



Articulating national pathways for food systems transformation in support of the 2030 Agenda

UAE National Pathway for Food Systems Transformation

Introduction

The UN Food Systems Summit serves as a historic opportunity to empower all people to leverage the power of food systems to drive our recovery from the COVID-19 pandemic and get us back on track to achieve the Sustainable Development Goals (SDGs) by 2030. Across the globe, food systems are failing to deliver the promises to achieve the SDGs, particularly SDG 2, i.e. end hunger, achieve food security, and improve nutrition and sustainable agriculture by 2030. The UAE has always been committed, and now is more than ever devoted to achieve outstanding progress towards the realization of the SDGs. Cognizant of the importance of food security as a cross-sectoral issue, and the need to act with urgency, the UAE is the first country in the world that have appointed a Minister of State for Food and Water Security, with the overall responsibility to unify, consolidate and streamline all efforts towards the goal of ensuring adequate, affordable, safe and nutritious food for all. The UAE developed a whole of nation food security strategy with a vision by 2051, of becoming a world-leading hub in innovation-driven food security, and aiming to be the first on the global food security index by 2051. By launching the strategy, the UAE aims to achieve zero hunger by ensuring access to safe, nutritious and sufficient food all year round throughout the world. The UAE cabinet also established the Emirates Food Security Council to coordinate and lead the implementation of the strategy in conjunction with federal and local entities. A combination of holistic and systemic approaches, and inclusiveness, leaving no one behind will be adopted throughout the roll out of the strategy. The UAE is playing a key role, and leading by example at regional and global level in driving the much-needed transformation towards the SDGs. Today, the UAE rank 71 out of 165 countries for SDG index, with a SDG index score of 70.2 out of 100, and a spillover score of 38.8 out of 100. The UAE ranked 34 out of 131 economies on the global innovation index, and 31st in UNDP's Human Development Index for 2020. Guided by the Vision of the national food security strategy and its five strategic directions, and the principles of the UN Food Systems National Dialogue, the UAE organized a national dialogue on July 8, 2021. The event brought together stakeholders across all sectors, and discussed holistically the special food production zones innovation (known as "The FoodTech Valley"). The event provided a platform for inclusive dialogues and enabled the participants to contribute to the design, and advised key success factors for the FoodTech Valley, including strengthening partnerships with the private sector to enable a transition towards sustainable and resilient food systems. The Vision for the national food security strategy and outcomes of the dialogue and follow-up consultations provided valuable insights that help in framing the UAE national pathway for food systems transformation.



UAE food systems: status and challenges

The UAE food systems serve the purpose of ensuring that UAE population (approx. 9.8 millions) have access to sufficient, safe and nutritious food for an active and healthy life at affordable prices at all times. The UAE face daunting challenges of producing food domestically and competitively, and imports more than 90% of its food to meet the current and future food needs of a growing and urbanized population. Sustainable food production has been a major focus over recent years as the country seeks to reduce its reliance on fragile food sources.

UAE food systems are dynamic and complex, involving a wide and diverse range and interconnected network of stakeholders at both federal and emirate levels working along the value chain, from farm to fork. UAE food systems face pressures and constraints that impede its capacity to realize the promises of providing safe, accessible, affordable, quality, healthy and nutritious food to all in the UAE. These pressures include environmental and socioeconomic conditions. On socioeconomic factors, the growing and urbanized population with sustained per-capita consumption patterns, changing diets, expansion of the tourism sector put pressures on agri-food systems, particularly internationally connected food supply value chains as well as local production capacities. These pressures are also magnified by price fluctuations on the international market. On the environment front, it is worth noting that only 0.5% of the land mass in the UAE is arable. Low inherent infertile soil combined with land degradation extreme arid conditions, water scarcity, high salinity in existing groundwater, and climate change are major impediments to local food production. The arid environment, with an average of 100 mm precipitation value, in the UAE as well as the fast depletion of the ground water has put additional pressure on the UAE food systems.

National pathway for food systems transformation

Our vision and pathway for food systems transformation are informed and derived from the Vision 2021, the UAE Centennial plan 2071 and national food security strategy 2051, and its 5 strategic directions and enablers, and national dialogue consultations. The five strategic directions, expected outcomes, key performance indicators and initiatives and activities are outlined below.

Strategic direction I: Facilitate global agri-business trade and diversify international food sources.

Expected outcome: by 2051, the UAE will have a global network of partners and investments that enable the safe, reliable and cost-effective supply of food and agriculture products necessary to complement domestic production.

Strategic key performance indicator:

- % Contribution of strategic investments from overall imports
- % Secured target alternative international sources

To achieve this outcome, the following initiatives/changes will be implemented:

- Create a diversified and competitive infrastructure and logistics landscape for food related trade;



- Establish FoodTech Valley for strategic innovation partners, with a focus on technology; adaptation, and amplifying domestic food production, processing, and distribution
- Ensure price stability and reasonability of food items across all emirates.

Strategic direction II: Enhance sustainable technology-enabled domestic food supply across the value chain

Expected outcome: by 2051, the UAE will have become a world leader in sustainable, technology-driven food production enabled by the development of a world-leading innovation cluster for the advancement of food and agriculture technology that attracts top talent from around the world to work at the frontier of agricultural productivity in climatically challenging environments.

Strategic key performance indicators:

- % yield improvement from new technology enabled production
- % increase in production of select strategic food items

To achieve this outcome, the following initiatives/changes will be implemented:

- Launch a National Aquaculture roadmap;
- Develop a digital one-stop-shop for food and agri-business owners to facilitate business setup;
- Launch “Agriculture 4.0 Initiative” to re-habilitate and upgrade traditionally operated farms through technology-enabled operating models;
- Support market access and productivity improvements for small hold farmers using contract farming and Farming as a Service (FaaS) solutions;
- Establish the UAE as a Closed Environment Agriculture (CEA) hub;
- Establish an Ag Fund or other smart financing mechanism to provide financing to all food and agribusinesses, with focus on startups and SME segments, and technology adoption;
- Assess viability of rolling out an Affordable Credit Initiative for food and agribusinesses through the commercial banking sector.

Strategic direction III: Reduce food loss and waste

Expected outcome: by 2051, the UAE will have eliminated food loss in the supply chain and domestic food waste through targeted reduction initiatives and innovative recycling programs.

Strategic key performance indicator:

- % reduction in food loss and waste

To achieve this outcome, the following initiatives/changes will be implemented:

- Introduce food loss-and waste- related regulation, including waste segregation and mandatory reporting by organizations on food loss and waste;
- Set up food loss and waste recycling and processing hubs for food and Agribusinesses
- Establish food banks to cover all emirates.



Strategic direction IV: Sustain food safety and improve nutritional intake

Expected outcome: by 2051, the UAE will have become a leader in both food safety and nutrition globally through deployment of the latest technologies and a transition in dietary behavior.

Strategic key performance indicators:

- % reduction in food safety incidences
- % reduction in consumption of unhealthy food elements

To achieve this outcome, the following initiatives/changes will be implemented:

- Evaluate a national food safety standards framework or other federal mechanism to enhance food safety performance of domestically produced and imported food items;
- Launch national food safety campaigns targeted towards domestic workers and labor camp food workers to promote food safety;
- Introduce nutrition and labeling guidelines and regulations, publicized through targeted awareness campaigns and a national platform for reliable nutritional information.

Strategic direction V: Enhance capacity to respond to food security risks and crises

Expected outcome: by 2051, the UAE will have established world leading crisis management systems capable of monitoring, anticipating, identifying, mitigating and as required, responding to a range of potential crisis situations.

Strategic key performance indicators:

- % achievement of reserve targets for strategic priority food items
- % successful completion of emergency drills

To achieve this outcome, the following initiatives/changes will be implemented:

- Monitor and manage national strategic reserves in select main food items, fodder, and water;
- Develop and implement requisite whole-of-nation preparedness protocols e.g. location tracking, whole-of-nation communication, food distribution and water storage and distribution (for agricultural and food processing use);
- Plan and activate technologically-enabled operational control centers by region with first responder units;
- Qualify national candidates to operate critical food supply facilities / premises in the case of emergencies as a component of the National Service alternative service initiative.

Five enablers have been identified for the strategy, as follows:

Enabler A: Build an effective food security governance model

- Establish a National Food Security Council and supporting sub-committees
- Establish a Food Security Advisory Committee



Enabler B: Establish and implement a national R&D Food Security agenda

- Establish a Food Valley to deliver UAE's national food security R&D agenda including an AGccelerator;
- Program to enhance innovation in the agribusiness sector;
- Develop advanced scientific food security systems.

Enabler C: Ensure quality data and information availability

- Introduce national guidelines for food security data capture and monitoring, in line with international standards;
- Institutionalize data collection, key performance indicator monitoring, periodic reporting and key performance indicator progress updates to strengthen the foundations of all food security related functions;
- Conduct biennial national food demand survey to understand consumption patterns, dietary intake, awareness patterns on nutrition, and effectiveness of food security related policies and regulations introduced;
- Create Ag-Central digital platform for food and agri-business owners providing an Ag-Cloud data resource, market access and networking opportunities.

Enabler D: Enhance availability of quality human capital for food security functions

- Develop the UAE's future agri-technologists through university degrees and vocational trainings in local educational institutions (including effective technology integration, food safety and food loss reduction);
- Foster international academic and research collaboration with leading global institutions, including a study-abroad scholarship and exchange program.

Enabler E: Engage the community to shift food security notions and Behaviors

- Introduce a food waste and loss reduction movement that primarily targets schools and universities, and major supply chain players (producers, wholesalers, hotel/restaurant, retailers)
- Launch a nation-wide eat fresh, buy local movement;
- Establish "BZAR – The Food Movement" to engage the citizens, especially children and youth, and cultivate their knowledge and interest in agri-tech, food, nutrition, and food safety topics.

The UAE is adopting holistic and systemic approaches for food systems transformation, by harnessing research, technology and innovation as an integral aspect of its National Food Security Strategy. The UAE Government launched a mega program "Government Accelerators" to boost the achievement of the national agenda to achieve Vision 2021, by introducing a unique model built on accelerated results, increased collaboration and innovation. The aim was to promote the adoption of technology by promoting the business ecosystem of the newly formed ag-tech sector, through 10 initiatives, i.e. 1)



AgriTech building codes, 2) two financing mechanisms including supply chain and loans, 3) national sustainable agriculture label, 4) unified licensing and introduction of 14 new agricultural activities, 5) national aquaculture atlas, 6) best aquaculture practices standards, 7) Emirates sustainable agriculture label, 8) food security data framework, 9) food security data platform, and 10) fish feed facility.

In addition to the above fast tracked 10 interventions, the UAE has developed a robust plan with 10 areas of high impact government intervention, with 6 priority interventions to implement a robust plan to establish modern and advance farming industry in the UAE including alternative protein and cellular agriculture, aquaculture and alga-culture industry, robotic and automated harvesting technology for the poultry and layers sector, enhanced breeding program for livestock and the use of internet of things in the ag-sector. As a result, a plan consisting of 26 actions points covering financing, land allocation, government services, policies, establishment of local agricultural input facilities, provision of insurance services, enhancing food regulatory landscape, among others is being implemented.

The UAE Government at all levels has adopted an inclusive approach of forging strategic partnerships, working closely with all stakeholders (federal government entities, local authorities, the private sector, agri tech companies, food and nutrition experts, international organizations, academia, farmers, youth, NGOs, etc.) throughout the food value chain for meeting the SDGs. The UAE is pioneering innovative public-private partnerships models to support the country in curbing the importations rate and increasing local food production. For example, the UAE organized the FoodTech Challenge in 2020, attracting more than 400 agri-business start-ups and student-led groups across the globe, with the aim to catalyze and help achieving the targets of the national food security strategy. In 2021, the UAE pioneered the FoodTech Valley, which seeks to provide a nurturing business eco-system for advanced modern farming to cope with our arid environment. It is an integrated city that will act as a hub for future clean tech- based food and agricultural products, as well as an incubator for researchers, entrepreneurs, start-ups and industry experts who can access the facilities and amenities they need to develop solutions that revolutionize the food industry. The FoodTech Valley will bridge the global and local knowledge in the field, while establishing a collaborative network to lead regional transformation and export knowledge toward sustainable food system. In addition, the UAE is partnering with the United States of America and a coalition of countries, with endorsement from the United Kingdom's COP 26 Presidency, to launch the Agriculture Innovation Mission for Climate (AIM for Climate). The goal of AIM for Climate, which will be advanced at the UN Food Systems Summit in September 2021 and launched at COP26 in November 2021, is to increase and accelerate global innovation research and development on agriculture and food systems in support of climate action.

The national food systems transformation pathway is also informed by and connected with many existing national strategies and policies, just to cite a few:

- UAE Centennial Strategy 2071
- Emirates Blockchain Strategy



- National Advanced Sciences Agenda 2031
- National Innovation Strategy
- National nutrition strategy 2017-2021
- National Strategy for Advanced Innovation
- Strategy for the Future
- The Science, Technology, and Innovation Policy 2015-2021
- The UAE Strategy for the Fourth Industrial Revolution
- UAE Advanced Skills Strategy / Programme
- UAE Industrial Strategy "Operation 300bn"
- UAE Policy for Advanced Industries
- UAE Strategy for Artificial Intelligence
- UAE Water security strategy 2036.