



UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

UAE STATE OF GREEN ECONOMY REPORT 2017

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UAE STATE OF
GREEN ECONOMY
REPORT 2017



His Excellency

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United Arab Emirates

The year 2016 marked a turning point for the UAE in many ways. In February, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, announced a major restructuring of the federal government. The move included the transformation of the former Ministry of Environment and Water into the Ministry of Climate Change and Environment (MOCCA). The formation of the new Ministry was aimed at tackling climate change issues in a way that makes economic sense while protecting our natural heritage.

To meet this goal, we are working to strengthen synergies and advance partnerships with other ministries and local authorities as well as with the private sector and academia. As part of these priorities, we established the UAE Council on Climate Change and Environment in September 2016 to consolidate the existing committees and streamline high-level decision-making.

In addition, we launched the Emirates Committee for Sustainable Environment Research in May 2016, which brings together the country's leading experts to design a comprehensive research strategy on climate change and the environment to support evidence-based policy-making. We also started regular engagements with the business community on specific environmental topics, enabling the Ministry to better respond to the needs of businesses and help unlock capital to drive sustainable actions.

Furthermore, over the last few years, the UAE has been working hard to lay the groundwork for the most comprehensive and ambitious action plan on climate change and the environment this region has ever witnessed. Building on the *UAE Green Agenda 2030*, approved by the Cabinet in January 2015, the Ministry developed the *National Climate Change Plan 2017-2050*. The plan outlines concrete steps to mainstream climate change mitigation and adaptation actions based on robust scientific evidence and predictions of long-term impact.

2016 also marked the first year of implementation of the *Green Agenda*. This third edition of the *UAE State of Green Economy Report* provides an overview of the country's progress toward a green economy made at the national and local levels last year. For the first time, the report reviews the progress in accordance with the 96 initiatives defined in the *Green Agenda*, in addition to benchmarking the results of the 41 UAE Green Key Performance Indicators (Green KPIs).

Following on the UAE's hosting of the Global Roundtable of the United Nations Environment Programme Finance Initiative (UNEP FI) in October 2016, this edition of the *State of Green Economy Report* highlights the endeavors of the UAE financial sector in enabling a green economy with the introduction of 10 unique sustainability initiatives to showcase the private sector's commitment to supporting the government's vision. More than 30 UAE-based financial institutions have already signed up to the *Dubai Declaration on Sustainable Finance*, first launched at the Global Roundtable.

Today, we are less than five years away from the day when we will mark the first major milestone for our green economy transformation and climate change actions, which coincides with the 50th anniversary of the UAE's formation in 1971. I look forward to stepping up our sustainability efforts and achieving the objectives of the *UAE Vision 2021* and hope to update you on our advancements along the way. I am confident this report will also inspire your own journey toward a sustainable way of life.

ABOUT THIS REPORT

The *UAE State of Green Economy Report* aims to help the country make solid advancements toward a green economy, which is defined by the United Nations Environment Programme (UNEP) as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”.

This report will do this by providing the public with an overview of public and private efforts and a benchmarking of the country’s current standing through performance indicators that measure the progress. This edition covers January to December 2016 unless otherwise specified.

CHAPTER 1

Sustainable Finance for Greening the UAE Economy outlines the UAE’s work on advancing sustainable finance practices as one of the focus areas of 2016 for the implementation of the *UAE Green Agenda 2030*, as well as the outcomes of the UNEP Finance Initiative Dubai Global Roundtable held in October 2016.

CHAPTER 2

Progress on the UAE Green Agenda provides an overview of the action plan launched in 2015 for the country’s green economy transformation, and reports on the progress in the first year of its implementation, together with a highlight of advancing Green Agenda initiatives.

CHAPTER 3

Green Economy Initiatives around the Country lists the initiatives of five of the seven emirates’ governments that are underway or being planned as part of the Green Agenda, and highlights the most prominent projects conducted mainly during 2016.

CHAPTER 4

International Cooperation for Green Economy Transformation presents high-level global conferences that the UAE government actively hosted or took part in during 2016, as well as capacity building opportunities arranged for other countries in the region to promote the realization of green economies and sustainable development.

CHAPTER 5

National Performance toward a Green Economy compiles the latest results of the 41 UAE Green Key Performance Indicators (Green KPIs) in a comprehensive table, along with the background of the indicators and brief explanations on the observed performance trends of recent years.

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CHAPTER 1: SUSTAINABLE FINANCE FOR GREENING THE UAE ECONOMY

Attracting private-sector finance and investment is ultimately a decisive factor for the success of the UAE's green economy transformation, as it allows the country to raise the massive scale of investment required. Despite the wide availability of green technology solutions and the willingness of both government and citizens to take sustainable action, limited private-sector participation in green financing has been considered a major challenge in the UAE, as most of the country's pioneering green projects have thus far been led or funded by public entities.

Against this backdrop, promoting sustainable finance among UAE financial institutions is considered a

key component of the *UAE Green Agenda 2030*, which includes the Green Finance and Investment Support Scheme among implementation programs (see Chapter 2). Under this framework, the Ministry of Climate Change and Environment (MOCCA) started a series of workshops and meetings with the country's financial institutions to raise awareness and share knowledge of sustainable finance, beginning in 2015, in collaboration with relevant federal and local authorities, including the Central Bank of the UAE.

This chapter outlines the UAE's work on advancing sustainable finance practices as one of the focus areas of 2016's Green Agenda implementation.

UNEP FI Dubai Global Roundtable: October 2016

The MOCCAIE organized the 14th Global Roundtable of the United Nations Environment Programme Finance Initiative (UNEP FI) in Dubai, on 25-26 October 2016. This global event was organized for the first time in the Middle East with support from the Central Bank of the UAE, under the patronage of His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of Dubai Executive Council.

Since the first meeting was organized in Geneva, Switzerland in 1994, the UNEP FI Global Roundtable has become a key global agenda-setting event on sustainable finance over the years, which has

contributed to bringing together hundreds of leaders from all parts of the financial system as well as from civil society, academia, government and the United Nations. The UAE was chosen by the UNEP as a host country of the 14th Global Roundtable because of its increasing importance in global finance and track record in green economy and promotion of Islamic economy.

The event was organized as a critical step in moving the global conversation toward the delivery of the Sustainable Development Goals (SDGs), the Paris Climate Agreement, the Addis Ababa Action Agenda (AAAA) on financing for development, and the Sendai Framework for Disaster Risk Reduction, all of which were agreed or adopted by UN member states during 2015.

A major focus of the Global Roundtable was therefore to help the finance community understand what this new global agenda means for them. The two-day event attracted nearly 400 participants from over 40 countries, who discussed the most pressing sustainable development issues for the financial sector.

Speakers included CEOs and executives from financial institutions, regulators, high-level UN representatives, and civil society leaders. Sessions were intended to generate insights around several key questions about the future of finance, answering questions including:

- What do the new sustainable development and climate change agendas mean for the financial sector?

- How can the finance sector become a driver of sustainable development?
- How are technology and social changes influencing the future of finance?
- What are the emerging trends and needs in risk measurement?
- What are the emerging leading-edge business opportunities?
- What does sustainable finance have to learn from Islamic finance?
- How can the transition to sustainability in the finance sector be accelerated?



UNEP FI Dubai Global Roundtable (25-26 October 2016)



Following the opening plenary, the Global Roundtable started with discussions on applying Islamic finance toward funding green projects, and urgent issues of financing for development to support the SDGs. The discussions moved to mainstreaming sustainability into the financial system through the integration of carbon risk, disclosure of non-financial performance, and transforming the regulatory framework.

The second day started with inspirational presentations on financing green innovation and making a positive impact on society. The last two breakout sessions focused on specific areas – technologies, cities, energy-water-food nexus, and stock exchanges. This was concluded by envisioning the future of sustainable finance.

The interactive discussions provided first-hand insights and lessons about significant opportunities for financing the green economy. Some key highlights were¹:

- There will need to be significant changes to the way that our economic systems function.
- The financial system will need to adapt.
- Public-private collaboration is becoming the new norm.
- Sustainability is becoming part of common business practice.
- The risk paradigm has changed how to integrate environmental, social and governance (ESG) risks, including climate impact.

¹ For more details on the Global Roundtable discussions, please watch the proceedings, including videos of sessions and presentations given, at: www.unepfi.org/grt/2016.

National engagement for the Global Roundtable

In preparation for this high-profile gathering, the MOCCAIE, with support from the UNEP FI, conducted a series of meetings with financial institutions beginning in 2015 to raise awareness of and interest in sustainable finance as well as the Global Roundtable.

The MOCCAIE organized two national roundtables in 2015 and conducted a nationwide survey of financial institutions to identify current green finance practices, in collaboration with the Central Bank of the UAE, the Insurance Authority, the Securities and Commodities Authority (SCA), and the Dubai Financial Services Authority (DFSA).² A one-day workshop was also organized to provide banking managers with an interactive learning experience

with two international experts nominated by the UNEP FI on environmental and social risk assessment for integrated decision-making.

The national roundtables produced the conclusion that sustainable finance practices need to be accelerated and promulgated in the UAE to realize the level of investment and scale of projects required for economic diversification through fostering green industries. The feedback from the survey was compiled into a roadmap with multiple steps for nationally coordinated strategic advancement of sustainable finance (see figure). This will also serve as part of the UAE Green Agenda implementation (Sub-Program 1.2.3: Green Finance and Investment Support Scheme – see Chapter 2 for more details).

1 Form a Group

- Join an international platform
- Learn global best practices

2 Shift Attention

- Focus on impactful investment
- Identify projects & market size

3 Capacity Building

- Guidelines
- Toolkits
- Workshops
- Communication

4 Elaborate Policies

- Identify enabling instruments
- Implement from where possible

5 Monitoring

- Database
- Scale up a questionnaire
- Quantify benefits

A roadmap for mainstreaming sustainable finance in the UAE

Following this roadmap and the UNEP FI's advice, the MOCCAIE established a National Steering Group on Sustainable Finance in June 2016 in partnership with the Central Bank of the UAE and the UAE Banks Federation, and invited leading banks and other financial firms to join. In the first meeting, the participants agreed that the Group primarily aim to take collective actions to advance and disseminate sustainable finance practices across the industry by sharing knowl-

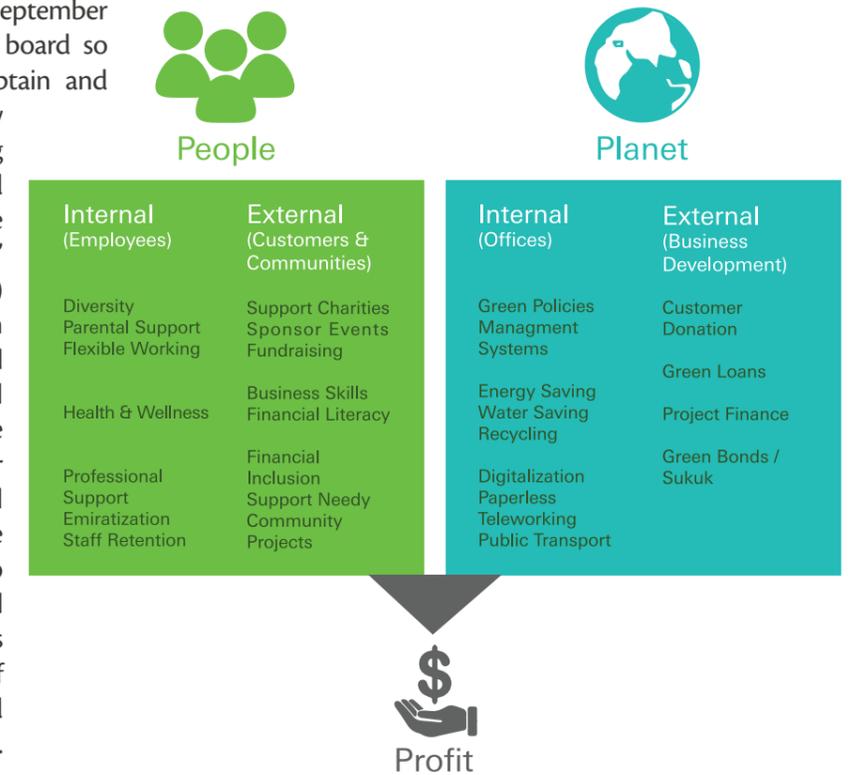


Meetings of the National Steering Group on Sustainable Finance (June and September 2016)

edge and experiences and helping the government develop supportive policy tools and guidelines. This would help create a level playing field on sustainability issues in the sector, while building capacity of institutions. The immediate next step was set to develop a common understanding of sustainability for the UAE financial institutions, which could help develop concrete joint actions at the Global Roundtable and beyond.



When the second meeting was held in September 2016, there were more institutions on board so group exercises were conducted to obtain and share each firm's current sustainability practices and set common understanding and goals. The participants were divided into two groups according to the triple bottom line concept: "People" (employees, communities and society) and "Planet" (the environment). Each group discussed two aspects – internal practices and practices creating external impacts. Diverse initiatives were presented and roughly categorized as per the figure on the right to present a general consensus on the scope of sustainable finance in the UAE. The subsequent group exercise focused on what UAE financial institutions should aspire in their efforts to advance sustainable practices ahead of the country's 50th anniversary in 2021 and how to achieve the identified objectives.



Scope of sustainable finance in the UAE as identified by the Steering Group

² For details of the survey, see UAE Ministry of Environment and Water (then), 2015. *State of Green Finance in the UAE: The first national survey on contributions of financial institutions to Green Economy*, www.moccae.gov.ae/assets/f0dbe459/state-of-green-finance-in-the-uae.aspx.

Dubai Declaration

One of the highlights at the 14th UNEP FI Global Roundtable was the launch of the *Dubai Declaration on Sustainable Finance*. This statement of intent was developed as a culmination of the previously mentioned national engagement activities, particularly those of the National Steering Group, to showcase the UAE's sustainability actions to date and indicate its commitment to achieve a green economy.

Eleven UAE-based financial institutions voluntarily committed to the Declaration at the time of the announcement, which was made together with H.E. Mubarak Rashed Khamis Al Mansoori, Governor of the Central Bank of the UAE, and H.E. Dr. Thani Al Zeyoudi, Minister of Climate Change and Environment, as well as top UNEP officials.

In the Declaration, signatories confirmed their support for the *UAE Vision 2021* and endorsed the government's commitment to the SDGs and the Paris Climate Agreement while recognizing the role that the finance sector can play in enabling a climate-resilient and inclusive green economy and sustainable development.

The signatories also declared their aims to expand and accelerate sustainable finance practices and contribute to the process of green economy transformation by:

- Improving the institution's corporate environmental and social performance
- Lending to, investing in, facilitating financing, or providing insurance to, the projects, businesses and customers with sustainable purposes
- Supporting the growth of a successful small- and medium-sized enterprise (SME) sector
- Providing stakeholders with economic, environmental and social opportunities
- Taking into account the climate and environmental, social and governance (ESG) risk in the institution's risk management processes

Through this process, the country started working to bring about a fundamental change in the financial sector, both conventional and Islamic, by establishing strategic partnerships with major local investment and financing institutions (see next page for the full declaration text).

Dubai Declaration of Financial Institutions in the United Arab Emirates on Sustainable Finance

We, the financial institutions based in the United Arab Emirates, recognize the *UAE Vision 2021* and firmly support the UAE's ambition to become one of the best countries in the world by the time of its Golden Jubilee anniversary in 2021. To attain a prosperous society for generations to come, we endorse the UAE government's commitment to the Paris Climate Agreement and the Sustainable Development Goals, as well as support the sustainable development of this country in line with the *UAE Green Agenda 2030*.

We recognize the following important roles that the finance sector can play in enabling a climate-resilient, inclusive green economy and sustainable development:

- Identify, manage and improve the institution's direct and indirect environmental and social performance;
- Contribute the best of our abilities towards community and society in creating economic, environmental and social opportunities;
- Lend to, invest in, facilitate financing, or provide insurance to the projects, businesses and customers with sustainable purposes as well as support the growth of a successful small and medium-sized enterprise (SME) sector; and
- Take into account climate and environmental, social and governance (ESG) risk in the institution's risk management processes.

We hereby declare our aim to expand and accelerate sustainable finance practices towards 2021 in partnership with the UAE government, the United Nations Environment Programme (UNEP) Finance Initiative and other relevant expert institutions, including but not limited to, the following actions:

- Establish a dedicated function or identify a senior employee to be a "champion" for promoting corporate social responsibility (CSR) and sustainability within the institution;
- Reduce the institution's environmental footprint by implementing strategies and processes such as digitalization, energy and water efficiency, green buildings and recycling;
- Help reduce the environmental footprint of the institution's stakeholders – such as staff members, suppliers, customers, clients, investors and investees – by advancing digitalization, improving access to and encouraging use of public transport, raising environmental awareness, promoting the adoption of environmental management systems, etc.;
- Promote equality and respect for diversity in the workforce (in terms of gender, race, disabilities, religion, ethnicity, etc.) and healthy workplaces, as well as support professional growth of staff members, including Emiratisation where senior appointment and retention of Emirati employees is encouraged;
- Support financial inclusion of the under-banked population and access to financial services for all segments of society;
- Treat customers fairly and engage in responsible lending;
- Contribute to empowering communities and society locally or abroad, e.g., employee volunteering, donations to charity organizations, sponsoring events, awareness raising, campaigning and educating young people on financial management and entrepreneurship;
- Integrate, locally or globally, sustainability requirements into existing financial products, and/or establish new products, which help reduce unsustainable activities, create a positive impact on sustainable development, and encourage ESG risk management or which facilitate clients' action for and investment in sustainable development; and
- Integrate ESG criteria and climate change factors into the risk assessment processes for the business lines the institution is engaged in, e.g., lending, project finance, investment and insurance.

To ensure the effective introduction and implementation of the above actions, we strive by 2021 to:

- Share knowledge and experiences and support learning and capacity building with other financial institutions;
- Refer to international best practices and guidelines of sustainable finance and investment, e.g., Equator Principles, Principles for Responsible Investment, International Finance Corporation (IFC) Performance Standards, Principles for Sustainable Insurance and the UNEP Finance Initiative;
- Collectively help identify a public policy framework and measures that would enable financing, investment and insurance in the projects, businesses and customers in the country with sustainable purposes;
- Set clear targets and an implementation plan of the actions and monitor progress by each institution;
- Regularly compile and publish a sustainability/CSR report, locally and/or globally, in accordance with international standards, e.g., Global Reporting Initiative (GRI) Standards; and
- Encourage other institutions to also take up the above actions by expanding the national learning network and collaboration with the international community.



Launch of the Dubai Declaration at the UNEP FI Global Roundtable (25 October 2016)



A signing ceremony of the Dubai Declaration with Noor Takaful (7 February 2017, Dubai)
Source: Noor Takaful

The number of signatories reached 31 (as of 15 March 2017), and the MOCCA now aims to keep the momentum going by organizing regular meetings with

the signatories to facilitate knowledge exchange and learning from global best practices in specific areas of sustainable finance.

Dubai Declaration signatories (as of 15 March 2017)		
Abu Dhabi Islamic Bank	Dunia Finance	Noor Takaful
Ajman Bank	Emirates Islamic	RAKBANK
Arab African International Bank	Emirates NBD	RAK Insurance
Bank Melli Iran, Dubai	FAB (NBAD)	Sharjah Islamic Bank
Bank of Baroda	HSBC Bank Middle East	Takaful Emarat Insurance
Bank of Sharjah	Mashreq Bank	Tawreeq Holdings
Bank Saderat Iran, Dubai	Mawarid Finance	The National Investor
Barclays	National Bank of Fujairah	Union National Bank
BNP Paribas	National Bank of Kuwait - Dubai	United Arab Bank
Citibank UAE	National Bonds Corporation	Noor Bank
Commercial Bank of Dubai		

UAE's 10 sustainable finance initiatives

Through the discussions at the Steering Group as described previously, a number of the sustainability practices being conducted by UAE finance institutions were collected and analyzed to define the common

1. "USD 10 billion in 10 years" sustainable financing target

The National Bank of Abu Dhabi (NBAD)³ announced in January 2016 its commitment to lend, invest, and facilitate a total of USD 10 billion (AED 36.7 billion) of financing within the next 10 years to environmentally and socially-sound business activities, defined in accordance with the Green Bond Principles set out by the International Capital Markets Association. This move both prioritized sustainable business and was a statement of strategic intent for the bank.

NBAD's *Financing the Future of Energy* reports in 2015 and 2016 have set out thought-leadership positions on

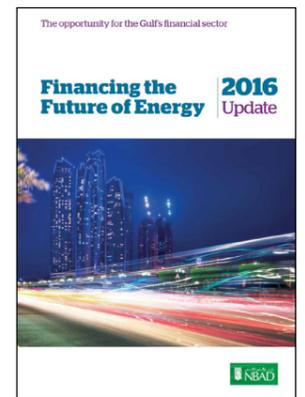
2. Establishing a research center on water and ecosystem management

While the Middle East and North Africa (MENA) region is known for having very limited freshwater resources, Wadi Wurayah in the emirate of Fujairah is one of the very few areas in the UAE where freshwater is present all year round. In partnership with Earthwatch and the Emirates Wildlife Society in association with the World Wildlife Fund (EWS-WWF), HSBC Bank Middle East has funded the establishment of the region's first water research and learning center. Its goals are to educate and raise awareness on freshwater issues and resources among residents and citizens of the region, conduct freshwater ecological research and develop policies and regulations based on relevant scientific knowledge. The five-year program is coming to an end in March 2017.

Teams of HSBC volunteers from across the MENA region has traveled to Fujairah every week to work alongside international scientists to help gather data

understanding and goals in the dissemination of sustainable finance. Based on this exercise, this section highlights the ten most unique initiatives underway in the country that aim to support the realization of a green economy, many of which were showcased to the participants at the UNEP FI Global Roundtable in October 2016.

the future importance of renewable energy sources in the region's future energy mix, even in today's low oil price environment. The reports assert that the region's demand for energy continues to outstrip supply and examines the critical role that financial institutions will play in mobilizing the transition to a low-carbon economy.



Financing the Future of Energy report
Source: FAB (NBAD)



Volunteers surveying Wadi Wurayah, Fujairah
Source: HSBC Middle East

on water, for five months of the year, for over four years. To date, the Wadi Wurayah Research and Learning Centre welcomed over 600 HSBC staff, students and volunteers from external organizations, including the HSBC Deputy Regional CEO and Regional Heads from across the region for a five-day experience. Together, they volunteered for over 12,000 hours.

³ First Abu Dhabi Bank (FAB) was created from the merger of NBAD and the First Gulf Bank in 2017.

3. Integrating sustainability into core operations

In September 2015, NBAD became the first bank in the UAE to have signed the Equator Principles, which is a global benchmark for assessing environmental and social risks in project finance. Commitment to the Principles provides the basis to further define the bank's institutional environmental, social and governance (ESG) frameworks when it engages with clients, and to adopt international best practices in social and environmental risk evaluation.

It also supports the bank's commitment to track and report its own ESG performance and greenhouse gas (GHG) emissions in alignment with the Global Reporting Initiative (GRI) G4 Standards. NBAD is also the first bank in the GCC region to report its emissions to the CDP Climate Change Investor Program. In the 2016 annual rebalance, the bank was also ranked first in the S&P/Hawkamah Pan Arab ESG Index, in recognition of its ESG performance in the region.

In line with its commitment to implementing ISO 26000 guidelines, Union National Bank (UNB) integrates economic, social, environmental, minimum wage, health and safety and gender equality criteria in its procurement process. The criteria are emphasized during vendor evaluations through the bank's supplier or contractor registration questionnaire, and are reviewed on an annual basis to verify that responsible practices are being implemented by the vendor. In 2014, the total amount spent on procurement from locally registered suppliers was 100%. In 2012, HSBC

Bank launched REDUCE, a 10-point strategy to reduce annual carbon emissions by about a third per employee – cutting annual carbon emissions from 3.5 tons per employee in 2011 to 2.5 tons by 2020.

The goals cover engagement with employees, working with suppliers, funding innovative projects, energy, waste, renewables, green buildings, data centers, travel, and paper. From 2009 the bank has trained more than 1,000 senior managers through its Sustainability Leadership Program. Participants are expected to embed sustainability into decision-making and project delivery in the businesses and functions where they work.

HSBC also has an Eco-Efficiency Fund that supports projects proposed by employees to reduce environmental footprints. Over 70 projects have been supported so far. These included LED lighting trials, solar photovoltaic panel installations, organic waste composting pilots, energy management system pilots, and a number of initiatives that have increased efficiency in data centers. Applications are assessed on their potential to reduce carbon emissions, provide a return on investment, and contribute to the bank's goals. The results since 2011 include: 54% reduction in paper purchased, 11% reduction in total kilometers travelled, 29% reduction in carbon emissions from travel, 50% reduction in total waste, and 22% reduction in total energy consumption. The REDUCE goals are now being revised to incorporate more ambitious goals.

4. Incentives for customers to go green

Dunia Finance (dunia) launched a Green Car Loan in September 2015, which offers customers who drive an eco-friendly or fuel-efficient car in the UAE a lower interest rate, as a financial incentive for customers to purchase green cars. The launch of this loan is in line with the company's ongoing commitment to the country's drive for sustainable growth and a further display of its dedication to achieving green results. The new loan is supported by new-age technology service solutions such as the Qwik Mobile app, which allows paperless operations and statements as well as timely customer services.

Emirates NBD also launched a Green Auto Loan in January 2017 to promote electric and hybrid cars in response to the growing interest from residents to support a green economy in the UAE. Customers interested in investing in greener cars sold by approved auto dealerships in the



UAE are eligible to apply for this loan, which offers a 0.05% discount on applicable reducing rates. As an introductory offer, the bank is also waiving the full processing fee.

UNB partnered with Al Yousuf GreenTech, a leading provider of energy-saving electrical solutions, to launch a Green Loan. The service offers tailor-made solutions to clients on a wide range of energy-efficient products from globally renowned brands offered by Al Yousuf.

100 transactions online, thus radically saving paper consumption.

The bank also launched a Go Green/Paperless initiative in May 2016, aimed at reducing paper usage through four pillars – process streamlining, digitization, mass engagement, and awareness – with a goal to reduce total paper consumption by 10-15% by April 2017. This includes a monthly initiative for all internal departments to present their best ideas based on the extent of their cost reduction, scalability, ease of implementation, and the positive impact on employees' day-to-day practices. To date, over 300 ideas have been generated, 30 of which have been implemented. For example, digitizing end-of-year reports is expected to save 7.5 million sheets of paper annually.

One of the ten goals of HSBC Bank Middle East's REDUCE strategy focuses on paper and paper-based products. The aim of the goal is twofold: to reduce the volume of paper the bank uses internally and externally, and to ensure that all paper it purchases comes from sustainable sources. By the end of 2015, certified sustainably-sourced paper reached 95% of all paper used at the bank.

5. Going digital and paperless for greening and engaging the new generation



In June 2016, Emirates NBD announced that it would invest AED 500 million (USD 136 million) over the next three years toward digital innovation and a multi-channel transformation of its processes, products, and services. A first-of-its-kind initiative using digitization and social input as key enablers, the new digital bank will offer customers the next generation of self-service money management with useful tools and applications that can perform over

6. Promoting financial literacy among customers and students

As a key focus area for its Social Investment Strategy, Emirates NBD launched its #moneywise program in November 2016, a multi-faceted financial literacy platform aimed at educating and empowering employees, customers and society, to effectively manage their own personal finances. Nearly 1,000 students from across the UAE have participated in the Banker for a Day program, learning how the banking industry functions and translating theory into practical knowledge. Another initiative is Worthy.ae, which is a platform that extends financial literacy and wellbeing content to the social space. Articles are written by various authors, who turn complex queries into simple, relevant and useful explanations and solutions.

HSBC Bank Middle East set up the region's first Interactive Trading Room (ITR) at the American University of Sharjah (AUS), a technologically advanced 24-seat learning environment designed to be an exact duplicate of the trading floor found in banks, including the same live feeds, industry software and analytical tools. The main purpose of the ITR is to bridge the gap between theory and practice so that students can prepare for the challenges they will face in the workplace. The program also featured knowledge sharing in the form of mentorship and lectures from HSBC volunteers, including senior management, traders and other financial experts.

Since the launch of the ITR in 2016, over 400 students have used the facility for assignments and course requirements and eight courses in undergraduate and post-graduate level embedded the ITR element in their assignments, classes, research and certification. A trading competition also took place so that students could enhance and demonstrate their trading skills. The competition saw 41 AUS students trade against each other individually using a simulated trading market based on value-at-risk method.

dunia launched the dunia Debt Counseling program in 2016 to help all borrowers in the UAE, whether dunia customers or not, manage their debt more effectively and proactively to avoid excessive debt.



AUS trading floor.
Source: HSBC Middle East



SME academy.
Source: FAB (NBAD)

For those burdened with excessive debt, workshops are offered to provide ways to reduce their monthly obligations to more affordable levels. Regular sessions are offered in multiple locations to provide ease of access, and dedicated e-mail and SMS helplines have been established to provide ongoing guidance.

NBAD ran a pilot test of its NBAD SME Academy from September 2015 until April 2016 to address two of the most important requirements in building a business – access to capital and business skills. The skills-building workshops were delivered by expert organizations, covering the following topics:

- How to make your business bankable
- Understanding and implementing principles of accountancy
- Understanding corporate governance
- Effective and efficient marketing tactics
- Attaining leadership in customer service

The five workshops delivered in the pilot phase had a total of 542 participants.

7. Giving youth real-world experiences

Guided by the principle of 'doing good while doing good business' and driven by a strong passion for nurturing talent, dunia created the dunia Young Business Leaders program to inspire and nurture the business leaders of tomorrow by providing a platform for students to engage with current business and industry leaders, investors, innovators, entrepreneurs and other experts to learn from their real-world experiences. This program was successfully conducted for the fourth consecutive year in 2016 and in recognition of its impact, dunia received the Dubai Endowment Sign from the Mohammed bin Rashid Global Center for Endowment Consultancy (MBRGCEC).

In July 2015, the National Bank of Fujairah (NBF) launched NBF GenNext, a leadership program designed to help the children of the bank's corporate and institutional banking clients develop business skills for when they take on leadership roles within their family businesses. The one-week complementary program provides fresh graduates and scions from established family-run firms in the UAE guidance through management and financial principles ranging from identifying shareholder returns to developing corporate funding strategies.

Together with the British Council, HSBC Bank Middle East developed Taqaddam (meaning 'moving forward' in Arabic), a tailored seven-week program designed to help young and ambitious students develop the soft skills they need to excel in their future careers. It combines online learning with practical interactive face-to-face workshops for students and teachers, ending in an exciting inter-school competition.

Taqaddam's unique approach and course content imparts students with skills, confidence and lifelong learning to reflect the changing global needs and help with 21st-century living. It involves several key learning outcomes, including an understanding of



dunia Young Business Leaders program.
Source: dunia

what life skills are, identifying one's strengths and weaknesses to overcome challenges, and confidence in communicating one's skills by demonstrating them to others.

Six countries – Bahrain, Egypt, Kuwait, Lebanon, Qatar, and the UAE – participated in the pilot year of Taqaddam, which included 1,234 students and 80 teachers from 58 schools, in partnership with local educational bodies. In the UAE, over 240 students from 12 schools have been inspired to reach greater personal heights with the help of 29 HSBC volunteers. The 'Future Ideas' competition was hosted as part of the final phase of the program and asked students to work in teams to devise an innovative idea that addressed key global challenges related to the environment, health or community wellbeing.

Mashreq Bank conducted the MOVE program in collaboration with the Action Care Centre between February and June 2016. The initiative assisted over 100 students in the eleventh grade studying at the National Charity School, to develop career, personal and English communication skills. The bank staff volunteered across all sessions, demonstrating their support to the students, which helped them build more confidence. At the end of the program, a graduation ceremony was held.

8. Scholarships for future leaders and potential employees

With the success of its Young Business Leaders program, in 2015 dunia announced the dunia Young Leaders Scholarship program and the dunia Emirati Leaders Scholarship program which awarded scholarships of over AED 400,000 (USD 109,000) to empower young, ambitious, and bright minds in the UAE. A total of 39 candidates from diverse, multicultural backgrounds ranging from nursery school students to PhD students received the scholarships. The dunia Emirati Leaders Scholarship was awarded to one outstanding female scholar, which included a two-year study grant of up to AED 250,000 (USD 68,000), a monthly stipend and an offer to work with dunia upon graduation.

NBF formed a strategic partnership with the Fujairah Higher Colleges of Technology (HCT) in 2013, whereby the bank offered to sponsor and train handpicked Emirati students for banking careers upon graduation. This initiative is intended to identify promising students, provide them with financial assistance for their tuition, and prepare them for careers in financial services. In 2012 it also donated AED 250,000 (USD68,000) in support of the financial aid program. The funds went toward the purchase of laptops and iPads for needy Emiratis enrolled for the new academic year.

In September 2016, RAKBANK launched the IRTIQA Management Associate program ('irtiqā' means progression in Arabic) in line with the bank's commitment toward Emiratization. Designed for fresh Emirati graduates, the candidates undergo a two-year training program to equip them with all the essential technical, inter-personal and leadership skills that they need to succeed in their banking careers. After a rigorous selection process, the bank identified and handpicked ten talented and ambitious young Emirati candidates

for the program. They will go through internal training as well as external accredited certifications from reputable institutes. Once the two-year program has ended, the candidates will receive a certificate of completion.

The bank also supports the education of Emirati students who study banking, finance, accounting, etc. by offering them a full scholarship. It sponsors the education over 150 national students annually enrolled at Higher Colleges of Technology.

dunia places special emphasis on the nation's key priority of ensuring that UAE nationals will become future leaders. The company offers various opportunities under the Kawader dunia program ('kawader' means cadre in Arabic) to develop UAE national talent – whether as full-time experienced employees, part-timers, or fresh graduates. Several high-potential UAE national managers were sponsored for a three-week Accelerated Development Program to acquire key management skills and similar executive development programs conducted by the University of Chicago's Booth School of Business. The Kawader dunia program provides a unique opportunity for UAE nationals to learn and grow professionally under the wings of a leading financial services provider.



National students sponsored to study at Higher Colleges of Technology. Source: RAKBANK

9. Lending a hand and improving access of people in need

UNB supported the Ray of Hope initiative, which provides labor camp residents with dental and hygiene products and blankets. The bank's staff volunteered to visit labor camps to distribute the products. UNB also sponsored the Human Appeal International project, which aims to provide relief to needy families in the UAE by providing them with basic necessities. The initiative supported 68 families across Ajman, Umm Al Quwain and Ras Al Khaimah by providing materials needed for the summer, such as air conditioners and refrigerators. The bank's budget for social investment reached AED 3.3 million (USD 900,000) in 2014, 0.16% of pre-tax profit.

HSBC Bank Middle East's Help Us Help Others campaign is held annually as part of the celebrations for Ramadan in coordination with 27 charities, offering separate projects across eight MENA countries using Amanah (funds from Shariah-compliant products), donations and HSBC funding. Through this campaign HSBC delivered one of the largest single projects led by a financial institution, providing over 30,000 volunteering hours to help vulnerable groups in their local communities including disaster-affected children, orphans, migrant workers, the elderly and less fortunate families.

For one of the projects, HSBC held the largest Ramadan Market Fair event of its kind in the country, where male and female migrant workers were offered the chance to enjoy a day of free shopping and choose a variety of items based on their needs. The workers also had the chance to receive free medical checkups and take part in fun games. The following day, HSBC volunteers and their families packed the remaining gifts for those workers who were based outside Dubai. In total, over 200 volunteers were involved in this fair and 2,500 workers were reached across the UAE.

In October 2015 Emirates NBD announced a strategic and long-term commitment to people with disabilities,



#TogetherLimitless project. Source: Emirates NBD

under the theme #TogetherLimitless. The goal of the project is to enable people with disabilities to live in a world where there are no barriers so they can achieve the same dreams as everyone else. In 2016, the bank released a report titled *Banking Habits of People with Disabilities in the UAE* in collaboration with Ipsos and Sustainable Square. The report findings provided the bank insight that disabled people were frustrated with their customer experience, beyond simple physical accessibility. Thus, the bank made providing disability etiquette training to its staff a priority and upgraded five branches to 'Disability Friendly Branches' by retrofitting for mobility accessibility and inclusion of features for the visually impaired.

RAKBANK launched its INDIMAJ program in early 2016 ('indimaj' means integration in Arabic) with the help of Sensation Station, a multidisciplinary private therapy center that provides services for students with a variety of special needs and developmental challenges. INDIMAJ is a work experience program that offers a unique opportunity for vocational learning and personal development for students and graduates with special needs.

The bank has also been fully supporting the RAK Autism Centre since its inception. The center provides rehabilitation programs for autistic children in Ras Al Khaimah and other Northern Emirates and prepares them for enrollment at regular schools (when possible).

10. Offering banking platforms for fundraising

NBF entered into a partnership with the EWS-WWF to support conservation of Fujairah's Wadi Wurayah National Park. NBF utilizes its ATM network to raise awareness about conservation of the national park by encouraging customers to contribute one dirham whenever they withdraw cash from its ATMs. Such contributions are voluntary and are reflected in the ATM receipts and monthly account statements.

Emirates NBD provides its platforms, such as its online banking and mobile application, to assist with partnering organizations across the UAE for fundraising. For example, customers can use a 'Like-to-Donate' feature on social media channels, whereby clicking the 'Like' button allows them to effortlessly donate to the causes they care about. Also, customers can donate money to support children with disabilities by redeeming their unused Plus Points from select credit cards.



Donate one dirham appeal on ATM screens. Source: NBF



CHAPTER 2: PROGRESS ON THE UAE GREEN AGENDA

Given the prospective growth in population and demand for energy and resources in the country, it is evident that the UAE's ambition for further economic growth and high-quality lifestyles will not be met by simply replicating the conventional development model. An alternative pathway to manage the country's economic aspirations and natural heritage must be sought where sustainable development is placed at the heart of the UAE's development. This is a huge challenge, but the UAE is rich in the human capital, innovative capacity and technological leadership that are required to realize such a radical transformation in

the coming decades. An accelerated effort to decouple environmental impact from economic growth is also expected to bring significant new competitive advantages and job opportunities to the country.

This chapter provides an overview of the action plan for the country's green economy transformation, the *UAE Green Agenda 2030*, which was launched in 2015, and reports on the progress in the first year of its implementation as well as highlighting advancing Green Agenda initiatives.

An overview of the Green Agenda

In February 2010, the *UAE Vision 2021* was unveiled by His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, to chart the nation's new development path and present its united ambition and determination. The primary and ambitious objective of this comprehensive national strategy is for the UAE to be among the best countries in the world by the time of the nation's golden jubilee celebration in 2021. "The environment and wellbeing" was identified as one of the Vision's six major challenges where the UAE aims for excellence over 10 years, through closely monitored and evaluated National Key Performance Indicators.

Building upon the *Vision 2021*, and influenced by international initiatives for the Green Economy preceding the Rio+20 Summit of the United Nations, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, launched the UAE's green growth strategy under the theme of "Green

Governance for the Green Agenda implementation

In June 2015, the Emirates Green Development Council (EGDC) was formed to coordinate and oversee the implementation of the Green Agenda and to ensure effective collaboration between federal and local authorities as well as stakeholders. By September 2015, five committees were established in line with the Green Agenda's strategic objectives, each of which was coordinated by a federal ministry and engaged relevant ministries, local authorities and stakeholders.

Based on the identification and harmonization of existing initiatives and analysis of gaps in those initiatives, in December 2015 each committee presented and agreed on their list of initiatives that would support the implementation of Green Agenda programs and sub-programs. A total of 96 initiatives have been identified, and the council directed the committees to develop detailed action plans to implement and integrate these initiatives into the next

Economy for Sustainable Development" in January 2012. Through this resolution, the UAE stated its determination to enhance the competitiveness and sustainability of its national development efforts and preserve its environment for future generations, with an ambition to become a global hub and a successful model of sustainable development. Six pillars were outlined, namely Green Energy; Green Investment; Green City; Climate Change; Green Life; and Green Technologies.

Through an extensive stakeholder engagement and consultation process that took place over a year, a comprehensive plan to implement green economy actions was developed and approved by the Cabinet in January 2015 as the *UAE Green Agenda 2030*. In line with the *Vision 2021* and each emirate's long-term development plan, five strategic objectives and twelve main programs were set under the Agenda. These objectives and programs were designed to cover all key aspects of the nation's green economy transition - as shown in the figure on the right.

budget cycle. Following the UAE Cabinet reshuffle and the establishment of the Ministry of Climate Change and Environment (MOCCA) in February 2016, the EGDC was reformulated and absorbed into the UAE Council on Climate Change and Environment, which was officially announced in September 2016. The new council is chaired by H.E. Dr. Thani Al Zeyoudi, Minister of Climate Change and Environment, and includes 26 members from federal and local governments as well as the private sector (see page 32).

The first meeting of the council was held in January 2017, where the members agreed that it would formulate four committees under the council: Climate Change and Green Development; Environment; Awareness; and Municipalities. The Green Agenda implementation would be overseen by the Climate Change and Green Development Committee, which would also oversee the implementation of the *National Climate Change Plan*.

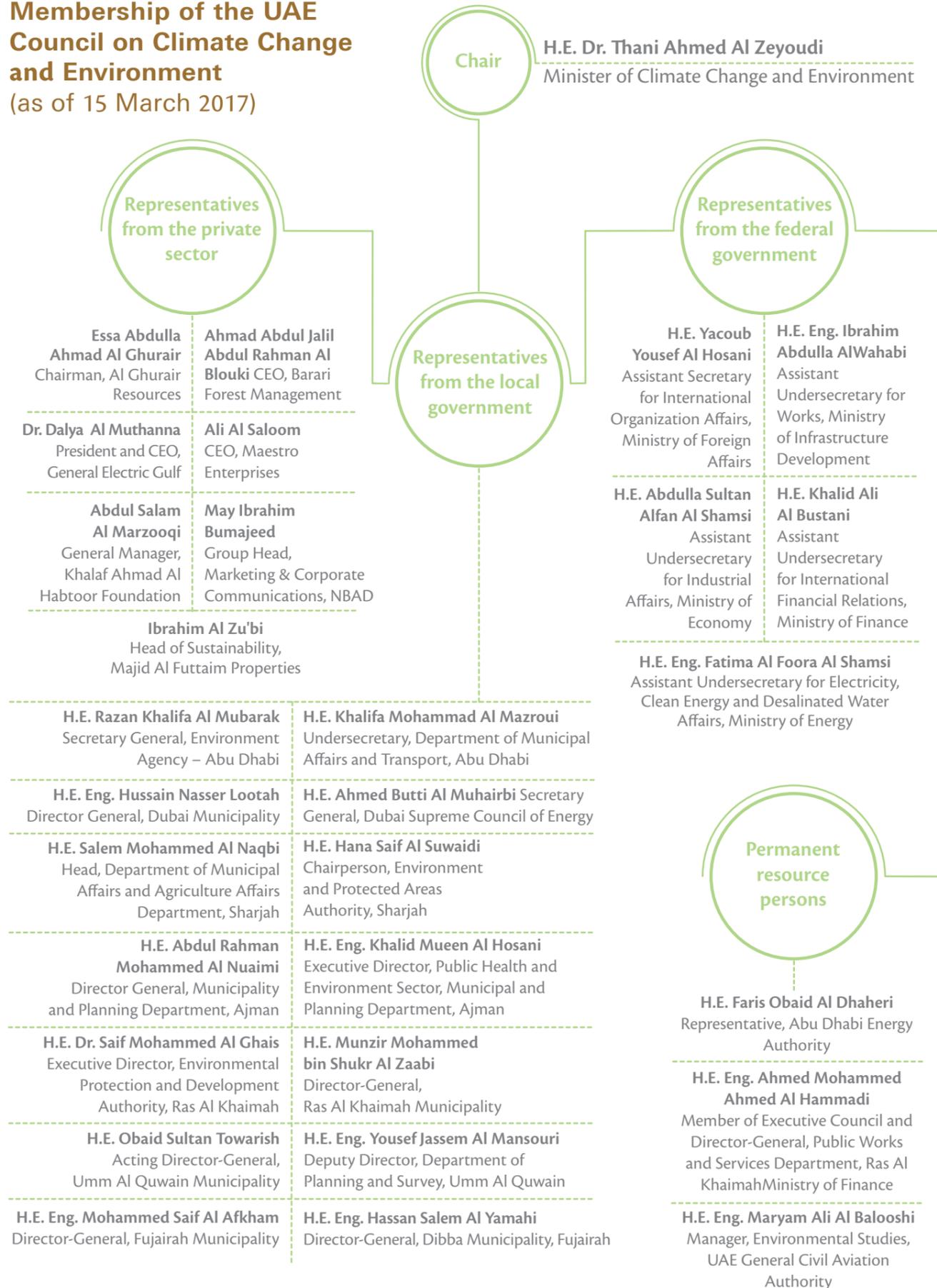


Structure of the UAE Green Agenda 2030

The twelve programs were further broken down into 31 specified sub-programs. The sub-programs include

the actions proposed and generally agreed upon by stakeholders during the consultation process.

Membership of the UAE Council on Climate Change and Environment (as of 15 March 2017)

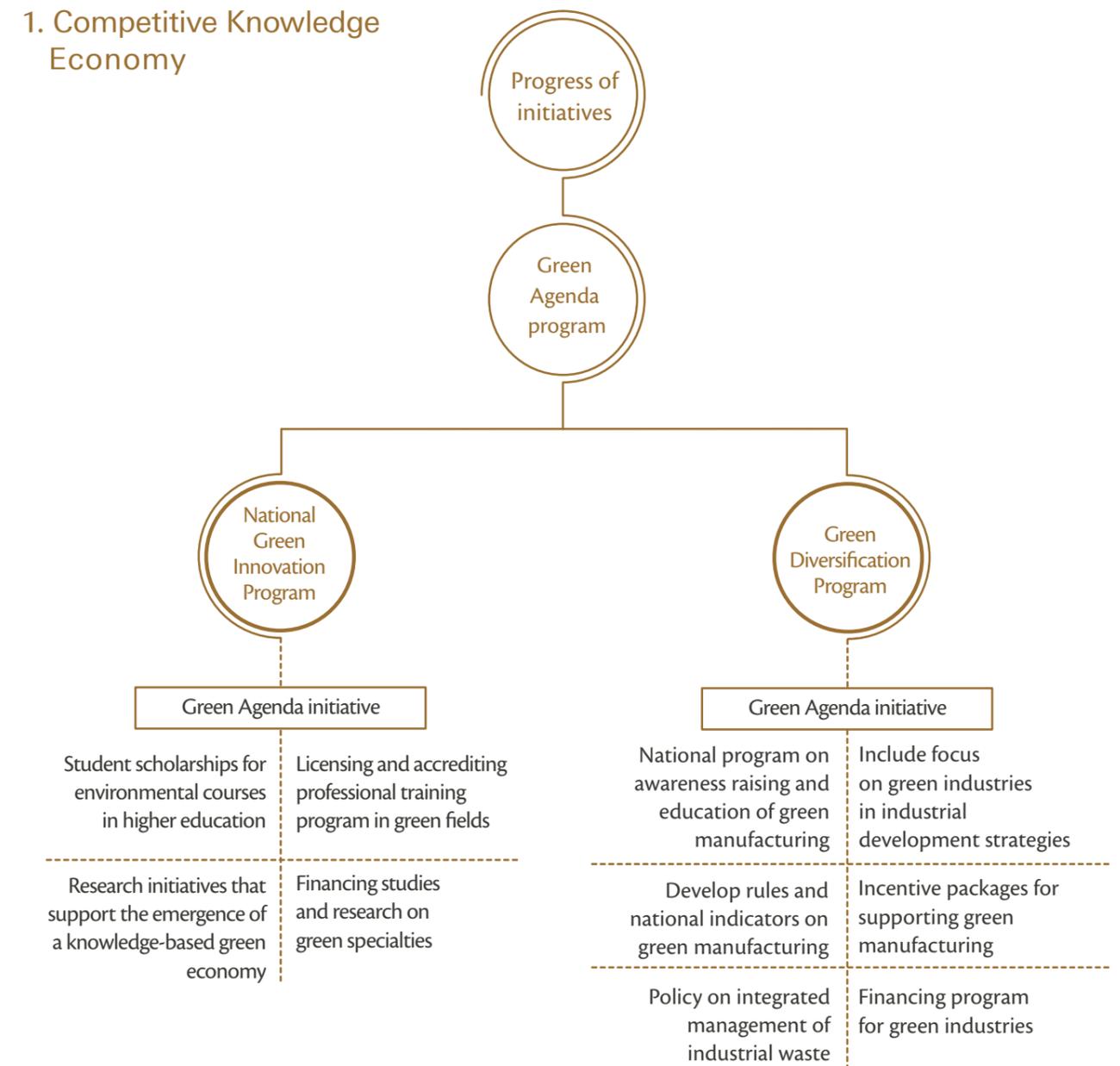


Progress of 96 Green Agenda initiatives

As outlined previously, implementation of the UAE Green Agenda started began through 96 initiatives defined according to the Agenda's five strategic objectives and twelve programs. This section reports each initiative's progress made in the first year of the Green

Agenda implementation, according to the five objectives. Please note that some of the 96 initiatives have been suspended due to changes in the strategies of the authorities in charge or consolidated to avoid overlaps across different objectives. This section also highlights key activities conducted mainly during 2016 that contributed to advancing the Green Agenda.

1. Competitive Knowledge Economy



USD 27 billion Dubai Green Fund

Development of a AED 100 billion (USD 27 billion) Dubai Green Fund was announced in November 2015, as part of the *Dubai Clean Energy Strategy 2050* launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. The strategy aims to provide 7% of Dubai's energy from clean energy sources by 2020, 25% by 2030 and 75% by 2050, eventually making it the city with the smallest carbon footprint in the world by 2050.

To attain this ambitious long-term goal, Dubai requires a massive scale of private-sector participation in financing deployment of clean energy and energy efficiency technologies and projects. This large-scale fund thus aims to provide financing for viable green initiatives in Dubai and act as a market catalyst alongside existing financiers to help build and accelerate the green sector. The fund is led by a team from the Dubai Electricity and Water Authority (DEWA), the Dubai Supreme Council of Energy (DSCE), and the Dubai Carbon Centre of Excellence (DCCE), and will be supported by an international consortium of fund strategy, finance and legal advisors.

At present, DEWA is investing its own funds in various projects and subsidiaries. It has also adopted the

independent power producer (IPP) model to fund the first phases of the Mohammed bin Rashid Solar Park. The launch of the Dubai Green Fund is expected to attract private-sector investments and strengthen public-private partnerships to support future green projects and solutions.

Through this fund, Dubai aims to look to private investment to fund 80% of its green projects to meet its clean energy targets. As a first phase, the team is looking into the concept, governance structure, underlying regulations and framework, contractual structure, and execution plan, based on international best practices and in light of Dubai's specific needs.

Speaking at the 3rd World Green Economy Summit held in Dubai in October 2016, H.E. Saeed Mohammed Al Tayer, CEO of DEWA, noted: "We have established a strict internationally-accepted definition of what is 'green' under the Dubai Green Fund. This definition will include projects in energy efficiency and demand-side management (DSM), solar and other renewable energy, sustainable water management, sustainable waste management and reduction, and innovative decarbonizing, pollution or resource-intensity-reducing initiatives."



Launch of the *Dubai Clean Energy Strategy 2050* led by H.H. Sheikh Mohammed bin Rashid Al Maktoum (29 November 2015)
Source: DEWA



Masdar Institute.
Source: Masdar

3 universities to be merged for global excellence

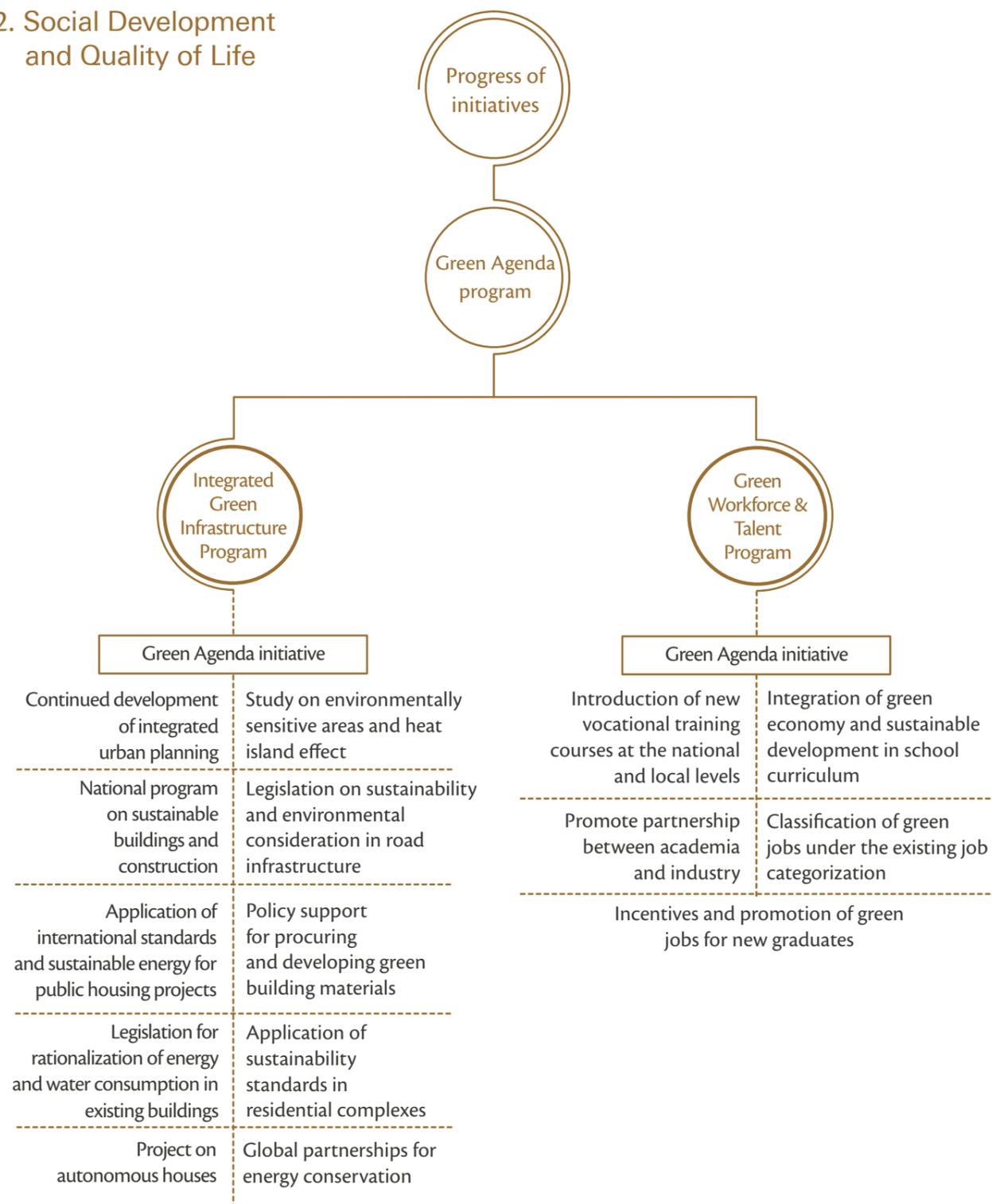
In October 2016, the Abu Dhabi Executive Council approved a proposal to merge Khalifa University of Science, Technology and Research, Masdar Institute of Science and Technology and the Petroleum Institute under the umbrella of one university. The administration and faculty members from the three institutions, as well as all their rights, obligations, assets, belongings and funds will be transferred to the unified university. In February 2017, His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, issued a resolution in his capacity as Ruler of Abu Dhabi to name the new institution "Khalifa University of Science and Technology".

The objective behind the merger is to make the university one of the best in the world, utilize the infrastructure, and build on achievements accomplished by all three universities. The new entity will preserve the

strengths of the universities and build on their capabilities, enhancing academic and research activities in various specializations. The new university will also preserve current research achievements to maintain local and global reputation.

The new university will also build solid links between academic and social institutions, ultimately achieving mutual benefits in these fields. It would also encourage and promote scientific research, knowledge and cutting-edge technology transfer and train and prepare highly qualified human resources with scientific and vocational qualifications across all fields of science and knowledge by organizing and implementing advanced training and academic programs at the highest technical and professional levels. The new university would also provide academic and applied research in relevant scientific and strategic fields, and encourage a culture of innovation and entrepreneurship.

2. Social Development and Quality of Life



First “autonomous house” built in Dubai

In November 2016, the Mohammed bin Rashid Space Centre (MBRSC) unveiled a sustainable autonomous house built on its premises in Dubai. This model house has been developed to be self-sufficient in energy and independent of the electricity grid. Certified by Germany’s Passive House Institute, the model is the first passive house adaptable to the UAE’s hot and humid climate. This project is one of MBRSC’s initiatives aimed to effectuate the use of green and smart techniques to contribute to the implementation of the UAE Green Agenda and the Dubai Clean Energy Strategy.

The indoor temperature of the autonomous house ranges between 22-25°C in all seasons and times so that it does not require any conventional cooling device and facilitates reduced energy consumption by 75%. The house applies smart solutions including a cooling technology based on chilled water, and thermal and air insulation techniques where the fresh air spreads out across the house constantly via a mechanical ventilation system. The house also includes a smart management and control system that interacts

with the changes of the external heat and humidity. Building this model took only 100 days, preceded by over a year of study, comparison and application.

H.E. Yousuf Hamad Al Shaibani, Director General of MBRSC, said: “The global economy tends to invest a great deal into renewable energy projects. This smart home transforms the housing sector from an energy consumer to an energy source, thereby reducing the central power production load on the national economy.” He called on both the government and the real estate sector to invest in this type of smart building, adding that the center is ready to provide all support and guidance to this end.

MBRSC also announced a series of plans to secure the technical requirements needed for building and developing this type of house, with the aim of disseminating the autonomous house model across the country. It plans to establish a laboratory specialized in conducting experiments and tests for autonomous houses to verify the efficiency of devices, systems and materials. A team of Emirati engineers at the Centre will be conducting complementary studies to optimize the condensed water in the cooling system for domestic use.



The first autonomous house built at the Mohammed bin Rashid Space Centre. Source: MBRSC

Developing youth’s capacity for coping with climate challenges

All entities in the country are working hard to develop the capacity of youth to cope with climate challenges as well as benefit from greening the economy.

Youth Circles initiative was launched by H.E. Shamma Al Mazrouei, Minister of Youth, in 2016 to inspire youth through dialogue across a variety of topics to shape innovative solutions for global challenges. Dialogue is organized in a circle format: It starts with a 15-minute presentation of the current situation (best practices, trends and achievements), followed by a 45 minute discussion of the most important opportunities and challenges. In the final 60 minutes, youth will share ideas and agree on the best solutions and recommend policies. During 2016, three youth circles were organized with climate change and sustainability themes.

The first youth circle was held in the presence of H.E. Dr. Thani Al Zeyoudi, Minister of Climate Change and Environment and H.E. Shamma Al Mazrouei, Minister of Youth, at the Malihah Archaeological Center, Sharjah, in August. The second one was held in September in New York City where international students studying in the US were invited to the dialogue. Dr. Thani Al Zeyoudi gave an overview of the UAE’s efforts in advancing sustainability to date. Attendees discussed how to raise awareness and communicating with all segments of society and shared their ideas on achieving the Sustainable Development Goals (SDGs). The third



A Youth Circles session held in New York (September 2016)

youth circle was arranged in November in Marrakech, Morocco during the COP22 meeting of the United Nations Framework Convention on Climate Change (UNFCCC).

The Sustainable Campus Initiative launched by the Environment Agency – Abu Dhabi (EAD) aims to strengthen and build leadership among youth so they can become the main change agents in the country in shaping sustainable communities. A total of 10 higher-education institutions have been involved in the initiative’s diverse activities, including auditing and managing the environmental impact in their own facilities.

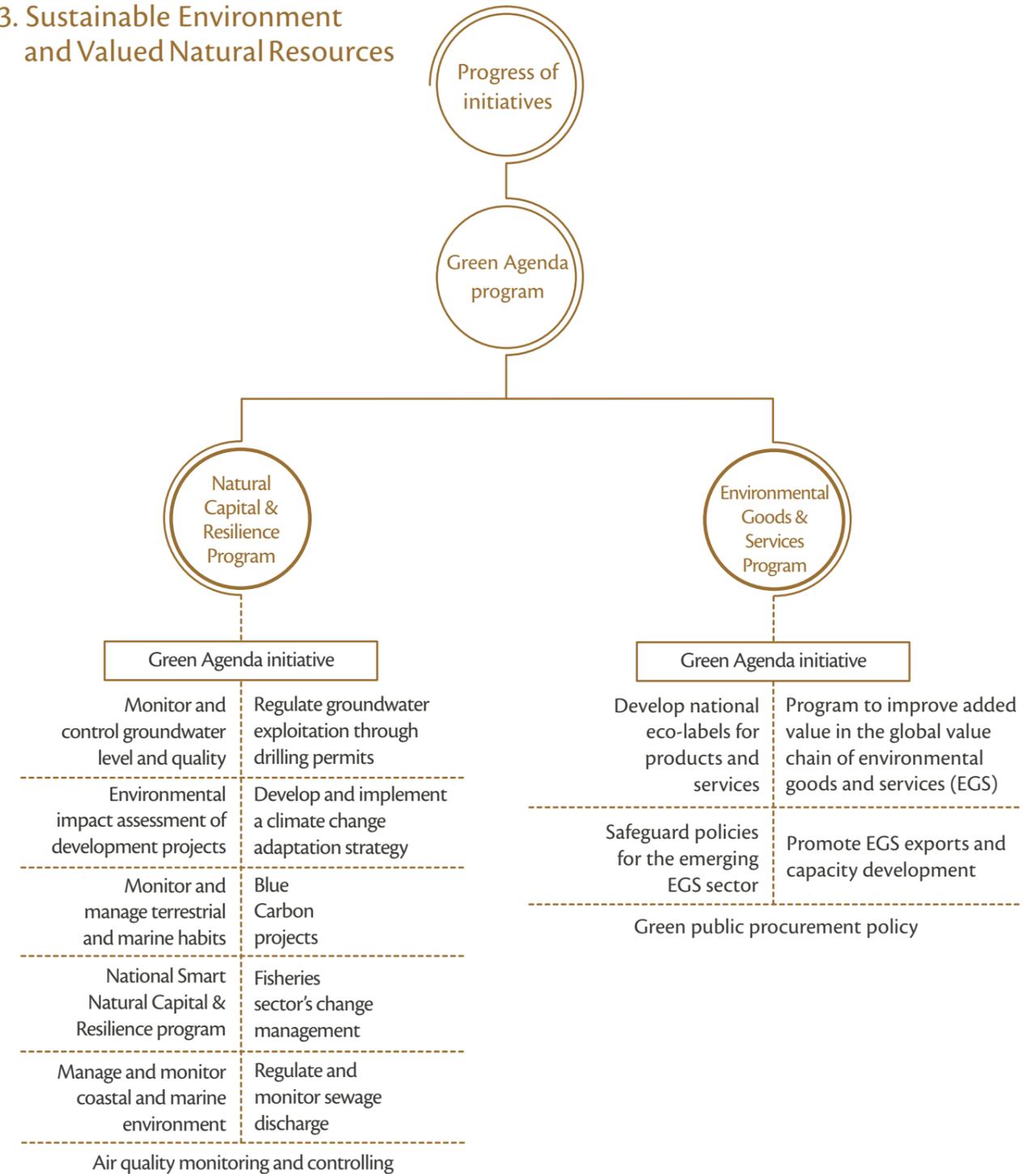
The DEWA and the DCCE have also engaged university students in the Carbon Ambassadors Program since 2014. The program provides the students with training and capacity building necessary to shape them into the green leaders of tomorrow, involving them in voluntary activities and international conferences. The second batch of Carbon Ambassadors was engaged in a project that sought to transform used service containers into sustainable farms, which was presented during the Water, Energy, Technology and Environment Exhibition (WETEX) in October 2016.

The MOCCAIE and the Global Green Growth Institute (GGGI) host the Green Growth Youth Program to build the capacity and enhance the knowledge of students on green growth and climate change. In November 2016, a seminar titled “Innovating for Climate Resilience” was organized, where around 40 students from nine higher-education institutions learned how innovation can bring about solutions to climate change.



A “sustainable container farm” developed by the Carbon Ambassadors. Source: DEWA

3. Sustainable Environment and Valued Natural Resources





Eco-labels, like the featured UAE Organic Label, can drive consumers toward better and more responsible choices.

Advancing sustainable consumption through eco-labels and procurement

Eco-labels and related environmental standards that are based on sound science and are well recognized and trusted by the market can become powerful tools to guide the consumer toward sustainable choices of products, services and organizations. Improving availability, accessibility and quality of consumer information can enhance communication with UAE consumers to drive behavioral change, and in turn encourage the UAE industry to better respond to consumers' greener demands and invest in providing and sourcing sustainable products and services.

In addition to the existing national standards and labels for water and energy efficiency of appliances and organic food, the Emirates Authority for Standardization and Metrology (ESMA) thus developed the Emirates Environmental Label scheme, which certifies the environmental superiority of a wide range of products similar to other national eco-labels such as the German Blue Angel. The new label is planned to be introduced in interior systems and products, building exterior products, indoor furniture,

electrical and mechanical tools, packaging products, household cleaning, construction steel products, cement, and office supplies.

The MOCCAIE is working with the Ministry of Finance to promote sustainable procurement among federal authorities to leverage their influence on the market as the largest consumers in the country. By this practice, the government can help reduce the climate impacts and ecological footprint of its own operations, while also guiding local authorities, the industry and the public toward more sustainable consumption and production. The new policy was drafted in 2016 and is currently under deliberation. According to the draft policy, all federal authorities will be required to integrate sustainability aspects in their purchasing considerations and report and review their plans for sustainable procurement each year.

The MOCCAIE plans to develop guidelines to help the authorities set sustainable purchasing criteria and identify sustainable products and services in the market.

Wetland center opened for conservation and eco-tourism

Wasit Nature Reserve is located in the emirate of Sharjah on the border with the emirate of Ajman. It features extensive dunes, mud flats and salty lagoons, as well as fresh water pools, and is part of an ancient chain of historical wetlands along the Gulf coast. The reserve supports a wide range of wetland wildlife, providing food, nesting and shelter opportunities. The Sharjah Environment and Protected Areas Authority (EPAA) began to develop a visitor center, with the aim to make it an eco-tourism destination for those who wish to know more about wildlife in the UAE.

In November 2015, His Highness Sheikh Dr. Sultan bin Muhammad Al Qasimi, Member of the UAE Supreme Council and Ruler of Sharjah, inaugurated the Wasit Wetland Centre as part of the emirate's projects to promote its position as the capital of Arab tourism for 2015, to improve environmental conditions, and to sustain natural life in the emirate for future generations.

The Centre allows visitors to closely view migratory bird species, as it houses about 60 species including several rare species such as Northern Bald Ibis, Glossy Ibis, grey heron, marbled duck, purple swamp hen, pink-backed pelican, and greater flamingo. It is equipped with special telescopes for watching birds, and amplifiers that allow visitors to listen to their sounds. A track was installed for visitors to walk around the reserve

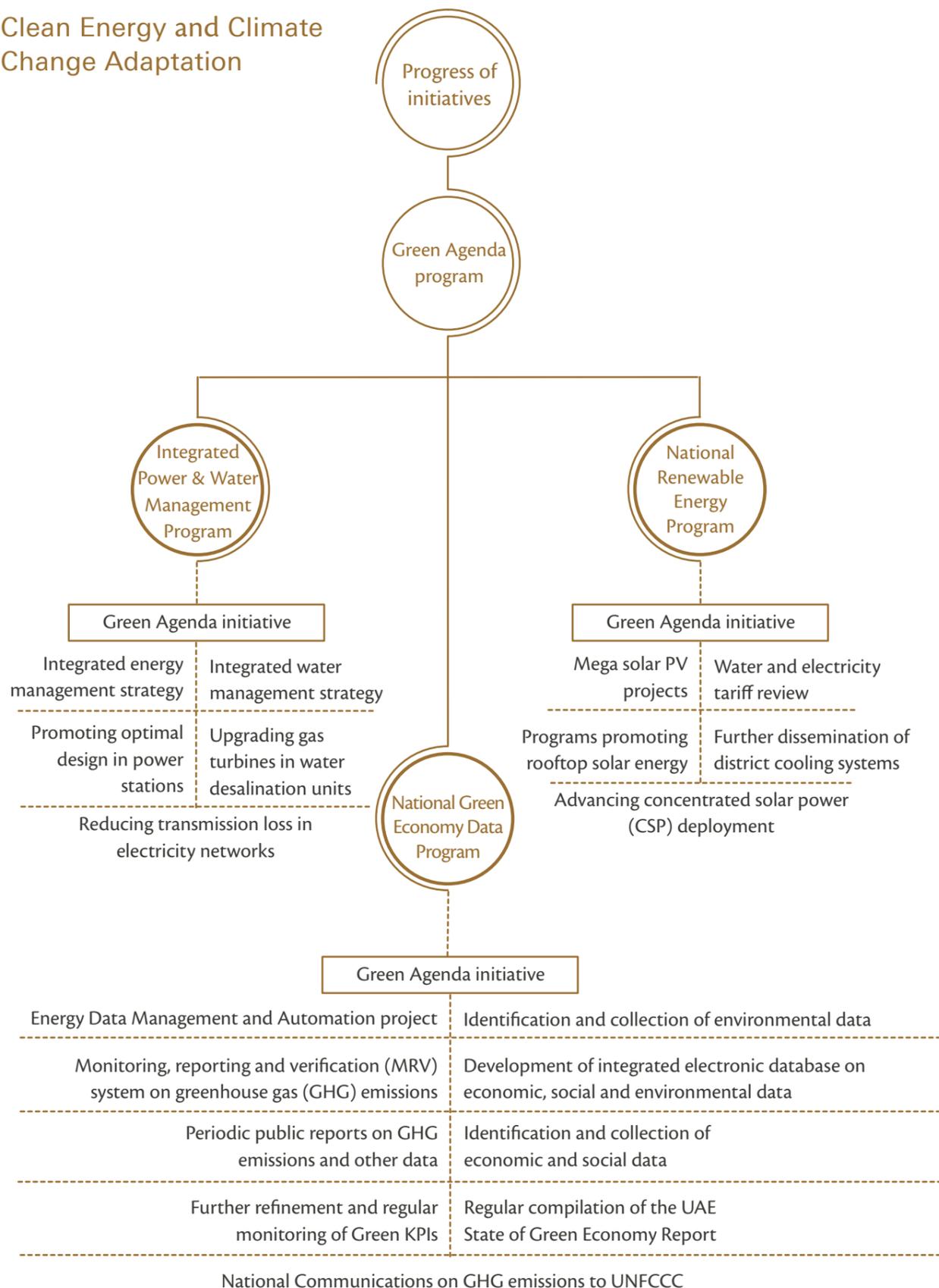
or take eco-friendly electric buggies and birdwatchers can also get a close view of the birds' natural habitat from watch towers built around the reserve. The Centre also provides educational opportunities for visitors, with detailed bird information and activities, while scientific facilities help protect the birds from extinction.

In February 2016, the Wasit Nature Reserve recorded the hatching of two endangered pink-backed pelican chicks for the first time.



Endangered pink-backed pelican chicks hatched at the Wasit Nature Reserve. (February 2016, Sharjah)
Source: UAE Interact

4. Clean Energy and Climate Change Adaptation



National Energy Strategy for 2050 launched

In January 2017, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, unveiled the UAE Energy Plan for 2050. The new energy strategy aims to increase the contribution of clean energy in the total energy mix to 50%, thus saving AED 700 billion (USD 191 billion) by 2050. This is the first unified energy strategy in the country planned based on the balance between supply and demand and the consideration of its international environmental commitments.



Launch of the UAE Energy Strategy for 2050 (10 January 2017, Dubai)
Source: Ministry of Energy

The new strategy takes into consideration an expected annual growth of 6%, and plans to work on increasing the contribution of clean energy in the energy mix while slashing the country's carbon footprint from power generation by 70% over the next three decades. The energy mix targeted for 2050 is: 44% renewable energy, 38% gas, 12% clean coal, and 6% nuclear. The strategy also aims to change the energy consumption culture and reduce residential energy consumption by 40%. The country aims to invest AED 600 billion (USD 163

billion) by 2050 to meet its economic requirements and environmental goals. The new energy strategy will be implemented in three phases. The first phase aims to accelerate efficient consumption of energy as well as diversify and secure it. The second phase will seek new solutions that integrate with energy and transportation solutions. The third phase will focus on research and development in addition to innovation and creativity to supply sustainable energy.

Utilizing carbon from steel plants for enhanced oil recovery

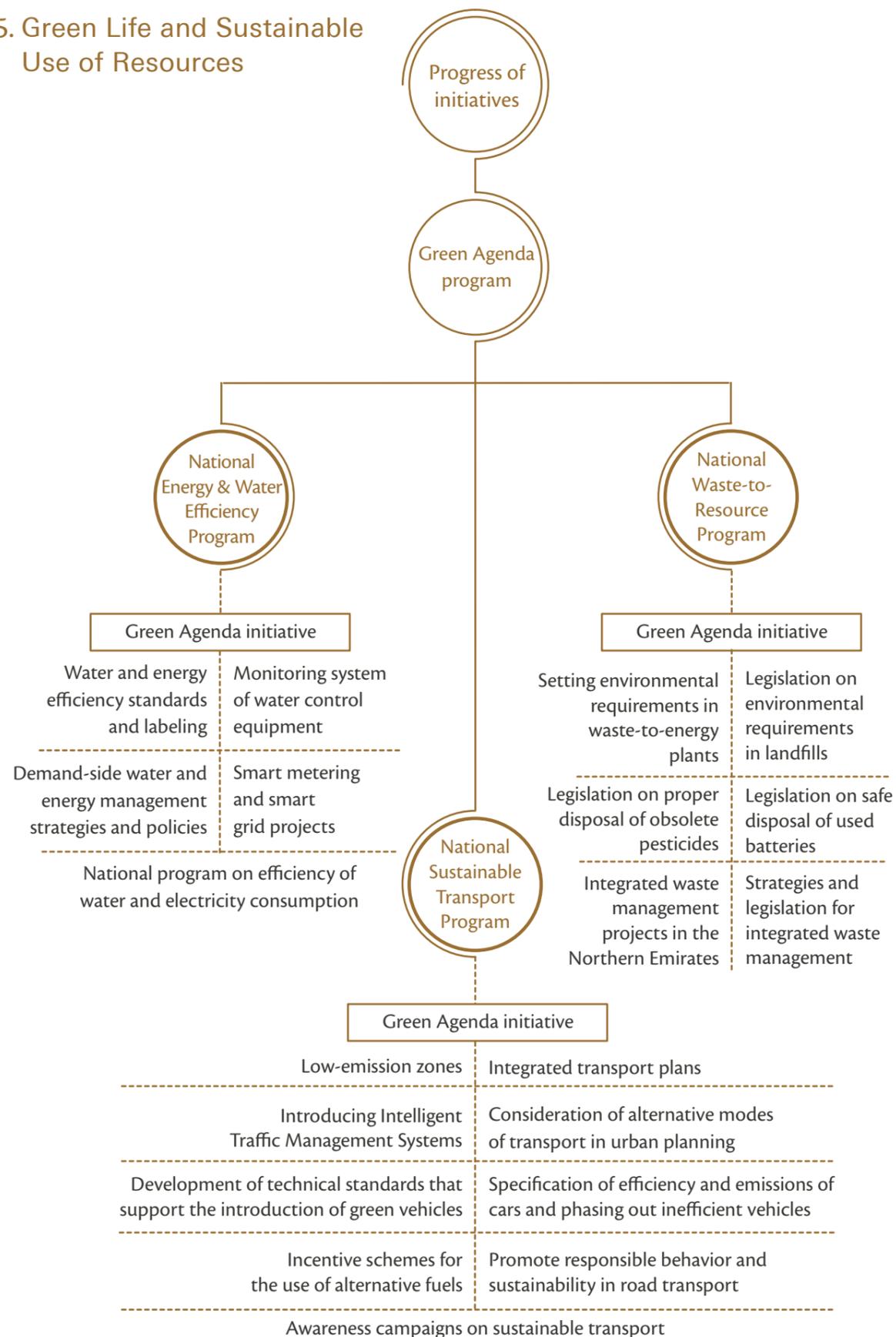
The UAE's first carbon capture, utilization and storage (CCUS) project became operational in November 2016. The project is led by Al Reyadah, which is a joint venture between the Abu Dhabi National Oil Company (ADNOC) and Masdar (Abu Dhabi Future Energy Company) that has become the Middle East's first specialized company focused on commercial-scale



Al Reyadah carbon capture facility in Musaffah, Abu Dhabi
Source: Masdar

CCUS projects. Al Reyadah's facility in Musaffah, Abu Dhabi will capture carbon dioxide (CO₂) emitted from the Emirates Steel factory to transfer it to oilfields for enhanced oil recovery (EOR) operations. The AED 450 million (USD 122 million) project consists of three stages. The first stage is the industrial capture of the gas from Emirates Steel facilities. In the second stage, the captured gas is compressed and dehydrated at the Al Reyadah carbon capture facility. The final stage involves the transportation of the compressed gas via 42 km pipeline for injection into ADNOC onshore oil fields in Rumaitha and Bab for EOR. In this way, the Al Reyadah facility will sequester up to 800,000 tons of CO₂ annually. The project will aid in oil recovery while saving precious natural gas traditionally used to maintain the pressure in oil reservoirs, freeing the natural gas for more traditional power generation and water desalination uses. According to Masdar, the project is one of only 22 large-scale CCUS ventures, either in operation or under construction worldwide, and the first to capture CO₂ from an iron and steel works.

5. Green Life and Sustainable Use of Resources



Public campaigns to reduce food waste

In the area of waste management, food waste is one of the most serious concerns for the UAE, as around a third of food is estimated to end up in landfill, where it will go on to emit methane, which is 25 times more damaging to global climate than CO₂. Therefore, the MOCCA and local authorities recently initiated a number of awareness campaigns to reduce food waste. The MOCCA, together with Blue Planet Green People, launched a national campaign called "I'm Perfect" to reduce food waste by encouraging the public and food businesses to use and buy "imperfect" fruits and vegetables. An estimated 15-20% of produce typically does not fit the aesthetic standards of supermarkets and thus does not leave the farm, even though it is not inferior in quality or nutritional content.



Launch of the "I'm Perfect" campaign, which aimed at reducing food waste (19 October 2015, Dubai)

During Ramadan, the ratio of food waste jumps up radically according to the DCCE. The DCCE conducted a social media campaign and encouraged sharing of tips and stories for reducing the amount of food prepared and wasted.

In the beginning of 2017, which was designated the UAE's "Year of Giving", His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, announced the creation of the UAE Food Bank. The food bank will work with authorities and charities to collect excess food from hotels, supermarkets, restaurants, and farms, and will store and package the food for distribution to those in need. It will be operated by the Mohammed bin Rashid Al Maktoum Global Initiatives, an umbrella organization for humanitarian groups and programs.

Offering a test-bed for next-generation transportation

The Dubai Roads and Transport Authority (RTA) has been providing a global test-bed for various future mobility solutions that are still at the early stage of technology deployment as part of Dubai's attempt to become the smartest city in the world.



An EZ10 driverless vehicle being tested in Downtown Dubai
Source: fām Properties

In partnership with Emaar Properties and the International Association of Public Transport, the RTA started a trial of the EZ10 driverless vehicle along the Mohammad bin Rashid Boulevard and in the Business Bay District at speeds of up to 40 km per hour. EZ10 does not require infrastructure to operate and can cover the last mile where conventional means of transportation are not convenient but distances are often too long to walk. This experiment is the first step toward implementing the *Dubai Autonomous Transportation Strategy*, which aims to switch 25% of total mobility in Dubai to driverless journeys by 2030.



A rendering of the proposed Hyperloop One ultra-high-speed transportation system
Source: Hyperloop One

In November 2016, an agreement between the RTA and Hyperloop One, a Los Angeles-based ultra-high-speed transportation venture, was signed to work through the Dubai Future Accelerators for the development of a self-driving car prototype powered by the Hyperloop technology. The company will also test the feasibility of connecting Dubai with other cities and will determine the economic viability of such connections. The speed of a Hyperloop train can reach 1,200 km per hour, effectively reducing travel time between Dubai and Abu Dhabi to less than 12 minutes compared to the 1.5 hours average by car.

Commenting on the agreement, H.E. Mattar Al Tayer, Director-General and Chairman of the RTA, said: "This is an opportunity to help transform the UAE from a technology consumer to a technology creator, incubating expertise for a new global industry in line with the *UAE Vision 2021*. With Hyperloop One we will create a new means of transportation, keeping our region at the forefront of transportation technology and innovation."

CHAPTER 3: GREEN ECONOMY INITIATIVES IN THE EMIRATES

The UAE is a federation of seven emirates – Abu Dhabi, Dubai, Sharjah, Ajman, Umm Al Quwain, Ras Al Khaimah, and Fujairah. This chapter lists each emirate's main ongoing or planned initiatives to demonstrate

local contributions to the implementation of the Green Agenda, and highlights the most prominent projects conducted mainly during 2016.

Abu Dhabi

Relevant initiatives	
Ongoing initiatives	Planned initiatives
<ul style="list-style-type: none"> • Conserving groundwater and contributing to integrated water management by: <ul style="list-style-type: none"> - Applying sustainable irrigation programs using saline groundwater and treated sewage effluent - Updating groundwater levels and producing salinity maps - Development of groundwater monitoring network • Efforts to protect ambient air quality by: <ul style="list-style-type: none"> - Monitoring of mercury emissions - Building an industrial gas emission inventory - Monitoring the levels of ground ozone • Ensuring proper management of waste disposal • Enhancing the protection of marine water quality by: <ul style="list-style-type: none"> - Keeping track of harmful algal toxins and conducting studies - Monitoring public beaches • Planning and setting regulations for biodiversity by: <ul style="list-style-type: none"> - Providing assessment of the status of breeding birds - Nesting of the critically endangered Hawksbill sea turtles • Integrated approaches to protect and improve land and soil quality 	<ul style="list-style-type: none"> • Protect water resources, ambient air and land by: <ul style="list-style-type: none"> - Conserve groundwater resources - Protect air quality from pollution - Adapt to climate change impacts and improve negative impacts - Proper management of waste - Preserve marine ecosystems • Improve protection of biodiversity by: <ul style="list-style-type: none"> - Ensuring effective laws and regulations - Developing a network of protected areas - Achieving sustainable fisheries and aquaculture • Ensure effective policy-making and further enhance environmental regulations by: <ul style="list-style-type: none"> - Improving environmental policies and planning framework - Better planning for emergencies and effective responses to environmental crises



Hawksbill sea turtles on the Abu Dhabi coast
Source: Visit Abu Dhabi

Protecting breeding fields for endangered sea turtles

Abu Dhabi’s rapid development has driven environmental pressures on the biodiversity of its existing ecosystems. The emirate is in the process of improving and sustaining its rich ecosystems, as several initiatives are being conducted to protect and preserve the precious plant and animal life found in its surroundings. One example is an initiative of the Environment Agency – Abu Dhabi (EAD) to help save endangered Hawksbill sea turtles, by allowing them to nest and breed offshore, while conducting

monitoring programs and surveys annually to keep track of the populations of different marine species and their succession rates. During the nesting season between March and June 2015, a total of 204 Hawksbill nests were recorded from eight offshore islands; the maximum number of nests was recorded from Zirku Island with 75 nests. Due to conservation efforts including the expansion of protected areas, the estimated population of the Hawksbill sea turtle has risen from 5,550 in 2004 to 7,488 in 2015. The EAD will continue this strategy with the aim of removing the species from the endangered list one day.

Dubai

Relevant initiatives	
Ongoing initiatives	Planned initiatives
<ul style="list-style-type: none"> • Development of noise control and management program • Environmental impact assessment and monitoring environmental performances • Development of water treatment plants and continuous improvements • Studies to prepare coastal management guidelines • Dubai Car-Free Day • Improvement of green buildings specifications • Mohammed bin Rashid Solar Park • Shams Dubai initiative for disseminating rooftop solar energy • Al Khazzan solar-powered park • Testing autonomous vehicles • Development of waste management initiatives such as: <ul style="list-style-type: none"> - Smart Sustainability Oasis - Smart gate system to landfill sites (NAFITH) - 100% solar-powered Big Belly waste containers - Vehicle tracking system (RASID) - My City My Environment door-to-door waste collection - Underground waste compactors 	<ul style="list-style-type: none"> • Green energy projects, including: <ul style="list-style-type: none"> - Municipal waste to energy - Landfill gas recovery and power generation - Gas recovery and power generation from sewage treatment plants • Air quality strategies: 90% good air quality target for 2021 • Dubai Blue Carbon project • Implementation of <i>National Environmental Education and Awareness Strategic Plan 2015-2021</i> • Self-flying taxi service • Prototyping Hyperloop high-speed transport technology



Dubai's coastal landscape around the Palm Jumeirah
Source: Timeout Dubai

An integrated approach to sustain coastal zones

As a response to the drastic changes along Dubai's shoreline and the alteration in sedimentation patterns and stability, the Dubai Municipality introduced an Integrated Coastal Zone Management approach to provide the best understanding of prevailing coastal processes and successfully maintain optimum protection of vulnerable areas. Dubai's coastal zone was divided into units to facilitate the monitoring operations (see image below), while the Dubai Coastal Zone Monitoring and Forecast Program was introduced to utilize leading-edge monitoring and modeling technology to assist this management approach.

The municipality also conducted the Coastal Management Guidelines study to address short- and long-term planning objectives, consisting of: 1) assessing the state of the coast; 2) assessing impacts of existing and future developments; 3) risk classifications of erosion, flooding, and beach degradation; 4) identifying mitigation measures in the form of shoreline management schemes; 5) identifying requirements for coastal amenities; and 6) defining setback line. This study is expected to guide the plans to prepare a well-informed coastal climate adaptation strategy. The data and information collected as part of the Coastal Monitoring and Forecasting Program will further support the quantification of coastal vulnerability to climate change and sea-level rise induced impacts, as well as guide the selection of the most appropriate adaptation options.



Monitoring units of Dubai's coastal zones
Source: Dubai Municipality

Sharjah

Relevant initiatives	
Ongoing initiatives	Planned initiatives
<ul style="list-style-type: none"> • Adopting new sustainable building strategies • Setting green standards and specifications for building materials and encouraging green investments • Successfully covered 1,520 ha with plants • Opened 60 parks across Sharjah city • Successfully planted 25,000 palm trees across the emirate • Installed artificial grass in 38 park football fields • Incorporating recycled tire materials in Al Majaz waterfront • Using treated wastewater for irrigation • Engaging with most advanced methods of waste disposal • Establishing an Environmental Protection Department in the municipality with an ISO 17020 certification • Developing static and mobile stations to measure air quality (currently 7 stations) • Collaborating with wildlife organizations to help release sea turtles as part of World Turtle Day • Replacing street light bulbs with LED 	<ul style="list-style-type: none"> • Sharjah Environmental Safety Program raising awareness and spreading international practices • Sharjah Environmental Excellence Program to reward people with outstanding environmental achievements or projects • Cover areas around bridges and roundabouts with grass or other plants • Continue placing artificial grass in park football fields • Expand parks in Al Rahmaniya district • Enhance regulations and audits on buildings to ensure energy efficiency • Restore natural resources and beaches to protect the environment and attract tourists at the same time • Build reservoirs to store treated wastewater for agricultural use • Build waste-to-power plants

LED streetlights save not only energy but accidents

In 2014 the Sharjah Electricity and Water Authority (SEWA) started a project to replace old streetlights with efficient white light-emitting diode (LED) lights to reduce electricity consumption, minimize environmental impacts, and save maintenance costs. This was part of the SEWA's plan to achieve a 30% reduction in power and water consumption over the coming five years.

Step-by-step installments of power-saving lights are taking place throughout the emirate. Diverse areas, including Al Qasimiya University, Water Canal Bridge in Dibba Al Hosn, Al Dhaid, Al Badee, Al Izra, and Al Hamriya, are now all lit by LED streetlights. LED fittings have also been installed in stadiums and buildings in urban areas. Since the project began, more than 1,000 streetlight poles have been retrofitted for LEDs.

The new LED streetlights have also brought additional benefits. According to the reports compiled by project partners, there have been fewer traffic injuries recorded since the campaign launched. The improved lighting is also believed to have contributed to improving the sense of security in the emirate.



A street with both LED and conventional street lighting.
Source: Gulf News

Ras Al Khaimah

Relevant initiatives	
Ongoing initiatives	Planned initiatives
<ul style="list-style-type: none"> • Studies on groundwater quality and consumption rates • Announcement of protected areas and studies on: <ul style="list-style-type: none"> - Heavy metal contamination in estuaries - Coastal areas to have stronger law enforcements • One Million and One Trees initiative • Management of water contamination with studies on heavy metal contamination in fish livers, muscles, and skins • Monitoring water distillation facilities and keeping track of the consumption rate, with studies on heavy metal contamination in drinking water • Conducting studies on soil quality in agricultural lands 	[Not reported]

Managing contamination in natural resources

With its rich natural biodiversity, Ras Al Khaimah is home to many of the UAE's natural attractions. To avoid future environmental disasters and raise awareness, the Ras Al Khaimah Environmental Protection and Development Authority (EPDA) is conducting a number of studies focused on the contamination with heavy metals (Zn, Cu, Pb, Ni, Cr, Mn, Fe, Hg) in several types of fish that play an important role in the surrounding marine ecosystem. The studies include sampling fish livers, muscles and skin to identify if heavy metals are present and to understand where contamination is generated from, with the goal of stopping the pollution at the source.

Meanwhile, the EPDA is also encouraging female staff to join an inspection team to ensure the health and quality of fish sold in the emirate's markets. This initiative also aims to ensure that fish traders and sellers follow the regulations issued by EPDA to protect marine resources.



A local student analyzing a fish sample at the EPDA laboratory
Source: RAK EPDA

Fujairah

Relevant initiatives	
Ongoing initiatives	Planned initiatives
<ul style="list-style-type: none"> • Operation of material recovery facility (MRF) for municipal solid waste in Fujairah Municipality with a capacity of 500 tons per day, and a similar facility for Dibba Municipality • Groundwater permitting system and metering consumption in industrial and commercial sectors • Retrofitting and expansion of the ambient air quality network 	<ul style="list-style-type: none"> • Development of a marine water quality monitoring network • Development of a construction and demolition waste treatment plant • Construction of a sewage treatment plant in Al Taweyeen (remote area) with a capacity of 400 m³ per day • Campaign for light bulb recycling • Operation of a compost factory • Collection of used cooking oil and installation of grease traps in food premises

Advancing material recovery from wastes

The Fujairah Municipality is focused on implementing better, smarter and more developed ways to manage waste as part of its commitment to become a greener emirate. A material recovery facility (MRF) was thus developed to manage municipal and construction solid waste and to eliminate the need for landfills. A composting facility was also built where organic substances are treated as efficiently as possible, to convert them into stable and plant-compatible substances with the lowest possible emission levels.

The waste collected from Fujairah city and its surrounding districts is taken into the MRF. Specialized collection vehicles use the weighbridge to determine the weight of the materials, and the waste is then tipped into the receiving bay and manually segregated to remove bulky materials, which are tossed into a shredder to cut down into smaller bits. Shredded materials travel through the conveyor up to the trommel, which separates the waste into three categories (small, large, and organics). Organic

materials are transported to the compost factory, while other recyclable materials are transported for recycling. The municipality also aims to encourage the segregation of waste at the source, which includes households, hotels, and schools.

The municipality aims to raise the recycling and composting rates of municipal solid waste and considers that the residuals could be a great source for future waste-to-energy projects.



Trommel machinery at the Fujairah MRF, which separates waste into three categories
Source: Fujairah Municipality

CHAPTER 4: INTERNATIONAL COOPERATION FOR GREEN ECONOMY TRANSFORMATION

Beyond working on its national transformation toward a green economy, the UAE also strives to contribute to the global efforts to tackle climate change and achieve the Sustainable Development Goals (SDGs) by 2030. In addition to active participation in international negotiations over many environmental issues, the UAE has also demonstrated its dedication to technology transfer, knowledge sharing and capacity building with other countries. The UAE aims to further catalyze regional and global cooperation toward a

green economy transformation, where economic development is paired with environmental and social objectives.

Over the course of 2016 the UAE government actively hosted or participated in a number of high-level global conferences and arranged capacity building opportunities for other countries in the region to promote the green economy and sustainable development.

Abu Dhabi Global Action Day

As part of the Abu Dhabi Sustainability Week, which features one of the world's largest annual gatherings on sustainable development, the UAE hosted the first Abu Dhabi Global Action Day on 18 January 2016. The day was intended to serve as an international forum to call on public and private sector leaders to drive forward the commercial ventures and technology breakthroughs needed to tackle climate change and deliver on the SDGs.

The event was the first major international forum following the historic adoption of the Paris Climate Agreement in December 2015. As a catalyst for action, the forum convened governments and businesses to accelerate progress ahead of the 22nd Conference of Parties (COP22) to the United Nations Framework Convention on Climate Change (UNFCCC), held in Marrakech, Morocco in November 2016.

In the Conference opening, the then UN Secretary-General Ban Ki-moon said: "I hope the new ideas and initiatives generated here will further expand the scope and effectiveness of climate action." The Global Action Day included a series of panel discussions that focused on immediate actions to support the Paris Agreement, cooperation between governments and the private

United Nations Environment Assembly

The UAE participated with a national delegation led by H.E. Dr. Thani Al Zeyoudi, Minister of Climate Change and Environment, in the second session of the United Nations Environment Assembly (UNEA-2) held in Nairobi, Kenya, in May 2016. As the world's highest-level decision-making body on the environment, with participation of ministers and



Minister Al Zeyoudi representing the UAE at UNEA-2 (27 May 2016, Nairobi)

sector to drive partnership and investments, and the future of global energy. It also included discussions on breakthrough technologies needed to create transformational change, as well as next steps on Mission Innovation, a global initiative to accelerate clean energy innovation of which the UAE is a member.

High-level remarks were also delivered by Muhammadu Buhari, President of Nigeria, Abdelilah Benkirane, Prime Minister of Morocco and COP22 President, Laurent Fabius, then Foreign Minister of France and Christiana Figueres, then Executive Secretary of UNFCCC, and H.E. Dr. Sultan Ahmed Al Jaber, UAE Minister of State and Special Envoy for Climate Change.



The opening of the Abu Dhabi Sustainability Week 2016 (18 January 2016)
Source: ADSW

high-level officials from more than 195 UN member states, the assembly included several ministerial meetings and sessions that discussed national, regional and international environmental challenges. The participants also evaluated governments' abilities to successfully implement the SDGs. Emphasis of the UAE participation was placed on the efforts carried out by the country to protect the environment and support the transformation towards a green economy. The country highlighted the importance of supporting international efforts and carrying out the necessary steps required to achieve the SDGs by 2030, especially those that pertain to environmental sustainability. On the sidelines of the event, Minister Al Zeyoudi and Eric Usher, Head of the United Nations Environment Programme Finance Initiative (UNEP FI), announced that the UAE would host the 14th UNEP FI Global Roundtable in Dubai in October 2016 to support global efforts to secure the financing needed to attain sustainable development, and called for participation from member states (see Chapter 1).

SDGs in Action at the World Government Summit

The "SDGs in Action" event was organized as part of the fourth edition of the World Government Summit, a global networking platform that focuses on the future of governments and the trends shaping the global agenda, which was held in Dubai on 8-10 February 2016. In partnership with the United Nations Department of Economic and Social Affairs (UN DESA), World Bank and the UN Foundation, the three-day Summit examined key enabling factors contributing to the fulfillment of the SDGs at global, regional and national levels.

High-level government officials, local authorities, representatives of the private sector, multilateral and international organizations, donors, academia, civil society organizations and youth exchanged views on their respective roles in SDG implementation, as well as mutual expectations. Two of the most important challenges were highlighted in high-level meetings:

monitoring and reporting on the first day convened by H.E. Abdulla Lootah, Director General of the Federal Competitiveness and Statistics Authority (FCSA); and global financing on the second day convened by H.E. Sheikha Lubna bint Khalid Al Qasimi, then Minister of International Cooperation and Development.

On the last day of the Summit, the Outcome Session was moderated by CNN anchor Richard Quest and attended by over 2,000 delegates. Overall, strong political will and visionary leadership accompanied by clear long-term strategies reflecting local needs and interests were identified as key success factors for SDG implementation. It was stated that the World Government Summit could provide a platform to share knowledge and lessons and monitor progress across countries, thus contributing to the preparations of the UN High-Level Political Forum (HLPF) on Sustainable Development which is mandated to regularly monitor and review progress on the SDGs at the global level.



SDGs in Action Outcome Session at the World Government Summit (10 February 2016, Dubai)
Source: WGS

Global Green Growth Week



Minister Al Zeyoudi representing the UAE at GGGW (8 September 2016, Jeju Island, Republic of Korea)
Source: GGGI

The UAE delegation, headed by Minister Al Zeyoudi, participated in the Global Green Growth Week (GGGW) from 5 to 9 September 2016 in Jeju Island, Republic of Korea. Hosted by the Global Green Growth Institute (GGGI), the GGGW is a global platform for knowledge-exchange on country experiences in green growth planning and implementation. This edition of the event focused on how to reorient growth to be more pro-poor, inclusive, and sustainable, and gathered around 1,200 participants from over 50 countries representing governments, the private sector and civil society.

Announcement of the World Green Economy Organisation (WGEO)

The third edition of the World Green Economy Summit (WGES) was held on 5-6 October 2016, under the patronage of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. The Summit, annually organized by the Dubai Electricity & Water Authority (DEWA) since 2014, gathered more than 80 prominent speakers under the theme of “Driving Global Green Economy”. At the opening of this Summit, the establishment of the World Green Economy Organisation (WGEO) was announced, which will be a new international organization dedicated to promoting green economy around the world. In partnership with and technical support from the United Nations Development Programme (UNDP), WGEO will promote the green economy concept regionally and globally through partnerships and knowledge-transfer opportunities between the public and private sector, UN agencies, financial institutions and civil society. The organization will also serve as a platform for climate

The UAE organized one of the Country Focus Sessions, where the UAE’s experience in institutionalizing green growth from the unique perspective of a hydrocarbon-based economy was presented to other delegates. “The UAE has set itself an ambitious target: to reduce reliance on fossil fuels and transform itself into a knowledge-based, diversified, and innovation-driven economy. Given the solid global momentum on climate action, the timing for decisive action could not be more opportune. The UAE is demonstrating that even traditional hydrocarbon-based economies can lead the transformation,” Dr. Al Zeyoudi told the audience.

The UAE delegation also took part in one of the thematic events focused on financing green energy, which explored ways to unblock the barriers to capital flow for the implementation of clean energy initiatives. The UAE discussed a case study of gradually shifting to low-carbon growth through its flagship projects such as the Mohammed bin Rashid Solar Park, the largest solar power plant in the Middle East. The project’s market-driven mechanism through power purchase agreements drastically improved its competitiveness in deploying solar energy technologies (see Chapter 2). The UAE also participated in several side events, thematic sessions, and bilateral meetings.

change mitigation, sustainable energy, and other water-related and environmental solutions around the world.



At the global launch event, held on the sidelines of COP22, Minister Al Zeyoudi announced that the UAE became WGEO’s first member country. H.E. Saeed Mohammed Al Tayer, Vice Chairman of the Dubai Supreme Council of Energy (DSCE) and Managing Director and CEO of DEWA, who also serves as WGEO’s Chairman of the Board of Directors, said: “WGEO will bridge the gaps between countries in innovation, technology, and finance. It will provide technical assistance to countries who can benefit from Dubai’s green economy model, as well as models from other countries whose economies demand the development of strong, robust and diverse green strategies for the future.” WGEO is planned to formally launch in 2018 as an international organization based in Dubai.



Presentation of the UAE’s national statement at COP22 by Minister Al Zeyoudi (27 November 2016, Marrakech, Morocco)

COP22 in Marrakech

COP22 was held in Marrakech, Morocco on 7-18 November 2016, and was attended by the UAE delegation, led by His Highness Sheikh Mansour bin Zayed Al Nahyan, Deputy Prime Minister and Minister of Presidential Affairs. COP22 followed the Paris Climate Agreement, where 197 Parties agreed in December 2015 to implement measures to ensure the Earth’s temperature would not rise by more than 2°C compared to pre-industrial levels.

The UAE delegation, consisting of more than 100 officials and 30 students, joined representatives from 190 nations at COP22 in the talks to implement the Paris Agreement. Sheikh Mansour stressed the importance of supporting the implementation of the Paris Climate Agreement and translating its outcomes into successful actions that reduce the impact of global warming. According to its Intended Nationally Determined Contribution (INDC) submitted prior to COP21, the UAE aims to obtain 24% (updated to 27% in 2016) of its energy needs from clean sources, such as solar and nuclear power, build energy-efficient infrastructure, and implement strict green building codes. The UAE officially ratified the Paris Agreement in September 2016.

The national statement delivered by Minister Al Zeyoudi on behalf of Sheikh Mansour bin Zayed Al Nahyan noted that the Paris Agreement sends a clear message to the world and governments have the responsibility to involve non-state actors and galvanize the efforts of all stakeholders toward achieving a common agenda. Sheikh Mansour expressed the belief in the significance of public-private partnerships as one of the key drivers of green growth, and invited the delegates to take part in the Abu Dhabi Climate Action Day and the World Government Summit held in January and February 2017 respectively.

Regional policy dialogue on green financing

On 21-22 November 2016, the Ministry of Climate Change and Environment (MOCCA) hosted the Middle East and Africa Green Financing Policy Dialogue in Abu Dhabi, in partnership with the GGGI. Around 60 high-level officials from governments, multilateral development banks, international organizations and the private sector from 11 countries (Saudi Arabia, Kuwait, Bahrain, Oman, Egypt, Jordan, Morocco, Ethiopia, Uganda, Rwanda, and Senegal) gathered to discuss innovative financing solutions that create opportunities for green investment.

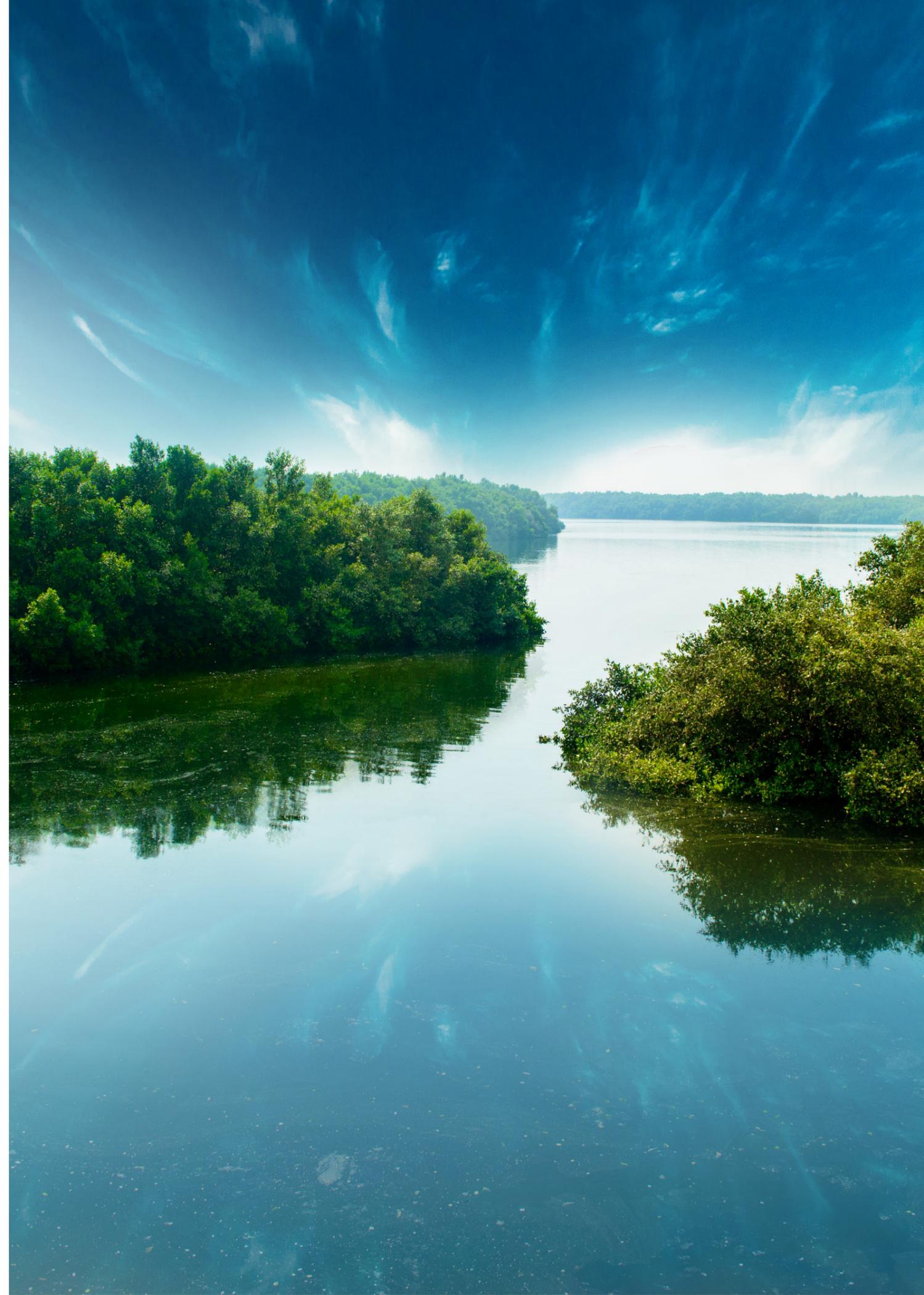
The policy dialogue aimed to share the UAE's strategic direction and experiences in transforming the country toward a green economy and explore collaborative opportunities with other countries in the region.

The event was organized around the following themes: address the challenges of developing bankable projects and mobilizing innovative green finance; explore the opportunities of green investments in the Middle East and Africa region; and examine international financing instruments and national financing vehicles. It involved a series of expert panel discussions, presentations, open forum, and group exercises for sharing country experiences.

On the following two days, the MOCCA held bilateral discussions with the Jordanian delegation headed by Dr. Jihad Alsawair, Director of Green Economy at the Ministry of Environment, to exchange experiences and explore potential areas of collaboration between two countries. The dialogue was also part of GGGI's South-South knowledge sharing program.



Middle East and Africa Green Financing Policy Dialogue (23 November 2016, Abu Dhabi)
Source: GGGI



CHAPTER 5: UAE'S PERFORMANCE TOWARD A GREEN ECONOMY

To guide the formulation of public policy as well as voluntary activities of the private sector and the civil society toward the UAE's Green Economy transformation, it is critical to establish a set of indicators as an effective compass to allow for monitoring and assessment of the underlying developments, progress and potential opportunities and risks. The refined indicators should be able to serve to provide solid evidence, based on which policy-makers can set clear goals, formulate policies, review progress and evaluate impacts.

A total of 41 UAE Green Key Performance Indicators (Green KPIs) were defined in 2015 by the then Emirates Green Development Council as the benchmarks to evaluate the progress of the nation's development toward a green economy as well as the advancement of the UAE Green Agenda. This final chapter compiles the UAE's latest results of the 41 Green KPIs in a comprehensive table, along with the background of the indicators and brief explanations and interpretations of the observed performance trends in the recent few years.

An overview of Green KPIs

The 41 UAE Green KPIs were selected according to the three dimensions (environment, economic and social) of sustainable development. As measuring the complex and multi-dimensional nature of the green economy is a challenging task, this framework was built around the ongoing efforts by international organizations. Several relevant National KPIs defined for the *UAE Vision 2021* were also included to reflect the local context and ensure alignment with the country's overall development strategy. The set of indicators is largely in line with the Sustainable Development Goals (SDGs) agreed as new universal targets for 2030 by 193 countries in September 2015 (see table below). To help monitor and evaluate the outcomes of the

Green KPIs, each indicator was allocated under one of the five strategic objectives of the Green Agenda. Two headline indicators were selected for each strategic objective to facilitate easy understanding of the trends. A total of ten headline indicators make up a "smart dashboard", which highlights the overall achievement of the Green Agenda and the contributions to and consistency with the Vision 2021. It should also be noted that the outcome of each Green KPI is inevitably influenced by the activities of different Green Agenda programs and other factors that may not be controlled by government and national stakeholders, and that the performances cannot be attributed only to a single strategic objective.

List of UAE Green Key Performance Indicators

Environmental	Economic	Social
ENV1: Rate of groundwater abstraction	ECO1: Real GDP growth (per emirate)	SOC1: Labor participation rate
ENV2: Water consumption per capita	ECO2: Share of non-oil GDP	SOC2: Employment rate
ENV3: Waste generation per capita	ECO3: Share of non-oil export	SOC3: <i>Emiratization rate</i>
ENV4: <i>Rate of waste recovery</i>	ECO4: GDP from environmental goods and services	SOC4: Number of green jobs
ENV5: Energy consumption per capita	ECO5: <i>R&D expenditure in GDP</i>	SOC5: Number of UAE patents
ENV6: <i>Rate of non-fossil energy</i>	ECO6: <i>Foreign direct investment net inflows</i>	SOC6: Global Innovation Index
ENV7: Carbon intensity of energy	ECO7: <i>Doing Business Index</i>	SOC7: <i>Global Entrepreneurship Index</i>
ENV8: Total GHG emissions	ECO8: Global Competitiveness Index	SOC8: Environmental awareness rate
ENV9: Ecological Footprint	ECO9: Water consumption per GDP	SOC9: Environmental behavior rate
ENV10: Number of environmental regulations	ECO10: Waste generation per GDP	SOC10: Human Development Index
ENV11: Number of environmental standards	ECO11: Energy consumption per GDP	SOC11: <i>World Happiness Index</i>
ENV12: Ratio of protected areas	ECO12: Material consumption per GDP	
ENV13: Environmental expenditure	ECO13: GHG emissions per GDP	
ENV14: Environmental Performance Index	ECO14: Efficiency of water and electricity production	
ENV15: Ratio of green vehicles	ECO15: Average fuel efficiency of vehicles	

Note:
Indicators in *Italic*: Corresponding to National KPIs

Indicators in **bold**: Headline Indicators for the five strategic objectives

A review of the latest Green KPIs results

The below section provides a brief review of the UAE's latest status of green economy transformation based on the Green KPIs. The review is presented according to the Green Agenda's five strategic objectives. The table in the next section shows the performance data corresponding to each Green KPI and its trend in recent years.

Please note that where quality domestic data is not available a substantial portion of data is taken from

1. Competitive Knowledge Economy

The strategic objective of Competitive Knowledge Economy is considered the most advanced in the progress toward a green economy according to the performance of the Green KPIs. The Green KPIs in this category consist mostly of economic indicators. Both headline indicators – the Global Competitiveness Index (compiled by the World Economic Forum) and the Global Innovation Index (compiled by Cornell University, INSEAD, the World Intellectual Property Organization) – showed a steady improvement, as the former indicator rose from the previous year by one position in the world ranking to 16th, and the latter's ranking recovered by six positions since 2015 to 41st, returning to the top among the member states of the Cooperation Council for the Arab States of the Gulf (GCC).

Despite the stagnant global oil prices witnessed since mid-2014, the UAE's economy has shown resilience and has kept the growth of real GDP at 3.8% in 2015. This may be a sign of the progress in economic diversification, as the ratio of exports from non-hydrocarbon sectors exceeded one-third (36.8%) in 2015 for the first time and foreign direct investment (FDI) net inflows reached nearly 3% of the GDP. Most notably, the UAE's public and private sectors' spending on research and development (R&D), which is one of the measures of innovation, recorded 0.87% of the GDP in 2015, even though it is still far below the average (2.42%, 2014) of the Organisation for Economic Co-operation and Development (OECD) countries. The *UAE Vision 2021* sets a target of raising the country's rate to 1.5% by 2021.

authoritative international sources such as the World Bank's *World Development Indicators*. The figures on the UAE's population and gross domestic product (GDP) are also taken from international sources to allow the UAE's standings to be benchmarked against other countries. The required improvement in collecting domestic socio-economic and environmental data and its consistency with international data sources is to be tackled under the Green Agenda's National Green Economy Data Program (4.3).⁴

2. Social Development & Quality of Life

The Green KPIs measuring the strategic objective of Social Development and Quality of Life consist mostly of social indicators. One of the headline indicators – material consumption per GDP, which measures the economic efficiency in resource use and mitigating its depletion – showed 4% improvement between 2014 and 2015 as far as estimated in steel consumption as a representative of diverse materials. The annual per-capita steel use has been stable at 787 kg in 2015.

The World Happiness Index has been compiled by the Sustainable Development Solutions Network (SDSN) as a global benchmarking measure of happiness, using data from the Gallup World Poll. The UAE's world ranking was 28th in 2016 (based on 2013-15 data).

Updated information in most of the other KPIs in this category were not available at the time of this edition's compilation, and as a result, the overall progress in this strategic objective is hard to judge.

⁴ With regard to the performance data listed in this chapter, where the year the data was sourced is not clear or consistent, the year of publication is adopted. For example, since the World Bank's *Doing Business 2017* was published in October 2016, the data from this publication is indicated as that of 2016.

3. Sustainable Environment & Valued Natural Resources

The majority of Green KPIs measuring the strategic objective of Sustainable Environment and Valued Natural Resources are environmental indicators. One of the headline indicators of this category is the Ecological Footprint compiled by the Global Footprint Network (GFN). The UAE's Ecological Footprint per capita was 7.93 gha in 2016 (estimated from 2012 data).

The other headline indicator is the Environmental Performance Index developed by the Yale Center for Environmental Law and Policy, etc. This is an aggregation of 20 indicators measuring different environmental impacts and policies. The UAE's world ranking dropped radically from 25th in 2014 to 92nd in 2016, and its overall score also fell by 5%. Significant declines were observed in the areas of Agriculture, Health Impact, and Air Quality, while the scores of Water Resources and Fisheries improved. Many other countries advanced in environmental policies such

as Switzerland, Germany, Singapore, and Australia, while all other GCC countries witnessed significantly reduced scores, although to a lesser extent than the UAE. The reasons behind this substantial variation in rankings and scores are unclear and require a close investigation, but it is probable that methodological changes account for this increase.

On the other hand, UAE residents' environmental awareness of key issues such as waste, water, and climate change, as well as their decision-making for environmentally-sound choices, have shown clear improvements across different groups, according to the survey regularly conducted by the MOCCA since 2014. The overall awareness rate moved up to 71% in 2016 from 63% in 2014. The rate of environmental behavior (segregating wastes for recycling, turning off unnecessary lights, using public transport, etc.) among the general public also improved from 55% in 2014 to 64% in 2016. Eight terrestrial protected areas were designated in 2016, and the ratio of protected areas against the total UAE territories reached 14.35%, coming closer to that of the OECD average of 14.85%.

4. Clean Energy & Climate Change Adaptation

With the launch of the *UAE Energy Plan for 2050* in January 2017, with its ambitious objective to increase the contribution of clean energy in the country's total energy mix to 50% by 2050 (see Chapter 2), the UAE has become one of the leading countries advancing deployment of renewable energy technologies, energy efficiency through green buildings, demand-side management, etc. During 2016, nearly 300 Gigawatt-hours (GWh) of electricity was generated from renewable sources, which accounted for 0.36% of the total generated electricity. The UAE's total greenhouse gas (GHG) emissions have also been stable, at around 200 million tons of carbon dioxide equivalent (tCO₂e) for the last three years according to the national GHG inventory annually compiled by the Ministry of Energy.

On the other hand, this effort has not yet been translated into carbon intensity of energy, one of the headline indicators that measures efficiency and decarbonization of energy production and electricity generation. The intensity of electricity generation recorded 643 grams of carbon dioxide per kilowatt-hour (gCO₂/kWh) in 2014, the same level as 2012, according to the International Energy Agency (IEA). The intensity of total primary energy supply (TPES) has also been stable at 56.5 tons of carbon dioxide per terajoule (tCO₂/TJ) in 2014. However, it should be noted that the carbon intensity of electricity generation includes the emissions resulting from both electricity and desalinated water production. Around 30% of the emissions can be attributed to desalination in the UAE.

5. Green Life & Sustainable Use of Resources

The two headline indicators of the strategic objective for Green Life & Sustainable Use of Resources – water and energy consumption per GDP – have been increasing. Energy consumption per GDP rose by 9% between 2013 and 2015, with the largest rise seen in the commercial sector. These trends are similar in per-capita terms. Per-capita municipal water consumption was recorded at 564 liters per day in 2015, which was nearly a 10% increase since 2013. Electricity use per capita also increased, reaching 1,150 kWh per month in 2015, from 971 kWh in 2013.

The generation of waste municipal solid waste (MSW) was 1.82 kilograms per capita per day in 2016. Positive news in this category is that the government policy is gearing toward sustainable use of resources through efforts to reduce, reuse, and recycle. One of the indications of such efforts is the improvement in the waste recovery rate, where 22.6% of MSW was treated in 2016, which was an 8.5 point increase from 2014. The *UAE Vision 2021* has a treatment target of 75% of MSW by 2021.



LATEST RESULTS OF THE UAE GREEN KPIS

Strategic Objective	Designated Green KPIs	Performance	Year	World ranking	GCC ranking	2021 target
1. Competitive Knowledge Economy	ECO8: Global Competitiveness Index [H] [N]	16 th in the world	2016	16 th /138	1 st	Top 10 in the world
	SOC6: Global Innovation Index [H] [N]	41 th in the world	2016	41 th /128	1 st	Top 20 in the world
	ECO1: Real GDP growth	3.8% (Abu Dhabi: 6.3%; Dubai: 4.1%)	2015			
	ECO2: Share of non-oil GDP	68.8%	2015			
	ECO3: Share of non-oil export	36.8% (non-hydrocarbon)	2015			
	ECO5: R&D expenditure in GDP [N]	0.87%	2015	46 th /104 (2014)	1 st (2014)	1.5%
	ECO6: Foreign direct investment net inflows [N]	2.96%	2015	88 th /185	1 st	5%
	ECO7: Ease of Doing Business Index [N]	26 th in the world	2016	26 th /190	1 st	1 st in the world
	SOC5: Number of UAE patents	4,628 (GCC)	2016			
	SOC7: Global Entrepreneurship Index [N]	19 th in the world	2016	19 th /137	1 st	Top 10 in the world
2. Social Development & Quality of Life	ECO12: Material consumption per GDP [H]	474 g/\$ (domestic material consumption)	2010			
		11.25 g/\$ (finished steel products)	2015			
	SOC10: Human Development Index [H] [N]	41 st in the world	2014	41 st /188	3 rd	Top 10 in the world
	SOC1: Labor participation rate	80.8% (Male: 93.3%; Female: 46.7%)	2014	23 rd /187	2 nd	
	SOC2: Employment rate	96.4% (Male: 97.3%; Female: 91.4%)	2014	28 th /173	3 rd	
	SOC3: Emiratization rate	3.93% (total)	2016			8%
		1.14% (private sector)	2016			5%
	SOC4: Number of green jobs	Not available				
SOC11: World Happiness Index [N]	28 th in the world	2016	28 th /157	1 st	Top 5 in the world	

[H]: Headline indicator of Green KPIs
[N]: National KPI defined by the UAE Vision 2021

Strategic Objective	Designated Green KPIs	Performance	Year	World ranking	GCC ranking	2021 target
3. Sustainable Environment & Valued Natural Resources	ENV9: Ecological Footprint [H]	7.93 global ha/capita	2016	180 th /188	4 th	
	ENV14: Environmental Performance Index [H]	92 nd in the world	2016	92 nd /180	3 rd	
	ENV1: Rate of groundwater abstraction	16.5 m ³ /capita (Annual renewable internal freshwater resources)	2014	181 st /183	4 th	
		6.30 (Water Scarcity Index = Percentage of fresh water usage against overall renewable water available)	2016			
	ENV10: Number of environmental regulations	95 (federal)	2016			
	ENV11: Number of environmental standards	29 (federal)	2016			
	ENV12: Ratio of protected areas	14.35% (terrestrial: 16.23%; marine: 12.24%)	2016			
	ENV13: Environmental expenditure	AED 301.4 million (\$ 82 million) (Ministry of Climate Change and Environment budget)	2016			
	ECO4: GDP from environmental goods and services	Not available				
	SOC8: Environmental awareness rate	71% (overall)	2016			
SOC9: Environmental behavior rate	64% (general community)	2016				
4. Clean Energy & Climate Change Adaptation	ENV7: Carbon intensity of energy [H]	643 gCO ₂ /kWh (electricity, including desalination)	2014			
		56.5 tCO ₂ /TJ (total primary energy supply)	2014			
	ECO14: Efficiency of water and electricity production [H]	Not available				
	ENV6: Rate of non-fossil energy [N]	0.36% (electricity)	2016			27% (incl. nuclear)
	ENV8: Total GHG emissions	201.58 million tCO ₂ e	2015			
	ECO13: GHG emissions per GDP	315 gCO ₂ e/\$	2015			

[H]: Headline indicator of Green KPIs
[N]: National KPI defined by the UAE Vision 2021

Strategic Objective	Designated Green KPIs	Performance	Year	World ranking	GCC ranking	2021 target
5. Green Life & Sustainable Use of Resources	ECO9: Water consumption per GDP [H]	2.94 l/\$ (municipal water)	2015			
	ECO11: Energy consumption per GDP [H]	0.114 kgoe/\$	2013	78 th /135	1 st	
		0.198kWh/\$ (electricity)	2015			
	ENV2: Water consumption per capita	564.2 l/day (municipal water)	2015			
	ENV3: Waste generation per capita	1.82 kg/day (municipal solid waste)	2016			
	ENV4: Rate of waste recovery [N]	22.6% (municipal solid waste)	2016			75% (municipal solid waste)
	ENV5: Energy consumption per capita	7,691 kgoe/year	2013	134 th /140	3 rd	
		13,823 kWh/year (electricity)	2015			
	ENV15: Ratio of green vehicles	Not available				
	ECO10: Waste generation per GDP	42.2 g/\$	2015			
ECO15: Average fuel efficiency of vehicles	12.1 km/l (new vehicles, CAFE-based) 10.7 km/l (new vehicles, NECD-based)	2013				

[H]: Headline indicator of Green KPIs
 [N]: National KPI defined by the UAE Vision 2021

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