AgroSpectrum ASIA
Envisaging Future | Updating Present

Saudi Arabiaâ??s NEOM megaproject carves strategic next-gen food security objectives

26 September 2023 | News

Focus on five strategic areas: Climate-proof agriculture, regenerative aquaculture, novel foods, personalized nutrition and sustainable food supply" explains Juan Carlos Motamayor Executive Director of NEOM's Food sector and CEO of NEOMâ??s Food Company

Focus on five strategic areas: Climate-proof agriculture, regenerative aquaculture, novel foods, personalized nutrition and sustainable food supply" explains Juan Carlos MotamayorÂ Executive Director of NEOM's Food sector and CEO of NEOMâ??s Food Company

An ecosystem for igniting, socializing, integrating, and testing innovation at various levels of technology maturity is being created by the NEOM Food Innovation Ecosystem in Saudi Arabia. NEOM pioneers more efficient solutions to food production in water-scarce environments by using the desert as a testbed as climate change accelerates and arable land retreats. NEOM believes a flourishing food sector is dependent on high-quality infrastructure, service facilities, and a sustainable workforce,

and is bringing together international experts and leaders to provide the support necessary to turn ground-breaking ideas into reality by establishing Water and Food Innovation Hubs, Aquaculture Innovation Centers, Agriculture and Aquaculture Consortia, and Food Accelerator Programs.Â

As climate change accelerates globally, NEOM innovation-led model aims to transform Saudi and global food ecosystems by developing, demonstrating, and implementing new sustainable food technologies and services. Global NEOM explorations are now continuing into Asia, and the 'Discover NEOM' tour arrivedÂ in Singapore on 18 September 2023. As NEOM builds synergies with entrepreneurs, industry pioneers, and business partners in Singapore, it focuses on its core principles such as "Climate-Proof Agriculture", "Regenerative Aquaculture", "Novel Foods", "Personalized Nutrition" and "Sustainable Food Supply & ESG" to promote resilience in a world where innovation and progress are of utmost importance. **Juan Carlos Motamayor Executive Director of NEOMâ??s Food sector and CEO of NEOMâ??s Food Company** discussed further insights on NEOMâ??s thriving potential and prospects with ***Agrospectrum Asia*** in Singapore.

- **What are Saudi Arabiaâ??s strategic objectives to establish a NEOM megaproject? What are the infrastructural marvels and entrepreneurial opportunities the project will entail in the sustainable agriculture sphere?**

At NEOM we are working to create The Land of the Futureâ??and food rests at the heart of this. Civilization has historically been dependent first and foremost on Food Security. We need to ensure that we can provide food innovatively and efficiently to match sustainable food delivery with demand. This is why we have five focus areas in our strategy: climate-proof agriculture, regenerative aquaculture, novel foods, personalized nutrition and sustainable food supply. These are essential to address the demands not only of today, but of tomorrow as well. Our food production infrastructure focuses on innovation and sustainability, which includes building multiple pilots to validate the cost efficiency of the latest technologies of things including green houses, vertical farms, bioreactors and irrigation, among others. As an example, weâ??ve recently partnered with Van Der Hoeven to build greenhouses, and this will serve as a commercial scale pilot to optimize technological configurations.

- **How will NEOM revolutionize agriculture and food security by using deserts as test beds?**

Radical innovation is at the cornerstone of our approach, and weâ??re committed to nurturing the worldâ??s most exciting ideas and turning them into reality. We help companies and organizations worldwide to capture the many opportunities available in food and agriculture at NEOM, supported by business-friendly regulations, a talented team, health and environmentally conscious consumers and a thriving ecosystem built to support innovation at every level.

- **What are the scalable models NEOM is developing to pioneer efficient solutions to encourage agriculture in water-scarce environments ?**

Weâ??re applying different approaches to water, namely, employing water-efficient irrigation techniques, such as subsurface drip systems. Besides that, there's a push towards aquaponics and hydroponics systems. We're also focusing on soil amendments innovation to increase soil water retention and utilizing treated graywater for crop irrigation, a strategy that can dramatically reduce freshwater demand. Another critical aspect of water is related to seawater and our aquacultural strategy. However, thereâ??s a perception that aquaculture, which is the most efficient strategy for producing animal protein in terms of the ratio of kilos of protein to liters of water used, negatively impacts on the environment. Weâ??re working on multiple aquacultural approaches that aim to minimize any nutrient discharge into the sea.

- **How is NEOM reconciling sustainability and innovation to establish-climate proof agriculture?**

New technologies are urgently needed to feed humanity today â?? and in the decades to come. We are developing and testing technology that can improve food quantity and quality, while reducing the impact of food production on the environment. One example of this is controlled-environment production systems, which can significantly reduce the water required to grow crops. Growing a kilo of tomatoes in an open field requires 60 liters of water, compared to 15 liters required if grown in a hydroponic greenhouse. In a truly controlled-environment production system like the ones we're designing at NEOM, only four liters are needed. Weâ??re also beginning to use state-of-art biotechnology to promote responsible and sustainable aquafarming and, through gene editing, developing varieties adapted to drought.

- **Could you please share your thoughts on climate-resilient breadbaskets?**

Most grain consumed in the world is produced by few countries such as the USA, Russia, India and Ukraine. However, the world's breadbaskets are failing, and arable land is shrinking worldwide, just as the population that depends on that land continues to soar. Therefore, we must rely on something other than those breadbaskets and traditional supply chains. They are being disrupted by pandemics and global conflicts. And, more importantly, by natural disasters caused by climate change. To hedge against the negative impact of multiple failing breadbaskets, we need to create more in other regions and

decentralize food production in a way thatâ??s less prone to extreme weather, while reducing carbon emissions. It is critical that we use less land and water, particularly in the Middle East. Despite the many challenges, we're optimistic about developing game-changing solutions to improve the quantity and quality of food, while protecting the planet. Thereby ensuring safe, nutritious and sustainable food for all via a climate-resilient food industry that could address the world's present and future resource deficits.

- **What are the other sustainable food sources NEOM is exploring to stabilize the food value chain? What measure does NEOM focus on to monitor ESG in the supply chain?**

A core objective of NEOM Food is reimagining food supply chains to meet the standards of tomorrow through a number of sustainable solutions that will secure their food supply for generations to come â?? providing food with year-round availability affordable and both safe and healthy. We are looking to commercialize food grown locally, re-export premium goods, and source food products from qualified sustainable suppliers. However, we know that we cannot produce all the food we need, so we are focused on reducing food miles by importing the food we canâ??t produce locally from neighboring countries.

Moreover, NEOM has no legacy infrastructure, which is a key advantage. In other words, NEOM is a greenfield opportunity to develop the technological backbone to fully digitize all operations and supply chains, enabling novel ways to conduct ESG reporting, performance, and risk management. Further, built around the core principles of responsibility and transparency, NEOMâ??s sustainability-and-assurance system will champion ESG criteria across all operations and the entire supply chain, assuring the highest quality standards and advancing progress towards the UN SDGs.

- **How have been the investor relationships and collaborative endeavors so far?**

We have found the government-linked partners such as Enterprise Singapore and Temasek highly facilitative, given the complete alignment of our strategic interests. NEOM Food has also had very promising discussions with various organizations throughout our Discover NEOM engagement and will now look to potentially create partnerships to deploy technologies such as proven soil-amendment solutions in NEOM and also offer scale-up support in both Singapore and KSA. Â

- **How does NEOM perceive regenerative aquaculture producing high-value seafood while protecting the marine environment?**

Considering the growing demand for seafood while acknowledging the detrimental effects traditional aquacultural practices pose to the natural environment, NEOMâ??s trail-blazing philosophy is paving the way for a new paradigm in regenerative aquaculture to produce the highest quality and freshest seafood in the Kingdom. NEOM will be home to a high-tech aquaculture park, including a state-of-the-art hatchery & breeding center; land-based and sea-based production systems using the best technologies of today and tomorrow; novel and more sustainable feed-production infrastructure; and advanced seafood-processing facilities.

This project will relieve pressure on our local marine native species environment and support regenerative food security for both NEOM and Saudi Arabia. It will combine marine preservation with a net-positive impact on the Red Sea ecosystem by focusing on native and economically viable local species, ensuring zero-liquid discharge, and increasing biomass and marine biodiversity.

- **Could you share more about the NEOMâ??s recent collaboration with global agro-food giants in expanding Saudi Arabiaâ??s aquaculture capacity?**

Collaboration with global partners is critical to resolving global challenges. Accordingly, we recently signed an agreement withThe Arabian Agricultural Services Company (ARASCO), the largest manufacturer of animal feed in the Middle East with three business segments that address food security. We are also partnering with Cargill, one of the worldâ??s leading agribusiness companies, to explore how we can work together to support the sustainable expansion of the Saudi aquacultural sector and its aspiration to achieve self-sufficiency in aquaculture protein demand by 2030 in an environmentally friendly manner.Weâ??ve also signed an MoU with Tabuk Fish Company aimed at expanding local aquaculture production and applying the new generation of aquaculture technologies in the NEOM region.

- **How does NEOM Food approach Food differently from other regions when they look at Food as a sector?**

We approached the development of food production very pragmatically â?? and we are currently building modular commercial pilots for Agriculture, Aquaculture and Novel Foods so that the best-in-class technologies and solutions can be tested at scale, to find the best cost-efficiencies and quality. Then scale up the optimal ones within and outside the NEOM region to achieve our food security and export ambitions. Unlike most incubation efforts where tests are only done at lab level or at large commercial scale, we are ideally positioned to fill the gap in between. We are currently working with world-class organizations

such as Van Der Hoven and Cargill to develop these assets and are actively identifying world-leading solution providers that can offer the right innovations that can be scaled. In this vein, we are actively looking for technology and solutions that are ready to be commercially tested at a scale that can help us achieve integration together to bring the best results. We have built NEOM Food via an ecosystem approach. We are actively connected to the key organizations in KSA such as other Public Investment Fund-related entities in the supply chain to benefit from the investment synergies; the key ministries and regulators to also co-develop national alignment and are also plugged into the research and innovation pipeline of KSA through many of the Kingdomâ??s established and prominent research organizations such as KAUST and Estidamah. In short, NEOM Food is intentionally designed to be a gateway into KSA for modern and sustainable food production.