

## Restructuring the economy through sustainability initiatives in UAE- a case study analysis

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### Key words

Sustainability, Sustainability Measurement, Sustainability Initiatives, UAE Sustainability initiatives

### Abstract

*The concept of sustainable development has become essential to the development of most nations around the world. The UAE Government has taken strategic initiatives to ensure sustainable development while preserving the environment, and to achieve a perfect balance between environment, economic and social development in the country. This paper shows that UAE has set standards and is clearly monitoring its national key performance indicators. Sustainability is also referred as living within the capacity of the nation's environment, without any destruction, damage, harming or depleting such environment for future generations. Key sustainability drivers in the region, for both businesses and individuals, include the sourcing and use of water, the food supply chain and air, ecological factors, water energy efficiency, efficient waste management, compliance with regulatory and corporate social responsibility policies relating to the environment and disposal including recycling, and ground emissions. Some of the national key performance indicators and its current performance results with future expected targets discussed in this paper are Air Quality Index, Percentage of Treated Waste of Total Waste Generated, Share of Clean Energy Contribution, Water Scarcity Index, Networked Readiness Index (Telecommunication & IT sectors), Quality of Air Transport Infrastructure, Quality of Port Infrastructure, Logistics Performance Index, Quality of Overall Infrastructure (such as transportation, electricity and telephone lines), Online Services Index, Time to Obtain a Loan. The paper summarizes the conditions for sustainable development, to solve the environmental problems and the tasks of executive governance in the environmental segment.*

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### Introduction:

The availability of natural resources, unpolluted air, clean water, adequate food and shelter must be balanced between preserving their availability and providing for the growing number of population in a nation. UAE Vision 2021 National Agenda focuses on improving the quality of air, preserving water resources, increasing the contribution of clean energy and implementing green growth plans. The government seeks and implements collaborative and innovative means to meet their immediate basic needs while ensuring that the long-term needs of the country are also met. Also, the National Agenda highlights the importance of infrastructure and aims for the UAE to be among the best in the world in the quality of airports, ports, road infrastructure, and electricity. And leading telecommunications infrastructure will allow the UAE to become a forerunner in the provision of Smart services.

Finally, seeking to further improve the quality of life of its citizens, the Agenda has set a target to provide suitable housing for eligible UAE nationals within a record timeframe.

Sustainability depends upon a consumption of renewable resources that is equal to the nation's ability to replenish those resources. The basic initiatives undertaken in UAE have been to ensure the protection and development of a given human society. According to many researchers, sustainability describes the continuing ability of human beings to meet their present needs without compromising the possibility of existence for future generations. The fundamental idea of sustainable development includes aspects of economics, politics, social development, and environmental concerns.

The management of the nation's strategic initiatives includes generally the concepts of government, control and office hearing of the public affairs. It represents the conscious activity that is directed to the determination and the analysis of the development of environment and the development of political, social and economic situation. The governance is the form of activity of authorities, particularly executive ones that consists in organizing and practical implementation of tasks given by managing teams and organization in harmony with laws and the other legal rules.

As per the study conducted by Miroslav RUSKO, Dana PROCHÁZKOVÁ in their research paper titled "Solution to the problems of the sustainable development management", The basic tools for management

directed to sustainability are: Management (strategic, tactical, operational) based on qualified data, knowledge, professional assessments, qualified decision-making methods, land-use planning, correct sitting, designing, building, operation, maintenance, repair and renovation of buildings, technologies and infrastructures, Citizen's education, schooling and training, , Specific education of technical and management workers, technical, health, ecological, cyber and other standards, norms and rules including the best practice procedures, i.e. tools for control/regulation of processes that may or might lead to disaster occurrence or to the increase of its impact, inspections and audits, executive security forces for qualified response to emergency and critical situations, systems for critical situations defeating, security (land-use and spatial), emergency, continuity, crisis and contingency planning, specific system for defeating the critical situations - safety, emergency, continuity and crisis management.

It is necessary to introduce strategic, system and proactive management based on a realistic, systematic and proactive view of human system and its problems. The research also reveals that the goal of human society management is to ensure the protection of human lives, health and security; property, welfare; environment; infrastructures and technologies, which are basic fundamental needs for human existence, i.e. the mobilization and co-ordination of utilization of national sources (energy, labor force, production capability, food and agriculture, resources, telecommunications etc.), the co-ordination of such activities as they are notification system, rescue system and medical services that reduce impacts of natural or other disasters and ensures the continuity of activity of public administration, the adherence of legislation and also generate the conditions for start of development.

### **Strategic initiatives for sustainability in UAE**

UAE has set standards and is clearly monitoring its national key performance indicators. Some of the sources from which the data and information related to the measurement are taken from Ministry of Climate Change and Environment in coordination with the National Center for Meteorology & Seismology, Ministry of Climate Change and Environment in coordination with the Federal Competitiveness and Statistics Authority, Ministry of Energy, World Economic Forum - Global IT Report, World Economic Forum - Global Competitiveness Report, World Bank, United Nations E-Government Survey, Sheikh Zayed Housing Program. The Government of the UAE, both at a federal and Emirate level, is the key driver of sustainability in the UAE. The UAE is intending to become "sustainable" from a social, environmental and economic perspective and these perspectives all overlap and impact the other. It is key for the UAE to ensure the sustainable use of its resources (such as water and agricultural land), to diversify its economy (such as moving away from reliance on oil) and protect the quality of life of its inhabitants. This has included making sustainable development one of the key goals of UAE Vision 2021, the introduction of new green building legislation and new sustainable policies. Going forward, it is expected that concepts of sustainability will be an important part of the Government's strategies and its interactions with the private sector.

Some of the national key performance indicators discussed in this paper are:

1. Air Quality Index
2. Percentage of Treated Waste of Total Waste Generated
3. Share of Clean Energy Contribution
4. Water Scarcity Index
5. Networked Readiness Index (Telecommunication & IT sectors)
6. Quality of Air Transport Infrastructure
7. Quality of Port Infrastructure
8. Logistics Performance Index
9. Quality of Overall Infrastructure  
(Such as transportation, electricity and telephone lines)
10. Online Services Index
11. Time to Obtain a Loan/ House from the Government for UAE Citizens

**1. Air Quality Index** is an indicator that measures the quality of air in terms of supplying daily information on pollution and the negative effects it may have on human health. The indicator measures the (4) main air pollutants: nitrogen dioxide, carbon monoxide, sulphur dioxide, ozone.

Result: The actual performance measurement in 2015 is 65.30%

Target for 2021: 90%

Key Sponsor responsible: Ministry of Climate Change and Environment

Each hour, an air quality index is calculated on the basis of the following five pollutants: ozone, fine particulate matter, sulfur dioxide, nitrogen dioxide and carbon monoxide. Maximum 4 minutes average concentration over a given hour. As the AQI increases, the people are likely to experience increasingly severe adverse health effects. Different countries have their own air quality indices, corresponding to different national air quality standards.

**2. Percentage of Treated Waste** of Total Waste Generated is an indicator that measures the percentage of treated waste out of the total generated waste (solid municipal waste) using various treatment methods (recycling, incineration, waste-to-energy, chemical treatment, exporting for external treatment, except for the landfill), in line with the methodology used by the OECD.

Result: The actual performance measurement in 2015 is 21.55%

Target for 2021: 75%

Key Sponsor responsible: Ministry of Climate Change and Environment

Rapid economic expansion consequently results in more housing, more industry and more construction. It also may lead to a lot of waste generation.

In the rapidly developing economy like UAE, waste management has become an integral industry, the roots of which can be traced to the pioneering ideas of Sheikh Zayed, the founding President, on sustainability. However, this requires the support and cooperation of organizations and residents to work collaboratively to ensure success.

Working out how much waste we generate is another matter as the data can be confusing. The most recent government statistics revealed that 26 million tonnes of waste were collected across the country in 2012.

At Eco-Waste, an annual conference hosted by Masdar, the Abu Dhabi sustainable energy company reported that the waste generated by the UAE will increase from 6.6 million tonnes in 2010 to 8.4 million tonnes by 2017. For the whole Arabian Gulf, almost 29 million tonnes of rubbish will be generated, creating a waste management industry that potentially could be worth Dh6.2 billion.

**3. Share of Clean Energy Contribution** is an indicator that measures the contribution of clean energy sources (renewable, nuclear) to the total energy mix.

Result: The actual performance measurement in 2015 is 0.23%

Target for 2021: 27%

Key Sponsor responsible: Ministry of Energy

UAE, under the leadership of President His Highness Sheikh Khalifa bin Zayed Al Nahyan and Vice President and Prime Minister and Ruler of Dubai His Highness Sheikh Mohammed bin Rashid Al Maktoum, attaches great importance to the diversification of the energy mix in the UAE, and increasing the share of renewable and clean energy.

According to the statement released by Saeed Mohammed Al Tayer, MD & CEO of Dubai Electricity and Water Authority (DEWA), UAE's wise leadership is pursuing the transformation towards clean and renewable energy to achieve a vision that recognizes their significance in achieving a balance between development and sustainability. This will help protect the rights of future generations to live in a clean, healthy, and safe environment. Led by initiatives such as Masdar City in Abu Dhabi, and the Mohammed bin Rashid Al Maktoum Solar Park in Dubai, the UAE continues to build large renewable-energy projects. These will contribute to the long-term protection of the environment and the country's natural resources. Future generations will benefit from these positive steps as we benefit from those of our predecessors who cared for the environment and its protection and development, according to Al Tayer in a press conference and as mentioned in WAM, on 26<sup>th</sup> April 2016

**4. Water Scarcity Index** is an indicator that measures water overuse by monitoring fresh water usage (including surface water, renewable water and fossil water) as a percentage of overall renewable water in the UAE. The result is weighted to take into account desalination and waste water treatment.

**Result:** The actual performance measurement ratio in 2015 is of 6.95

Target for 2021: Ratio of 4.0

Key Sponsor responsible: Ministry of Energy

The term "water crisis" has been used widely in academia and by international organizations. Jain and Singh argue that the term water crisis "denotes an overall scarcity of usable water of good quality as compared with the demand of the society to meet its domestic needs, to grow crops, to run industries, to generate energy, to maintain environment and ecology, for recreation and so on" (Jain and Singh 2010, 216). Decision makers at

all levels need to be involved in water management strategy. Water resources should be evaluated and monitored, and both trans-regional and transnational cooperation should be made a priority

**5. Networked Readiness Index (Telecommunication & IT sectors)** is an A composite indicator that measures the readiness of a country to capture opportunities provided by information and communication technology to increase competitiveness based on (4) perspectives: Environment (the regulatory environment for information and communication technology and the environment for business and innovation), Readiness (Infrastructure for information and communication technology and availability of expertise / skills), Usage (use of ICT by individuals, businesses, and government), Impact (the economic and social impact of information and communication technology).

Result: The actual performance measurement in 2015 is that it was Ranked 23 according to the 2014 Result- published in the 2015 Report

Target for 2021: To be among top 10 countries.

Key Sponsor responsible: Telecommunications Regulatory Authority

**6. Quality of Air Transport Infrastructure:** This is an indicator that measures the overall level of infrastructure at airports in the country and its adherence to international standards

Result: The actual performance measurement in 2015 is that it was Ranked Rank 2 (2015 - 2016 Report)

Target for 2021: To be ranked 1.

Key Sponsor responsible: General Civil Aviation Authority

**7. Quality of Port Infrastructure:** An indicator that measures the overall level of infrastructure of ports in the country and its adherence to international standards

Result: The actual performance measurement in 2015 is that it was Ranked Rank 3 (2015 - 2016 Report)

Target for 2021: To be ranked 1.

Key Sponsor responsible: Federal Transport Authority- Land & Maritime

**8. Logistics Performance Index:** A composite indicator that measures the quality of infrastructure support for logistics activities based on a global survey on the performance of logistics in six perspectives: the effectiveness of border and customs management in terms of simplicity and speed, the quality of trade and transport infrastructure, the ease of shipping at competitive prices, the efficiency and quality of logistics services, the ability to track and trace cargo, and arrival of cargo to destinations on time.

Result: The actual performance measurement in 2015 is that it was Ranked 27 (2014 Report)

Target for 2021: Among the top 10 countries

Key Sponsor responsible: Federal Transport Authority- Land & Maritime

**9. Quality of Overall Infrastructure** (such as transportation, electricity and telephone lines: A composite indicator that measures the overall level of infrastructure based on two perspectives: the infrastructure for transport and the infrastructure for electricity and telecommunication. The first perspective assesses the overall level and quality of road networks, air transport infrastructure and port infrastructure, while the second perspective assesses the quality of electricity supply and telecommunication infrastructure.

Result: The actual performance measurement in 2015 is that it was Ranked 4 (2015-2016 Report)

Target for 2021: Ranked 1

Key Sponsor responsible: Ministry of Infrastructure Development

**10. Online Services Index:** An indicator that measures the evolution of e-government services (i.e., smart services) in terms of availability, quality, connectivity and diversity of channels and the use by the public of these services.

Result: The actual performance measurement in 2015 is that it was Ranked 12 (2014 Report)

Target for 2021: Ranked 1

Key Sponsor responsible: Telecommunications Regulatory Authority

**11. Time to Obtain a Loan/ House from the Government for UAE Citizens:** An indicator that measures the extent to which the country meets the housing needs of UAE citizens by measuring the waiting time between the date of application and the date of obtaining the loan/house (NKPI specific to UAE)

Result: Results waited. Work in process stage

Target for 2021: 2 years from application date

Key Sponsor responsible: Sheikh Zayed Housing Program

As per the new report released by Dubai Carbon Centre of Excellence at the World Government Summit, the government of UAE strives to meet 17 Sustainable Development Goals (SDGs) ranging from eradicating poverty and improving education to providing clean water for all. An 80-page document filled with a wide range of expert views and opinions on best paths to reaching maximum sustainability, the report was issued at the close of the three-day summit attended by 3,000 delegates from 125 countries.

The UAE economy continues to see balanced growth, enhancing competitiveness and overcoming obstacles such as the drop in oil prices. The economy is presently driven by its own factors, while its productivity foundation is stronger, resilient and diversified. This comes as a result of the country's diversification policy, which has been firmly implemented in line with the guidance of the President, His Highness Sheikh Khalifa bin Zayed Al Nahyan, and His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, and under the supervision of His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, and Their Highnesses the Rulers and Members of the Federal Supreme Council.

Today, oil represents 30 per cent of GDP, leaving room to more contribution from other sectors, led by the promising industrial sector which will remain a leading sector in the next transition to an economy based knowledge, innovation and creativity. Indicators issued by the UAE Ministry of Economy, as well as reports from the Federal Competitiveness and Statistics Authority, show that non-oil sectors today contribute to more than two-thirds to the UAE's GDP. Sheikh Mohammed bin Rashid's message stated that these sectors have become the main stimulator of the overall economic growth. Growth of the overall economy is at 4.6 per cent, while growth in these non-oil sectors has registered a high 8.1 per cent in 2014. GDP in 2014 reached Dh1, 466.9 billion at current prices, while GDP at constant prices reached Dh1, 154.8 billion in 2014. Real GDP growth reached 4.6 per cent in 2014 and is expected to growth in 2015 by three to 3.5 per cent.

Non-oil sectors recorded strong growth in GDP at current prices, reaching 8.1 per cent in 2014, and the contribution of non-oil sectors to the national economy reached 68.6 per cent of GDP at constant prices in 2014. This contribution is expected to reach 80 per cent in 2021 through intensive investment in the industrial and tourism sectors, air and maritime transportation, import and re-exports as well as through supporting activities based on knowledge economy. The industrial sector maintains a high contribution rate to GDP at a share close to 15 per cent, which is expected to increase in the coming years. The investment in the industrial sector is expected to double in the next five years.

Local and international reports agree that the UAE has become a key player in international trade. Upward indicators of foreign trade reflect the trade openness policy pursued by the UAE to diversify the economy.

The ministry and parties involved in the Federal Government are committed to the development of the economic regulatory environment in line with the vision of the UAE's leadership. The aim is to raise the level of competitiveness and achieve one of the main objectives on the National Agenda: to reach 10th place on the global competitiveness index.

The Ministry of Economy also continued to play a vital role in strengthening economic relations with the Gulf, Arab and international partners so as to enhance the country's position on the regional and international economy roadmap.

The Ministry of Economy succeeded in record time in turning its main services to fully-smart services in an aim to make services provided by the government easier, faster and simpler for users. The report issued by the Telecommunications Regulatory Authority showed that the Ministry of Economy has reached a 100 per cent ration in turning its main services into smart services for to better serve individuals, business owners and companies.

It is already possible to see the effects of sustainability policies in practice in the UAE. A good sustainable city is one where people want to live, work and visit. MASDAR city in Abu-Dhabi will have all of these qualities once it is eventually complete. Another example is [Dubai Sustainable City](#), which is planned at a more sustainable scale and will complete by the end of 2016.

Dubai, also recently announced plans for additional sustainable projects such as the Desert Rose, a 14,000-hectare smart city expected to accommodate 20,000 plots for Emiratis and will cost 20 billion AED to build. There is a pattern emerging from these developments – the United Arab Emirates is already emerging as a global leader in sustainability. This pattern became increasingly apparent, after Dubai recently set targets for itself to become one of the most sustainable cities by 2020.

From the beginning of each it is essential to develop a series of sustainable initiatives and targets. These targets will help guide the design in the pursuit of the sustainability goals. They can be divided into categories such as: Water, Health & Well-being, Energy, Materials, Pollution, Ecology, and Waste.

After extensive reading and references, a preliminary first draft of sustainability indicators have been clustered under three categories namely Planet, People and Process. The specific sub categories under each of the three indicators have been listed in this research work which widely covers the areas of Environment, Social and Economic factors that contribute to sustainability.

Figure1.

A Conceptual framework of three “P”s as sustainability indicators

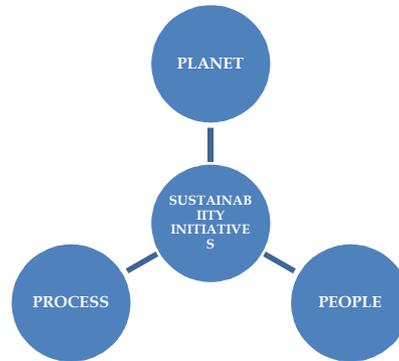


Table1  
Planet

Sn.	Sub-Categories of Indicators	Current Status	Future Status	Initiatives & Accountability
1	Land & Ecosystems			
2	Water (Ground water, Surface water, Soil water, Lake, Rivers)			
3	Air Quality			
4	Energy Resources			
5	Non-Energy Resources			
6	Climate Change			
7	Mineral resources			
8	Oil Resources			
9	Natural Gas resources			
0	Coal			
1	Non-metallic mineral resources			
2	Metallic mineral resources			
3	Soil resources			
4	Forest			
5	Desserts			
6	Bio-Diversity (Marine, Coral Reefs, Coastal systems, Mangroves)			
7	Natural landscape, Mountains, Hills, Valleys, flowers, Fauna, Trees, Plantations, Birds, Wild life, Livestock			

Table2  
Process

Sn.	Sub-Categories of Indicators	Current Status	Future Status	Initiatives & Accountability
1	R& D Initiatives			
2	Physical Safety			
3	Emissions (CO2 and other gases)			
4	Infrastructure Development			
5	Government Debt			
6	Government & Industrial Policies & Procedures			
7	Imports from Developing countries and their sustainability initiatives			

8	Innovations, Patents			
9	Wealth maximization efforts, Net assets and liabilities, FDI'S			

**Table3**  
**People**

Sn.	Sub-Categories of Indicators	Current Status	Future Status	Initiatives & Accountability
1	Happiness index			
2	Education			
3	Labour			
4	Knowledge & skills			
5	Health (Nutrition, health care services, Life expectancy, health expenditure)			
6	Income			
7	Housing (Stock, Density, investments, number of citizens without houses)			
8	Work-Life Balance			
9	Recreation			
0	Integrity, Values, Ethics, Anti-corruption			
1	Population size			
2	Urbanization			
3	Domestic Energy consumption			
4	Waste creation			
5	Care for Birds, Pets and Livestock			
6	Income, Savings, GDP, Productivity			
7	Competitiveness			
8	Relativity between Income and other factors like Age, Labor status, gender, Ethnicity, Education, Region			
9	Sanitation, Drinking water, Life style,			
0	Brain drain			

### Conclusion

Population growth in the United Arab Emirates is among the highest in the world, mostly due to immigration. Therefore for the UAE, the need to start developing more sustainable cities at various scales is no longer a choice if they are going to provide a future with a higher quality of life for their citizens and to protect their environment.

Estidama ("sustainability" in Arabic) is one of the first sustainability frameworks in the Middle East. Introduced by Abu Dhabi in 2009, it seeks to make sure that all new development in Abu Dhabi is undertaken appropriately in a sustainable manner. The complex problems of the human/nature relation are based on certain philosophical foundations. The ecological behavior should not be reduced to the riotous discussions on industrial complexes. We must plan, create innovate use technology and build big structures. At the same time, we must consider the impacts of these innovations and technology on the environment and human health.

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