Case Study: The United Arab Emirates

How can we advance sustainable food systems[1] in the United Arab Emirates?

Opportunities to scale current impact in the United Arab Emirates

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Foreword

Largely due to its hot and arid climate, the United Arab Emirates (UAE) faces challenges with food import dependency and significant food waste and loss.[2,3] However, led by the Minister of Climate Change and Environment Mariam Almheiri, the UAE is currently transitioning its food systems to become more sustainable by focusing on local production, new partnerships, and innovative technologies.[4] Innovative food sources and technologies to reduce food loss and waste throughout the food value chain represent important steps towards a more sustainable food system.

At Tetra Pak we aim to ensure that our packaging and processing solutions, as well as our capabilities and global reach, are utilised to support more sustainable food systems. As solutions for innovative food sources and food loss and waste reduction are central to our offering, we aim to further increase our contribution to the United Arab Emirates food system. At Tetra Pak, our goal is to contribute to the transition through our food processing and packaging solutions, driven by our four pathways:

1) Enabling transition towards more sustainable dairy[5]
2) Innovating for new food sources
3) Reducing food loss and waste
4) Scaling access to safe nutrition via sustainable food packaging[6]

This case study aims to answer key questions linked to (A) the current baseline of the UAE within the four pathways today, (B) how we contribute within these pathways, (C) improved understanding of the key challenges to scale this contribution and (D) how regulators and potential counterparts can participate in accelerating the transition.

Tetra Pak's four pathways

1.

Enabling transition towards more sustainable dairy[5]

Recognising the important role of dairy production and consumption in food systems, we focus on enabling the transition towards more sustainable dairy practices, by addressing the environmental impact of dairy processing, while also supporting smallholder farmers' productivity, profitability, and livelihoods.

2.

Innovating for new food sources

Working in collaboration our aim is to advance innovation in and development of alternative protein sources that require less resource-intensive supply chains than conventional proteins and to enable the scaling up of new food technologies for producing these new food sources at scale.

3.

Reducing food loss and waste

Our contribution to reducing food loss and waste is two-fold - developing food processing technologies that help reduce food loss during production, including new solutions to turn side-streams into value-added products. Our aseptic packaging solutions also help reduce food waste by keeping perishable products safe for longer.

4.

Scaling access to safe nutrition via sustainable food packaging[6]

Food packaging plays an essential role in ensuring food safety and accessibility. We are committed to scaling access to safe nutrition globally by developing and promoting sustainable food packaging solutions, that minimise environmental impact, preserve food quality, and enhance the circulatory of resources.

Current state in the United Arab Emirates

The United Arab Emirates context

Over the past two decades, the UAE has experienced rapid population growth of 4.9% per year, mainly driven by immigrants seeking job opportunities between 2005 and 2009. Since then, the population growth has slowed, with an expected 0.7% annual growth over the next 10 years.[7]

The country's economy has fluctuated due to its heavy dependence on the real estate and oil industries, with oil contributing to ca. 30% of the GDP.[8] To reduce this reliance, the government has focused on diversifying its sources of income by promoting tourism, foreign investments, and trade. This shift is expected to lead to a 2.2% annual growth in GDP per capita for the next decade.[9]

To enable the transition towards more sustainable food systems, the UAE Green Agenda 2030 launched in 2015 has set ambitious targets within Tetra Pak's four pathways for change, including:[10]

Waste management

Initiating waste management strategies and legislations, such as the Ne'ma programme, which aligns with the UN's SDG to reduce food loss and waste by 50% by 2030[11]

Food self-sufficiency

Actively implementing strategies to reduce its dependence on food imports and increase self-sufficiency, given that it currently imports 90% of the food consumed in the nation[12]

Circularity

Developing and implementing legislations and standards for food packaging such as reducing plastic use, increasing recyclability, and promoting biodegradable materials

The UAE's current baseline within the 4 pathways

Pathway	Current baseline
Transition to more sustainable dairy[5]	In the domain of the transition to more sustainable dairy, the UAE faces significant challenges with water inefficiencies and high GHG emissions, mainly driven by emissions from camel milk production.[13] Opportunities to address these issues lie in introducing innovative technologies to scale water and energy efficiency
Innovate for new food sources	Alternative food sources have gained popularity in the UAE, attracting foreign companies to establish themselves in the ecosystem.[14] The government is also actively supporting the transition to alternative food sources to boost local production as the country currently imports 90% of its food supply[2]
Reduce food loss and waste	The UAE achieved a food loss score of 74.5/100 in the Global Food Security Index 2022, below the global average, indicating room for improvement in food production efficiency.[15] Moreover, the country lacks an established infrastructure for food circularity to transform side-streams into valuable resources
Scale safe nutrition via sust. food packaging[6]	Household food waste in the UAE is 28% higher than the global average.[3] Also, the country exhibits a low recycling rate compared to the rest of the world[16], indicating a shortage in recycling infrastructure and legislation. Innovative packaging solutions designed to enable long food shelf life may help address these issues

In this case study, our main focus is on **how Tetra Pak can scale contribution within innovating for new food sources** and **scale access to safe nutrition via sustainable food packaging**[6]

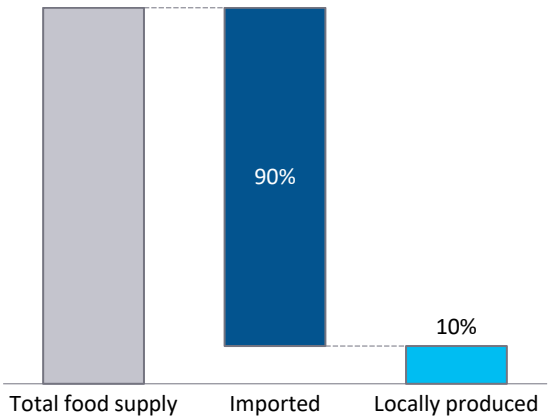
Innovate for new food sources: Background and Tetra Pak contribution

Current state of Innovation for new food sources in the UAE

The United Arab Emirates is currently experiencing a shift in its approach to food sources, driven by several factors[14]. With as much as 90% of their food being imported,[12] the government has increased its focus on self-sufficiency, recognising the need to boost local food production.[17] This strategic move aligns with the UAE's overall focus on embracing new trends and technologies.

Moreover, the growing demand for plant-based and other alternative food sources has gained momentum, primarily driven by the influence of the country's Gen Z generation and its multicultural landscape. With an increasing exposure to diverse cultures like Europe and Asia, which have seen a growing demand in plant-based options in recent years, the UAE explores innovative and sustainable ways to meet the evolving dietary preferences of its population while reducing its reliance on food imports.

Food sourcing in UAE (2023)[12]



Source: UAE MCCE

Tetra Pak's contribution to Innovation for new food sources in the UAE

Tetra Pak has made contributions to fostering innovation in new food sources in the UAE through a **collaboration with Nuitree Food**, a company part of the Sheikh Mohammed Bin Adbulla AlQasimi Group of Companies. Together, we have established the region's very first specialised plant-based manufacturing facility, dedicated to providing end-to-end processing and packaging solutions for a variety of plant-based products. This project marks a milestone in the UAE's journey toward food self-sufficiency. Additionally, the venture incudes the establishment of the region's first technology and training centre, designed to facilitate research and development while promoting creativity in product offerings.[18]

1. **Enhances the UAE's food self-sufficiency by offering new food sources**
2. **Promotes creativity and innovation in product offerings**
3. **Enhances sustainable food production with efficient processing and packaging**

> With the **global food and beverage trends moving towards healthy and sustainable Plant-Based Alternatives**, we are proud to be **leading this shift** in the dairy and beverage industry in the UAE and the region. Our **partnership with Tetra Pak with its vast experience** in such projects reflects our commitment to producing high quality Plant-Based Dairy alternatives products that transcend global competition"
>
> Omro Kakah, Managing Partner of Nuitree Foods[18]

> We are proud to be collaborating with a forward-thinking company like Nuitree Food, to advance the plant-based industry in the UAE and the region to **meet expanding demands**"
>
> Niels Hougaard, Managing Director at Tetra Pak[18]

Innovate for new food sources: Opportunities and potential collaborations

Key challenges and opportunities for Tetra Pak to scale new food sources

In the context of innovating for new food sources, various opportunities and challenges arise:

	Innovate for new food sources
+ Opportunities	Opportunity to further boost the market share for healthier and more sustainable food options, in line with the **government's active promotion and support of** sustainable food security The UAE's diverse population offers an opportunity to **cater to a wide range of dietary preferences and cultural backgrounds**
— Challenges	Most of the typical **plant-based alternatives like oat, almond, and coconut are not locally produced in the UAE**, but imported from Europe and the US limiting food security Maintaining **sustainable practices in a resource-scarce environment can be demanding**, including water and energy efficiency and waste reduction

Seizing the opportunities while addressing the challenges in new alternative food sources is essential for growth and sustainability in the UAE's food systems going forward.

Key policy recommendations

To boost UAE's food self-sufficiency and public health, key recommendations have been identified for policy makers:

1. **Consumer awareness:** Inclusion of new food sources in the national dietary guidelines, and launch consumer education campaigns together with other stakeholders in the value chain
2. **Support local production:** Support initiatives to produce local plant-based alternatives and ingredients, to reduce import dependency and thus improve self sufficiency
3. **Collaboration**: Collaborate with key stakeholders in the value chain in order to jointly solve key challenges such as consumer adoption and local production

Potential collaborations for Tetra Pak

To promote the adoption of innovative food sources in the UAE, Tetra Pak could collaborate with:

Tetra Pak can further collaborate with **local food producers**, such as Hayatna and Nuitree Food, to broaden the offering and meet the growing demand for plant-based options in the country

By collaborating with government bodies like the **Ministry of Climate Change and Environment**, Tetra Pak can contribute with processing and packaging expertise, to support the local value chain

Collaborate with the **UAE Ministry of Education** to enhance consumer awareness and education about healthier, alternative food options, boosting demand

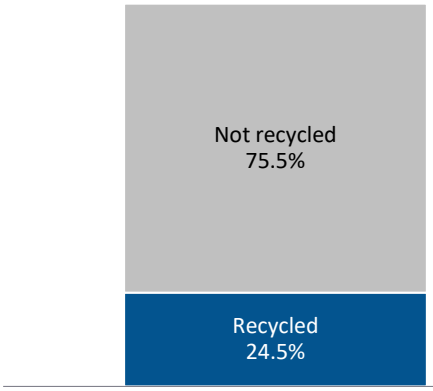
Scaling access to safe nutrition via sustainable food packaging: Background and Tetra Pak contribution

Current state of safe nutrition in the United Arab Emirates

The current state of safe nutrition in the UAE presents a significant challenge in food spoilage. According to the United Nations Environment Programme (UNEP), household food waste per capita reached an estimated 95 kg in '21, 28% higher than the global average.[3] This issue arises from consumers discarding excess edible food partly due to the habit of hosting large social gatherings.[19]

Regarding circularity, despite new government-approved policies and initiatives aimed at boosting recycling in the country, the UAE ranked 48th in the 2022 Environmental Performance Index with a recycling rate of only 24.5%.[16] Furthermore, the country faces a shortage of adequate infrastructure to promote circularity and recycling within the packaging industry.

Recycling rate in the UAE (2022)[16]



Source: 2022 Environmental Perf. Index

Tetra Pak's contribution to safe nutrition via sustainable packaging in UAE

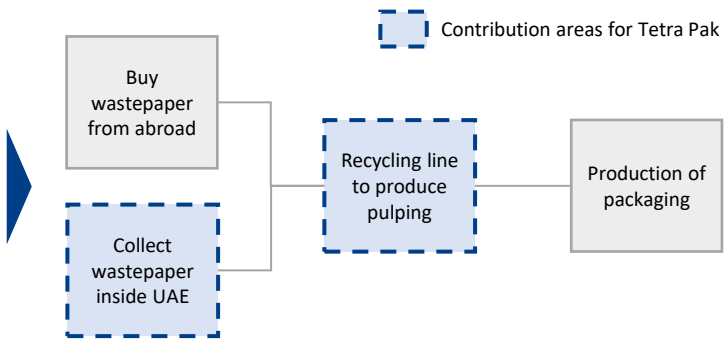
By providing aseptic food packaging in various sizes and investing in recycling facilities, Tetra Pak can contribute to reducing consumer-generated food waste and increasing the recycling rate:

1. **Aseptic packaging** preserves perishable foods for over six months,[20] reducing waste due to longer shelf life, in addition to being recyclable and lighter to transport
2. Offering **various packaging sizes** allows consumers to choose the size that best matches their needs, reducing wasteful consumption patterns and minimising spoilage
3. **Investments in local recycling** infrastructure, e.g. through a signed MoU with recycling company UPM, supporting the UAE's sustainability goals

Tetra Pak contributes to boost the UAE's recycling rate through establishing collection and recycling operations together with local stakeholders:

Tetra Pak's impact on circularity in the UAE

United Paper Mills (UPM) previously imported bulk wastepaper due to a lack of local supply in the UAE, despite ample waste available. Tetra Pak will now **connect waste management companies with UPM and provide technical expertise** within recycling, to boost circularity in the country.[21]



Scaling access to safe nutrition via sustainable food packaging: Opportunities and potential collaborations

Key challenges and opportunities for Tetra Pak

Within safe nutrition, there exist significant opportunities and challenges that require attention:

	Safe nutrition through sustainable food packaging
+ Opportunities	With the government aiming to reduce food waste by half by 2030, innovative packaging solutions that enable long shelf life of food will be important contributors going forward. This leads to an opportunity to further **reduce food loss and waste through further increasing adoption of aseptic packaging** across the UAE
— Challenges	The limited **awareness** of recycling benefits among UAE consumers and business pose challenges to adoption There are also challenges related to a **lack a common set of rules** regarding recycling in the country, and an overall underdeveloped recycling infrastructure in UAE

Addressing the identified opportunities and challenges is essential for reducing consumer-generated food waste and increasing recycling levels in the UAE

Key policy recommendations

Policy and government action are key enablers to support the scaling of safe nutrition through sustainable food packaging:

1. Scale the **development of an effective infrastructure for the collection** of recyclable items across the UAE
2. **Recognise the benefits of aseptic technologies,** or other technologies that preserve perishable foods and enable long shelf life
3. **Increase consumer awareness** about the benefits of recycling by collaborating with stakeholders in the ecosystem to conduct campaigns, etc.

Potential collaborations for Tetra Pak

To scale access to safe nutrition via sustainable food packaging in the UAE, Tetra Pak could:

- **Collaborate with local supermarket chains** to scale recycling, such as LuLu Hypermarkets who recently introduced reverse vending machines for recycling in stores across the UAE[22]
- **Collaborate with the educational sector** (e.g. the Ministry of Education) to impact consumer behaviour at an early stage on the benefits of recycling
- **Collaborate with government led initiatives** such as Ne'ma and the UAE Food Bank to promote waste reduction initiatives and raise awareness across the population
- **Increase collaboration with large scale food producers**, such as Hayatna, to further develop solutions for sustainable packaging through technology and design

5. Appendix: Endnotes

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5) Definition: Sustainable dairy is defined as a dairy industry that emits less greenhouse emissions by introducing technologies, equipment and best practices in production and processing to safeguard nutrition security and sustain a billion livelihoods for tomorrow, while helping secure a future for us all. Tetra Pak. Retrieved October 2023 from https://www.tetrapak.com/sustainability/acting-for-sustainability/moving-food-forward

6) Definition: Sustainable packaging is defined as a packaging that achieves its functional requirements with minimal environmental impact, that is made from responsibly sourced renewable or recycled materials, is recyclable, and has low carbon footprint in regards to manufacturing, production, shipping, and recycling. Tetra Pak. Retrieved October 2023 from https://www.tetrapak.com/sustainability/acting-for-sustainability/moving-food-forward

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