajeer in Saudi Arabia, should be linked to and made interoperable with the GCC green talent pool to take advantage of existing job directories and worker profiles already available with member states.
- GCC-wide standards and recognition frameworks for educational, vocational, and technical qualifications, so that a certificate issued in an origin country can be accepted in one or more GCC countries.
- Systems that ensure ethical recruitment, transparent contracts, and accessible complaint channels for migrant workers, reducing the risk of exploitation and reputational damage for GCC governments and firms.

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Appendix A: Definition and Historical Context of Circular Migration

Circular migration refers to a pattern of repeated movement between two or more countries by the same person, generally for work-related reasons. The International Organization for Migration (IOM) refers to it as one type of migration in which people repeatedly move back and forth between an origin country and one or more destination countries, often linked with labour demand for seasonal or temporary jobs (2024). The United Nations Economic Commission for Europe (UNECE) defines a circular migrant as a person who crosses the same national border multiple times during a fixed period of stay (2016).

Such mobility can create co-benefits for origin countries, destination countries, and the migrants themselves. According to the UNECE, circular migration can prevent labour shortages and support economic growth in destination countries, while in origin countries it can reduce unemployment and lead to the transfer of skills and financial capital through returning workers. Migrants and their families also benefit: higher earnings, wider work experience, and improved human capital. This "win-win-win" concept embraces, in practice, seasonal work, contract work with repeated renewals, and other back-and-forth regimes, as long as there is repetition rather than permanent migration (2016).

Circular migration is not new. Historically, many groups have moved temporarily and repeatedly for work. For instance, in the 19th and early 20th centuries, agricultural labourers in Europe and North America travelled seasonally following harvests (Oltmer, 2013). In Southern Africa, the system of circular mine labour from Mozambique and Zimbabwe to South Africa dates back to the late 19th century (Crush, 2011). Similar cross-border movements occurred in Southeast Asia and Central America during the post-World War Two decades, when workers engaged in short-term agricultural and construction employment (Hugo, 1993).

Appendix B: GCC Energy Transition Strategies, Governance, and Targets

Country	Climate Strategy or Initiative	Governing Body or Institution	Key Emissions Reduction Targets
Saudi Arabia	- National Environment Strategy (2023) - Saudi Green Initiative (SGI) and Updated Nationally Determined Contribution (2021)	National Committee for Clean Development Mechanism under the Ministry of Energy and the Ministry of Environment, Water, and Agriculture	- Remove or reduce 278 million tonnes of CO_2e[5] annually by 2030 - Target net zero by 2060
UAE	- UAE Net Zero by 2050 Strategic Initiative - UAE Green Agenda 2030	- Ministry of Climate Change and Environment (MOCCAE) - Dubai Supreme Council of Energy - Abu Dhabi Department of Energy	- Reduce 31% of GHG[6] emissions below business-as-usual (BAU) by 2030 - Net zero by 2050
Qatar	National Climate Change Action Plan 2030 (QCCAP)	National Climate Change Committee (NCCC) under the Ministry of Environment and Climate Change	Reduce 25% of GHG emissions by 2030 relative to BAU
Oman	- National Strategy for Adaptation and Mitigation to Climate Change (2020–2040) - Oman Vision 2040	- Oman Sustainability Centre (established 2023) - Environment Authority	Reduce 7% of GHG emissions by 2030, conditional target up to 14% with international support
Kuwait	- National Adaptation Plan 2019–2030 - National Low Carbon Development Strategy (under preparation) - First NDC (2021)	Kuwait National Committee on Climate Change under the Environment Public Authority (EPA)	Reduce 7.4% of GHG emissions by 2035 compared to BAU
Bahrain	- National Energy Transition Plan (2022) - Updated NDC (2021)	Joint National Committee on Climate Change under the Supreme Council for Environment	- Reduce 30% of GHG emissions by 2035 - Net zero by 2060

Sources: Government of Saudi Arabia (2021), Saudi Green Initiative; Ministry of Climate Change and Environment (MOCCAE, 2023), UAE Net Zero by 2050 Strategic Initiative; Government of Qatar (2021), Qatar National Climate Change Action Plan 2030; Government of Kuwait (2021), Kuwait Nationally Determined Contribution (NDC) Update; Government of Oman (2023), Oman Nationally Determined Contribution (NDC) Update; Government of Bahrain (2021), Bahrain National Energy Transition Plan.

[5] Carbon Dioxide Equivalent

Greenhouse Gas

Appendix C: EU Work Visa Types Other Than the Blue Card

The Single Permit allows a third-country national to live and work in one EU Member State and is commonly used for medium and lower-skilled jobs (Directive 2011/98/EU). The Seasonal Workers Directive creates a specific route for short-term, lower-skilled roles in sectors like agriculture and tourism, where labour demand fluctuates throughout the year (Directive 2014/36/EU). For multinational companies, the Intra-Corporate Transferee (ICT) Directive enables the temporary transfer of managers, specialists, and trainee employees within the same corporate group. This permit is one of the very few that allows mobility within the EU, letting the worker carry out assignments in different member states without needing a new visa each time (Directive 2014/66/EU).