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Logistics of the neoliberal food regime: circulation, corporate food security and the United Arab Emirates

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ABSTRACT

A growing body of literature acknowledges that the Gulf Cooperation Council's demand for food is met through a set of commodity chains that span the regional and global economy. But the development of national corporate food security strategies premised on the consolidation of logistical networks and food commodity chains has not been sufficiently explored. This paper is concerned with the United Arab Emirates' footprint on the regional and international food regime, and the state's production as a regional hub for agri-food trade. We trace the ways the UAE's corporate food security strategy utilises the private sector, agribusiness and logistics firms, alongside military power, to achieve so-called food security. We bring the literature on food regimes and logistics space into dialogue to explore the UAE's food security policy as a strategy to consolidate power over agro-commodity production and distribution networks.

KEYWORDS

Food regimes; agribusiness; logistics; food security; United Arab Emirates

Introduction

In a 2021 update, the World Bank reported that global food prices rose by nearly 20% in 12 months from January 2020 (WB 2021). For states like the United Arab Emirates (UAE), 80% dependent on food imports, this emphasised a vulnerable dependency on external supplies. In policy terms, this has been tackled in the UAE's national Food Security Strategy which attempts to grapple with issues of water scarcity and lack of arable land through a multi-pronged approach of technological investment and diversification of import sources. The UAE's National Food and Water Security Strategy has a stated aim 'to champion agribusiness trade facilitation through a whole-of-nation apparatus and to ensure food security under all circumstances' (UAE 2021). This paper is concerned with the impact of this policy and the UAE's footprint on the regional and international food regime emanating from this approach to food security. It traces the state's attempts to utilise agribusiness and logistics firms, alongside military power, to achieve its food security objectives.

As a key economy in the Gulf Cooperation Council (GCC), the UAE is an example of emerging economies that constitute an increasingly multipolar world. A growing body of literature has acknowledged that the expansion of GCC investments in multiple sectors is reshaping the regional and global economy (Hanieh 2013, 2018, Ennis 2016, Bartlett *et al.* 2017, Young 2017, Baumann 2019). The rapid growth and international expansion of UAE agribusiness and transport sectors have been the subject of several studies (Henderson 2017, 2019, 2021, Ziadah 2017, 2018, Koch

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2021, Woertz 2013). However, food and logistics have rarely been studied together within the burgeoning literature on the political economy of the GCC, therefore there is an insufficient examination of the articulation between these activities. Theoretically, we aim for a more attentive approach to the impact of national food security strategies on the production of regional food regimes and the strategic role of transport infrastructure investments in producing them.

This paper brings the literature on food regimes and logistics into dialogue to explicate how the UAE's corporate food security strategy is reorienting food production and consolidating food commodity chains from production to distribution. We aim to add empirical depth to the recognition within the food regimes literature that new capitals are transforming the global corporate food regime (Belesky and Lawrence 2018, Tilzey 2018a, McMichael 2019). These studies show how the import demand of emerging economies in the Global South is reshaping agricultural markets.

By focusing on the UAE as an understudied, emerging actor we propose to widen the definition of food regimes in a way that allows us to better understand and integrate the role of logistics in articulating food regimes. Rather than a narrow focus on food commodities, an examination of spatial and technological shifts in transportation and the consolidation of procurement, production and distribution activities within agro-commodity circuits, allows for better scrutiny of the current system, state-capital relations, and the place of south-south investments in agricultural lands and associated infrastructural projects.

Most studies of business logistics have tended to focus on mega maritime ports and those with some levels of unionisation (Cowen 2014, Chua 2018, Danyluk 2018). There is a growing interest in how initiatives like China's One Belt and One Road are impacting the development of trade infrastructures and the integration of states in Asia into evolving logistical networks (Neilson *et al.* 2018). Yet, Gulf Cooperation Council states tend to be absent from this literature. We contribute to this important focus on the political economy of logistics space from the vantage point of transport and agribusiness conglomerates in the Arabian Peninsula which are significantly impacting logistics networks and food commodity circuits in the context of food security policies. In other words, by highlighting the UAE specifically, we analyse food security strategies not simply as a question of imports/exports and caloric measurements, but fundamentally as a question of power, cross-border expansion, control over logistical infrastructures and consolidation of supply chains.

Two interrelated arguments are put forward. First, rather than studying food regimes, and logistics separately, we need to understand the UAE's corporate food security policy as part of an integrated strategy; a convergence of state policy, agribusiness, infrastructural investments, and security that one scholar described as 'economic statecraft' (Young 2017). Second, we argue that the UAE's corporate food security strategy is fundamentally a logistical security strategy, based upon securing agricultural lands, trade routes and the vertical integration of the agro-commodity chain under the control of UAE conglomerates. Instead of the simplistic framing of food security as an issue of comparative advantage, this paper understands corporate food security as a multi-pronged approach of consolidating state-corporate power over food production, as well as distribution. To this end, we trace the UAE's multiple infrastructural investments to secure resource extraction outside its territory and maintain geopolitical power across strategic trade routes, ensuring regular flow, storage, and reexport of food, and other commodities, from/to its market.

This article will make the argument in the following manner. Firstly, it will discuss the theoretical importance of understanding the link between food regimes and logistics. Second, it traces the build-up and expansion of UAE maritime and air logistical networks, with a focus on the Red Sea Littoral; before moving to highlight how logistics operations have been vertically integrated into the agribusiness conglomerates that have expanded rapidly over the last two decades. Research for this article is based on field visits and interviews conducted in English and Arabic during fieldwork at multiple sites in the UAE and Egypt over the last five years. The paper also

utilises government policy documents, media reports and corporate records in both English and Arabic.

The logistics of food regimes

The global food system under capitalism has historically been characterised by a linear pattern of North–South exchange. Global South countries were integrated as primary producers by phases of colonial rule; industrial and technological developments were concentrated in the North. The current system, however, is more polycentric and features new arrangements of core–periphery relations (Margulis and Porter 2013, Belesky and Lawrence 2018, Tilzey 2018a, Henderson 2021, Hopewell 2016, McMichael 2019). New capitals are playing an increasing role in reshaping the flow of food commodities and agribusiness capital. Within the literature, this transformation has led to some debate over the nature of the current food regime and the role of states and corporations within it. The food regime concept was proposed to link ‘international relations of food production and consumption to forms of accumulation broadly distinguishing periods of capitalist accumulation’ (Friedmann and McMichael 1989, p. 95). Specifically, Food Regime Theory (FRT) defined three distinct phases: the first food regime of European colonial power (1870s–1940s), the second regime of US power (1940s–80s) and the current phase as the corporate food regime, based on the dominance of corporate power and ‘deepening market relations via the privatization of states’ (McMichael 2005, p. 277). Tilzey however, has proposed an internal critique of FRT, arguing that since 2010 the current system can be interpreted as a post-neoliberal food regime in which states have ‘re-emerged “from the shadows” to take again more interventionist roles in securing accumulation and legitimation functions for capital’ (2018b, p. 243). Other assessments are less certain, and one study of China and its state owned enterprises in the food sector concluded that the current moment is constituted by an ‘interregnum’ (Belesky and Lawrence 2018, p. 11).

One means to contribute to this discussion is to address the constitutive parts of the neoliberal food regime and examine specific state-capital relation producing the current system. We focus specifically on the UAE as an emerging actor that is reshaping agro-commodity production and distribution. Examination of the UAE’s food security strategy specifically highlights the state-corporate nexus underpinning UAE interventions in agricultural markets. While the food regimes literature tends to portray corporate power as ‘unified, powerful, and set on a single trajectory without specific spatial reference’ (Friedmann 2016), in the following analysis we pay particular attention to the synergistic relationship between the state and agribusiness and the spatial reorganisation of agricultural production through ‘the lens of specific regional processes and articulations’ (Friedmann 2016, pp. 661–2). The emphasis on this new capital ensures that the study of the current food regime goes beyond the macro level, revealing specificities of state-capital relations, and regional shifts that constitute wider transformations. As McMichael notes

international organization is continually evolving. The goal is not to develop invariant hypotheses via comparison of more or less uniform “cases,” but to give substance to a historical process (a whole) through comparison of its parts. The whole, therefore, does not exist independent of its parts. (1990, p. 386)

Recent studies have pointed to the need for FRT to take geography more seriously (Wang 2017, Rioux 2018, Lapegna and Perelmutter 2020, Jakobsen 2021). This allows increasing attention to regionalisation, the role of the state, variegated labour conditions, agency and resistance, in short it facilitates a focus on the ‘interrelated key spaces where food regime formation and contestation unfolds’ (Jakobsen 2021, p. 3). Given the growing attention to space, however, infrastructure and logistics are surprisingly absent from this discussion. Perhaps as a result of the fixation on food commodities, transport is an assumed process within much of the literature. This omission is particularly striking given that the definition of a food regime acknowledged the manner that ‘market links to industry clearly demarcated agriculture as a capitalist economic sector’, a link that is dependent on the role of transport infrastructure (Friedmann and McMichael 1989, p. 102).

In the following analysis, we posit that logistics space is an important arena where food regimes are developed, negotiated, and articulated. In this particular case, logistics space acts to connect agricultural lands to UAE markets and to accelerate the speed of extraction. Logistics systems traverse borders moving through networked transport infrastructures extending the physical networks of trade and speeding up circulation (Allen 1997, Chua 2018). Critical scholarly work on the 'science of business logistics' has been concerned with explaining the overarching dynamics of logistics as a 'calculative logic and spatial practice of circulation that is at the fore of the reorganization of capitalism and war' (Chua *et al.* 2018, p. 617). This literature has traced the significant impact of the so-called logistics revolution on the production of intermodal transport and management of international supply chains across networked infrastructures, logistics hubs and trade corridors (Cowen 2014, Danyluk 2018). Underpinned by technological innovations in transportation, telecommunications and computer modelling, the 1960s logistics revolution was essential in the reduction of turn-over time of capital. With the development of information technology, tracking commodities in circulation became easier and modelling software helped to manage production and distribution on an international scale. Containerisation on the other hand, helped to standardise trade and pushed forward intermodality expanding transport networks further (Levinson 2008, Notteboom and Rodrigue 2009). Critical scholars have stressed however, that the logistical fantasy of 'seamless trade' operates within a system highly susceptible to disruptions, including labour stoppages (Neilson 2012, Alimahomed-Wilson and Ness 2018).

In practical terms business logistics 'has been expanded to refer to the management of the entire supply chain, encompassing design and ordering, production, transportation and warehousing, sales, redesign and reordering' (Bonacich and Wilson 2008, p. 3). In other words, in the quest for 'seamless trade' business logistics views production and distribution 'as a single integrated unit' (Bonacich and Wilson 2008, p. 3). Examining shifts in commodity circulation, Bonacich and Wilson (2008, p. 7) emphasised the ways the logistics revolution shifted power from manufacturers to retailers who could manage the supply chain through point-of-sale data and dictate to producers what commodities to produce and when. Similarly, with food production, logistics increased the power of international agribusiness, allowing for more control of what is produced and how it moves from farm to market. In this article, we stress that this logic extends to and significantly impacts food regimes, resulting in the vertical integration of food procurement, production and distribution networks.

By examining the logistics of food in the UAE, several relevant characteristics become apparent: logistics allow the opening of new frontiers of nature which in turn expands capital accumulation (Bunker 1985, Moore 2011, 2012). This is relevant given the extractive nature of agribusiness. The exhaustion caused by the mining of water from non-renewable aquifers within the Gulf states has impelled Gulf investors to relocate farms to offshore sites. This is a vital yet under-discussed feature of the Gulf economies. The United Arab Emirates specifically, has undertaken large-scale agricultural investments in Egypt, Ethiopia, and South Sudan (Bush 2011, Dixon 2014, Hanieh 2018, Henderson 2021). Typically, land is leased and used to cultivate water-intensive crops. The UAE's logistical networks have been essential as they enabled it to overcome the limitations of the national biosphere. This is significant in the GCC context as domestic agriculture is limited by arid environmental conditions.

Moreover, the UAE's particular corporate food security strategy manifests in the vertical integration of supply chains under the umbrella of private agribusiness conglomerates. In this way, the UAE's corporate food security policy relies upon not only agribusiness, but also transport conglomerates investing heavily in ports, logistics cities, roads to open new spaces of extraction. In effect, the objective is to simultaneously secure control over transport routes and consolidate agricultural supply chains. Facilitated by state food security policies, UAE agribusiness and logistics firms work together to reinforce UAE dominance and entry into new territories. In the following analysis, we focus specifically on intertwined agricultural and logistical investments across the Nile Valley and Red Sea littoral as particularly revealing sites of the regional food system. The UAE has rapidly

expanded its economic, political and military role in Red Sea littoral states, including direct military interventions (Yemen), a myriad of infrastructural and agricultural investments (Ethiopia, Egypt, Sudan) and the provision of military bases (Ziadah 2019). The geographic proximity of these markets makes their agricultural lands, water resources, and products particularly appealing as it reduces transport time. Since the Arab Uprisings of 2010/11 the UAE has embarked on an interventionist strategy to deepen and forge new alliances in these states, facilitating access to their agricultural markets and binding them more closely to its logistical networks.

By examining such regional dynamics and the relationship between state policy, food and logistics this article also serves as a reminder that food security is socially constituted. Food security is commonly defined as an issue of access to nutritious, safe and sufficient levels of food (definition adopted in 1996 World Food Summit). In addition to this normative definition there is a large body of heterodox work that identifies the numerous ways that access to food depends on a wide range of political and economic factors (Sen 1981, Maxwell 1996, Nally 2016, De Waal 2017, Ayeb and Bush 2019). Generally, there is a consensus that access to food is rarely contingent on the amount of food available, but rather the way in which food and agricultural sectors are governed. As discussed below the UAE's access to food is predicated on its political and economic power, which manifests itself in its logistical capacity and the financial means to acquire land and food commodities. If following Brenner, neoliberalism is understood as a series of variegated 'neoliberalising processes', 'facilitating marketisation and commodification while simultaneously intensifying the uneven development of regulatory forms across places, territories and scales' (Brenner *et al.* 2010, p. 184) – the UAE's corporate food security strategy is part of this 'neoliberalising process' increasingly driven by regional actors. Viewed from this perspective, logistics is a central feature of food security, helping to facilitate the integration of new territories, exacerbating patterns of uneven geographical development, and transforming the physical movement of commodities, while differentially incorporating states into regional and international agricultural markets.

UAE food security: policy and practice

Since the 1970s the UAE's food sector has undergone a fundamental transformation, moving away from reliance on a mostly subsistence agriculture system combined with some trade, into heavy dependence on imported food managed through a network of agribusiness conglomerates. This was a transition from a small peripheral agricultural economy into one that is at the core of global food commodity chains. Securing access to food commodities is now an essential part of the UAE's economic strategy, evident in the abundant and diverse food in its supermarkets and restaurants. As will be illustrated in the analysis that follows, the sweeping and rapid change in the UAE's food sector was highly dependent on the country's logistical capacity and the two sectors are closely imbricated.

The notion of food security permeates policy discussions in the UAE. This is encouraged by the state and manifests in numerous think tank and government reports over the last decade. This strategy relates directly to the UAE's agro-ecological reality. The UAE has a lack of arable land and water resources and as a result, it is dependent on imports from a variety of global locales. Prior to the 2000s, however, the UAE used to produce a significant amount of crops domestically. Local agriculture benefitted from a generous subsidy system that was partly intended to ensure food supply but also acted to distribute rent and ensure political stability (Joseph 2018). However, this policy was highly water intensive and resulted in the depletion of groundwater aquifers, which were mostly non-renewable. The cost of water and the energy required to extract it was manifest across the social metabolism in the form of the increasing reliance on desalinated water (Henderson 2021).

As a result of water exhaustion, the UAE reconfigured its food strategy. In 2006 it stopped the production of many highly water intensive crops and transferred production to offshore sites (Arabian Business 2017). This policy was two dimensional. One facet was the diversification of supplies on the open market, a move which involved acquiring food from a myriad of producers

across the globe. At the same time the UAE and its agribusiness companies sought to acquire or lease land in a variety of sites, mostly those in neighbouring states within the Middle East. The intention was that these sites would allow the UAE's food sector to hedge against market fluctuations and allow greater control through vertical integration. This came into sharp focus in 2008 following rising global food prices that led to concerns over market access to food and the UAE's dependency on imports. The benefit of direct command over land was encapsulated by the words of the chief executive of Al Dahra, one of the largest agribusiness companies in the UAE, who remarked that land acquisitions meant that 'from the farm to the fork, we control the whole value chain' (Gale 2010).

In achieving such 'control' of the 'whole value chain' the UAE benefited from the neoliberal restructuring of states in its vicinity, under pressure from financial institutions, towards export-oriented agriculture and land privatisation (Bush 2007, Dixon 2014). This allowed the UAE entry into big agricultural markets like Egypt and Sudan and enabled the acquisition of agricultural land and extension of supply chains. In this sense, UAE's multi-pronged food security strategy enhances the deepening inequality within the Middle East and North Africa food system, linking surrounding states directly to the UAE market.

The UAE's food security strategy has also functioned to incentivize the internationalisation of UAE agribusiness conglomerates and their control of regional and international agro-circuits (Hanieh 2018). This is made explicit in statements by government officials. For example, the food security minister, Mariam Hareb Almheiri, summarised the UAE's food security strategy, explaining 'we have a keen interest in increasing agricultural efficiency through the adoption of new methods and diversifying the pattern of agricultural investment abroad' (News Agency WAM 2018). Since 2015, the UAE and around 14 UAE based corporations have worked together in a 'food security alliance' to coordinate such overseas projects and have invested in a number of countries, including Egypt, Pakistan, Namibia, Sudan, Vietnam, Serbia, Romania, North and South America and Australia (Haider 2015).

As Hanieh has emphasised, we need to situate the geographic expansion of the UAE agribusiness sector within the broader context of the 'internationalisation of Gulf capital', which has positioned 'Gulf agribusiness firms at the core of the entire agricultural value chain' (Hanieh 2018, p. 115). Others have also pointed out the geopolitical nature of the sector and the food security strategy specifically, taking into consideration its underpinnings as a 'securitising discourse' in the first place (Koch 2021). Although couched in the language of food security, the actions of the UAE's agribusiness conglomerates should be understood as profit driven and similar to other agribusiness sectors in Western and emerging markets. In this sense, food security is not a technocratic matter of policy, but a central feature of how the country's corporate food sectors operates and expands.

It's worth noting, that the close link between the state and the agribusiness sector is manifest in their shareholding structure. In some cases, the investing agribusiness conglomerates are directly owned by the government, while others are linked to the state through their shareholders, typically members of the ruling family or business families closely associated with them. These characteristics are apparent in two of the largest agribusiness companies in the UAE, Al Dahra and Jenaan, both of which are mentioned in Table A1. Al Dahra's global investments are worth more than US \$800 million and it has a land bank of about 200,000 acres of owned and leased land across the world (Al Dahra 2019). The company is owned by Hamdan Bin Zayed Al Nahyan, the brother of the crown prince of Abu Dhabi. Jenaan's capital is around US \$ 1 billion and it owns land in Egypt, Sudan, Ethiopia, Spain and the US (Jenaan 2017). The shareholders of Jenaan are not public. But its link to the state is manifest in contract with the Abu Dhabi government to import of 600,000 tonnes of livestock feed every year (Jenaan 2017).

In the following analysis, we foregrounded logistics as a lens through which to understand the nature of the UAE's food security strategy, focusing specifically on the synergy between the agribusiness and the logistics sectors, which is amplified by state support. Rather than a singular focus on agribusiness and land investments when thinking through food regimes, we contend that the UAE's food security strategy, is simultaneously a logistical one.

The UAE is strategically located along the Asia–Europe trade route. A rich body of historical literature has noted the impact of British colonial policies on the emergence of the UAE as a key transport node along Asia–Europe colonial trade routes (Zahlan 1978, ‘Abd Allāh 1978, Heard-Bey 1982, Naqib 1990). Building on this role, the UAE invested substantially in expanding its transport sector through the 1970s and 80s, focusing on mega transport infrastructures, including maritime ports and airports, as well as airlines, port operators, and free trade zones, enabling it to become a major regional trade gateway and a re-export zone (Ziadah 2017). Its highly automated ports are designed to accommodate large vessels and expedite the movement of commodities with minimal regulations.

Scholarly work on UAE logistics sector has largely focused on the emirate of Dubai, as the major international transshipment hub, boasting the largest maritime port in the region, Jebel Ali (Ramos 2010, Akhavan 2017). DP World, Jebel Ali’s operating company, has grown to become an international port operator with global marine and inland terminals. The major period of international expansion for the UAE’s transport and logistics sector was in the early 2000s, largely premised on the waves of privatisation internationally, whereby UAE transport conglomerates expanded their physical assets overseas through public–private partnerships (PPPs), concessions and acquisitions (Ziadah 2017). Similarly, to the agribusiness sector, this expansion was premised on a close state-capital relationship buttressed by state-owned holding corporations.

The UAE’s food security strategy brings together the logistics sector and the agribusiness sector, it is based equally on diversifying sources of production, as well as securing control over logistics and the entirety of the supply chain. The conglomerates, which in essence enact the UAE’s food security strategy, purchase and operate farmlands, food silos, and processing zones, and work in tandem with other UAE transport entities (corporate and state bodies) to secure transport routes. As we explain below, the UAE’s food security policy has encompassed both the internationalisation of UAE agribusiness, as well as transport conglomerates which help to secure access and transport from/to new markets. Ultimately, as policy, food security entails the consolidation and control over the entirety of the food supply chain. This has a twofold impact: securing food for the UAE market in the long term, as well as ensuring that UAE ports and free trade zones are produced as key food processing, storage, and re-export hubs within the regional food regime.

Securing trade routes and building logistics networks

On 23 March 2021, the 400-m long container ship, the Ever Given, blocked the Suez Canal for six days (BBC News 2021). The obstruction had a detrimental impact on commodity chains, highlighting both the vulnerability of global business logistics and the ongoing significance of this particular trade route along the Red Sea, a primary maritime trade route between Asia and Europe and a major chokepoint in global shipping. Well before the Suez Canal incident, the United Arab Emirates had embarked on a long term, ambitious strategy to develop key transport infrastructures along the Red Sea littoral, from the Gulf of Aden to the Suez Canal.

Within the UAE there are 12 commercial trading ports, 310 berths, with cargo tonnage of 80 million tonnes (Seaports 2021). Jebel Ali port in Dubai, is one of the busiest container ports internationally, and already serves as an important feeder port and re-export hub to the rest of the Middle East and Eastern Africa. DP World, a leading UAE international maritime port operating conglomerate, runs seven marine and inland terminals in Africa, including a container terminal in Senegal’s and facilities in Egypt, Mozambique, Somaliland, Rwanda, Algeria and the Democratic Republic of Congo.

Domestic ports have been key partners in the UAE’s corporate food security strategy. Significant investments have been made in large-scale food storage units in multiple UAE ports, with the ports acting as both transport hubs and food stockpiling centres. Since the early 2000s, the government has been partnering with prominent private sector actors to develop food storage and distribution facilities aiming to strengthen the UAE’s role as a re-export hub of food commodities. For example, DP World’s Food and Agriculture Terminal at Jebel Ali Port is a major gateway for the food and beverages sector. Khalifa port in Abu Dhabi is also continuously expanding its food storage capacities.

Most recently, it signed an agreement for the development of grain storage and processing plants at Khalifa Port, to be managed by National Feed, one of the major Agro commodity processors in Abu Dhabi (Zawya 2021). This is but one example of the ways agribusiness and port operating conglomerates work in tandem along the lines of the UAE's overall corporate food security strategy. This process is facilitated by the state through federal food security and safety laws that incentivise private agribusinesses to diversify their sources.

In terms of air cargo, UAE airlines Etihad and Emirates both operate major cargo airfreight divisions (Emirates SkyCargo and Etihad Cargo). With an expansive network of 300 locations internationally, Emirates SkyCargo operates out of Emirates SkyCentral, an operations hub at Dubai International Airport (DXB) and Dubai World Central (DWC), both central destinations for air cargo internationally. During the Covid19 pandemic, Emirates SkyCargo was the only division of Emirates airlines not to register losses, indeed it expanded, scaling up operations as international freight capacity was reduced due to pandemic restrictions (Emirates Group 2021). Emirates SkyCargo is another important partner within the UAE's food security strategy, its planes regularly transport fruits and vegetables, seafood, meat, food ingredients and ready to consume food. During the pandemic, the air cargo carrier helped to bring 'more than 125,000 tonnes of food into the GCC region helping maintain uninterrupted supply chains for food items' (Emirates SkyCargo 2021).

Beyond investments in internal logistical capacities, the strength of the UAE's logistics sector is premised on a state supported strategy of international geographic expansion. Long term concessions in the transport sector have worked to extend the UAE's logistics networks internationally (Ziadah 2017). Regionally, along the Red Sea, its port operating companies concluded several critical port concessions in Egypt, Sudan, Eritrea and Somaliland, including attempts to secure a foothold in Yemen's ports and strategic islands in Bab el Mandab strait, a narrow, strategic location linking the Indian Ocean to the Red Sea.

These transport networks act to directly connect markets along the Nile Valley more closely to the Arabian Peninsula, developing and securing trade routes and food commodity circulation. In this manner, the UAE's corporate food security strategy which involves diversifying sourcing, relies heavily on promising and constructing future transport infrastructures, aiming to connect new regions to its market and consolidating its role as a food reexport zone. The specific expansion to purchase farmlands in Ethiopia and Sudan for example, represents an infrastructural challenge. According to a manager of an agribusiness farm with operations in Egypt and Sudan: 'The cost of production in Sudan is much cheaper. But there are two problems. Roads and security. If you put something on a truck in Sudan you don't know if you will see it again. The road and transport sector in Egypt is much better. You have trains, roads and even planes'.¹ This is largely why transport infrastructure between Egypt, Sudan and East Africa is an investment target for regional finance capital. Qalaa Capital is a private equity company based in Cairo, which is partly owned by UAE investors. It has acquired a portfolio of companies in the logistics sector, including a 85% stake in Rift Valley Railways, the national rail operator of Kenya and Uganda (Qalaa Holdings 2016). Such acquisitions complement the agriculture investments of these holding companies and Qalaa has agribusiness investments in Egypt and Sudan. In an example of this entanglement between logistics and food, a previous venture entitled Agrogate proposed the construction of a road between Egypt and Sudan and the establishment of two million feddans of agricultural land (Abdelaziz 2013). These projects are not always successful, but they are representative of the constant expansion of commodity networks and value extraction, what one scholar described as the 'southward expansion of the ecological frontier for capital's expanded reproduction' (Dixon 2014, p. 244). This nexus of food and logistics was also evidenced by a recent announcement that the UAE was planning an investment package worth US\$ 6 billion in Sudan, which consisted of an integrated proposal to invest in port infrastructure, a toll road, and a 400,000 acre agribusiness enclosure (Eltahir 2022). The deal also included a US \$300 million deposit in Sudan's Central Bank.

Increasingly, the UAE is looking to African markets as a key zone of investment in both land and logistics. Following the implementation of the African Continental Free Trade Agreement (AfCFTA), a free

trade agreement which will harmonise trade regulations across 54 states, the Dubai Chamber of Commerce and Industry stressed the new ‘opportunities this provides’, in the fields of ‘logistics, warehousing, manufacturing, agribusiness, infrastructure, healthcare and technology’ highlighting ‘the potential to expand bilateral trade’ (Dubai Chamber of Commerce 2020). Currently, Dubai Ports World holds concessions in Berbera (Somaliland) and Bosaso (Puntland), as well as cooperation projects in Massawa and Assab in Eritrea, allowing landlocked Ethiopia to circumvent Djibouti’s ports. In early 2016, the Somaliland government, a breakaway northern region of Somalia, signed a Build-Operate-Transfer concession with DP World to develop the Berbera port. Ethiopia helped to facilitate the deal and is to control 19% of the joint venture (Stepputat and Hagmann 2019). This concession came alongside UAE plans to build a naval base and an agreement for its airforce to use Berbera’s airport.

It’s important to note that the UAE’s food security strategy itself is entwined with the state’s geopolitical orientation and military strategy to secure regional trade routes while acting to curb future competition and strengthen its position as a regional re-export hub. Port concessions have developed alongside the provision and/or acquisition of military bases, as well as, agreements to train local militaries and police forces. In addition to direct military interventions (as is the case in Yemen), given the UAE’s portfolio of investments in Sudan and Egypt, including in agricultural lands, the internal stability of these states along the Nile Valley has been critical to the UAE and it has intervened in both instances to support the status quo in its favour.

The various commercial concessions and military interventions have inserted the UAE into local disputes in an unprecedented manner. For example, Somalia’s official government saw the new port deal in Somaliland as an attack on its sovereignty and declared it null and void. At the same time, this contentious investment in Somaliland takes shape as the DP World remains locked in a legal battle with the government of Djibouti over the nationalisation of Doraleh Container Terminal, for which DP World held a 30-year concession (Khalili 2020, pp. 193–7). In other words, the expansion into new territories whether through land purchases or infrastructural investments, does face contestation and has acted to exacerbate existing tensions within and between states and intensify patterns of uneven geographical development.

A closer analysis of the interconnections between the food and logistics sectors allows us to trace the impact of the UAE’s approach to food security and understand its political and economic implications. We can see that such food security projects are not merely technocratic endeavours around food production/consumption metrics, but are political projects intertwined with logistical security, expansion and consolidation of agro-commodity circuits, and crucially, power over trade routes and logistical networks. The UAE’s food security strategy is reshaping food commodity circuits in the UAE’s favour by binding states more closely to its infrastructural networks. In short, infrastructural investments are central to the corporate food security project. Overall, logistics has acted to facilitate the UAE’s food security ambitions, allowing it entry and access to new markets and territories, with UAE operating conglomerates like DP World leading the way. The intention is to expand and secure routes for the transport of commodities from, to and through the UAE, including essential food commodities, while at the same time consolidating the UAE’s role as a reexport hub. Analysing the existing food regime, thus necessitates an engagement with the role of logistics, including storage, warehousing, and processing in the production and consolidation of regional power. Moreover, as the following section elaborates, the UAE’s food security strategy has facilitated the vertical integration between the agribusiness and logistics sectors to secure control over the entirety of the supply chain, from production to distribution.

UAE agribusiness and vertical integration

The link between the UAE’s business logistics sector and agribusiness is accentuated by the internationalisation of the country’s food commodity chains. As the network of production has become more international, traversing different landscapes a greater emphasis is placed on logistical capacity. This is of particular importance given the geography of water in the drylands of the

Middle East and North Africa region. Unlike other agricultural regions such as Europe where arable land is mostly irrigated by rainfall, cultivation in this region is determined by rivers or groundwater aquifers. As a result, there is less agency over the location of farms, but this obstacle can be redressed by logistics and transport infrastructure. Thus the UAE's food security strategy expands the network for farmlands, while at the same time consolidating control over the entirety of the food supply chain, acquiring farmlands and consolidating logistical functions.

This is evident in the ways over the last two decades the UAE agribusiness companies have expanded their international holdings of agricultural land. Ascertaining the specific amount is difficult as these deals are notoriously opaque. However one study suggested that of all the Gulf countries, the UAE has been the biggest purchaser of farm land abroad between 2000 and 2015 (Cochrane and Amery 2017) there were several farmland purchases in sites within the Nile Basin in Egypt, Sudan and Ethiopia, and further afield in Pakistan and Serbia. The location of the schemes in dryland environments was determined by access to water. It was also dependent on policy environments which allowed for the privatisation and sale of large tracts of land.

The clearest examples of this strategy are the largest UAE farms owned on agricultural projects in Egypt, Toshka and Sharq El-Oweinat.² Both of these projects are situated in remote areas due to the location of water resources and large tracts of available land. Toshka in Southern Egypt utilises Nile river water diverted to the scheme by a large pump and irrigation canal from Lake Nasser. It is located on the site of more than 40 Nubian villages that were evicted in the 1960s, prior to the construction of the High Dam on the Nile (El-Din 2016). Sharq El-Oweinat, a 260,000 acre area of farms that depend on irrigation from paleowater, which is extracted with boreholes from the Nubian aquifer. El-Oweinat is located in the Western Desert, around 400 km from Aswan (Bahar 2014). The project's remote location creates challenges and in a 2015 interview, an executive of Jenaan said that the company was considering abandoning the site as a result of its isolation. The manager said: 'The infrastructure is poor and it is very far away from Cairo, it is 1300 km, so management wise it is difficult' (Agweek 2015). However, logistics bridge the space between these remote locations and markets in the UAE; they ensure that companies such as Jenaan and Al Dahra can continue to operate farms on these projects. The first stage in the supply chain is provided by road transport. After harvesting, crops are processed and loaded onto trucks and transported to Port Said on the Mediterranean Sea, which is more than 1300 km from Sharq El Oweinat. These commodities are then shipped to the UAE. This is a regular passage and Jenaan sends a weekly shipment of alfalfa and other forage crops from Egypt and Sudan (Jenaan 2017). In this way, logistics have integrated remote spaces into the UAE's network of food commodity production.

In addition, to such geographic expansion into new farmlands, there has been a steady vertical integration of transport companies into food conglomerates. This is evident in the cross-ownership of companies in the food production and distribution sectors. The companies detailed in Table A1 exemplify this relationship. Evident in these cases is the global nature of the UAE's food supply chains and the moves towards control over production, as well as distribution. For example, Al Dahra specialises in the cultivation, production and trading of animal feed and essential food commodities and in their words the 'end-to-end supply chain management'. Over the years, Al Dahra has made significant investments in logistics, ensuring a strong network of inland transportation and sea freight operations. The company is one of the largest importers of Khalifa Port in Abu Dhabi, it is also the biggest forage customers in the Port of Barcelona (Al Dahra). Indeed, highlighting the significance of its trade, Al Dahra boasts being the number one importer into the UAE, including being the largest customer of Khalifa port and amongst the top five customers of Jebel Ali Port.

In another case, Jenaan operates farms in Ethiopia, Sudan, Egypt, Spain and the US and has vertically integrated a fleet of trucks (Jenaan 2017). In Ethiopia, Jenaan is in the process of implementing three major, export orientated agricultural projects. The focus of this investment is on the export of live cattle and powdered milk. These investments intersect with the UAE's and Ethiopia's logistics interests, as a land locked state, Ethiopia has been courting UAE investments in ports in Berbera and Somaliland, which would allow it to minimise its reliance on Djibouti's ports.

Other companies in Table A1 operate more heavily on the retail end of the food commodity chain. Majid Al Futtaim and Al Ghurair Group, owned by business families of the same name, have historically had close links with the ruling families of the UAE. These conglomerates have interests across the economy in the UAE and have a regional presence as well. In this sense, their interest in food, food retail and increasingly logistics is complementary (Ziadah 2018).

In addition to domestic companies, the UAE has also expanded its combined interest in agricultural markets and logistics as a result of investments in global food multinationals. One recent example was Abu Dhabi's acquisition of a 45% share in Louis Dreyfus Commodities (LDC), one of the largest food trading companies in the world (Hoffman *et al.* 2020). LDC has substantial logistics infrastructure and it has a fleet of 200 ships. LDC is expanding its operations in the Middle East and Eastern Europe and in 2017 it received a \$100 million loan from the European Bank of Reconstruction and Development (EBRD) in order to develop its operations in a number of regional markets including Bulgaria, Kazakhstan, Ukraine, Egypt and Turkey. Given that many Arab states are import dependent, and that Egypt is one of the largest importers of grains in the world, the value of this exchange is substantial. One official at the EBRD was explicit about this commercial opportunity: 'This project is bringing agricultural producers in eastern Europe closer to consumers in North Africa to strengthen global food security' (Pyrkalo 2017).

The scope of such investments in global food multinationals suggests that the UAE's role in international food commodity circuits is moving beyond simply guaranteeing the needs of its domestic market. While that's a central feature of the food security strategy, it's important to emphasise, that the link between food security, agribusiness and logistics also acts reinforce the UAE's role as a re-export hub and gives it's conglomerates control over regional commodity production and circulation. In other words, the process of internationalisation inserts the UAE into agro-commodity chains, ensuring its role as a processing and re-export hub that other markets rely upon. Its role as a regional food re-export zone for example, became very clear in the early days of the UAE embargo on Qatar, after which Doha had to quickly find other food supply routes due to their dependence on the UAE as an entrepôt (Koch 2021).

As the Louis Dreyfus deal illustrates, the UAE's food security strategy is manifest in its growing control and consolidation the agro-commodity production and circulation. The private companies that are mentioned in Table A1 serve the state's objective of food security, based on their supply chain capacity and access to the global market. Insight into this logic was provided by an executive of DP World, Dubai's premier shipping and logistics conglomerate:

The supply chain has a pivotal role in the growth of any economy. Disruption in the supply chain has a direct impact on food security. There is huge scope in how we can achieve sustainability with technological innovation and management of food and agriculture with futuristic solutions. (MEED 2021)

Conclusion

This article has illustrated the synergetic relationship between food and logistics in the context of the UAE's food security strategy. This is manifested in the expansion of UAE logistics space, as well as the vertical integration of logistical operations by agribusiness conglomerates, which has allowed the expansion of the UAE's networks of commodity production into regional and global markets. Logistics ensures that UAE agribusiness capital can integrate its portfolio of farmland and water resources in peripheral spaces and overcome the geography of its distribution routes. While the food regimes literatures tends to focus on agricultural lands and specific food commodities, we propose an integration of transport infrastructures and logistics networks to better understand shifts to international and regional food markets. This also helps to illuminate how emerging, regional actors such as the UAE are inserting themselves into agro-commodity circuits and reorienting the food regime. The expansion of infrastructure and logistics capacity in itself is a signifier of increasing access to agricultural land and integration of new markets into agro-commodity supply chains.

The impact and operations of the UAE's food security strategy contribute to understanding the current interregnum of the corporate food regime. Logistical capacity is concomitant with the emergence of new capitals that are contributing to a process of multi polarisation within the current system. States like the UAE, as well as other economies in the Gulf, are reshaping regional agricultural markets and consolidating a pivotal role as food re-export hubs. Their import demand, as well as export of commodities, is intensifying the industrialisation and commodification of agriculture in the region, while simultaneously tying markets more closely.

The UAE's investments in regional transport infrastructures and logistical capacities have been entwined, from the start, with issues of access to land, control over trade routes and military expansion. While presenting a straightforward and rosy narrative of financial investment, development and integration into surrounding markets, the UAE's expanding agribusiness and logistical networks are exacerbating patterns of uneven development and inserting the UAE as a strategic geopolitical actor in the Red Sea littoral. The overemphasis in the literature on 'big' actors like the US and China, tends to obscure the strategic and growing role emerging powers, like the UAE, are playing in shaping intra-regional dynamics.

The expansive role of the UAE's agribusiness sector facilitates access to land and food commodities in multiple locations, helping to reconfigure relations between regions and insert states into new hierarchies of power. In turn, infrastructural investments enhance the UAE's access to new agricultural lands, and the process of extraction and commodification that is underway. Logistics thus works to transform and construct new geographical connections along the Red Sea littoral, and shapes new security arrangements in the UAE's favour. We need to understand logistics here, in Cowen's words, 'as a project and not an achievement'. In the UAE's case, it is an essential project of food security – fortifying trade routes and vertically integrating supply chains while opening new territories for UAE transport and agribusiness conglomerates. It, however, continues to be an unfinished project facing various forms of setbacks and contestation. Revealing and tracing the underlying dynamics behind this project is an important initial step in efforts to contest it.

Notes

1. Interview, Cairo April 2014
2. On Toshka, Al Dahra from the UAE owns 120,000 acres. On Sharq El-Oweinat the UAE's Jenaan owns 50,000 acres and Al Dahra 23,500 acres.

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Appendix

Table 1. Cross-ownership and vertical integration: companies in the food production and distribution sectors.

Company and ownership	Food	Logistics
<p>Al Dahra</p> <p>Established in 1995</p> <p>Sheikh Hamdan bin Zayed Al Nahyan, member of ruling family of Abu Dhabi.</p>	<p>Al Dahra has assets across the commodity chain and has a global portfolio of farmland and operations. It has a land bank of 400,000 acres with more than 60 farms in four continents.</p>	<p>Al Dahra states that it is the largest importer into Khalifa Port and among the top 5 customers of Jebel Ali. Its total cargo is 110 K TEU a year. Its facilities include warehouses, storage silos and air and sea freight operations.</p>
<p>Jenaan</p> <p>Established in 2005</p> <p>The ownership is not public but the company's close link to the state is evident on its partnership with Abu Dhabi Food Control Authority, a state agency responsible for the emirate's food security.</p>	<p>Jenaan has vertically integrated its operations. It controls land in Egypt, Sudan, Ethiopia, USA and Spain.</p>	<p>Jenaan has acquired logistics operations. One example is Mendi Logistics, a transport subsidiary in the US.</p>
<p>Agthia</p> <p>Established in 1978</p> <p>The Abu Dhabi government owns a majority stake in Agthia and the company is also listed on the Abu Dhabi stock exchange.</p>	<p>Agthia is an industrial food company and has assets in Saudi Arabia, Kuwait, Oman, Egypt and Turkey.</p>	<p>Agthia has a lease for a 85,000 m² plot at Zayed port. The company's development will be silos, logistics and warehouses.</p>
<p>Al Ghurair Group</p> <p>Established in 1960</p> <p>The Al Ghurair family, a well known business dynasty in Dubai.</p> <p>Majid Al Futtaim</p> <p>Established in 1992.</p>	<p>Al Ghurair has a number of food operations including a flour mill, sugar manufacturing and commodities trading.</p> <p>Majid Al Futtaim is a large conglomerate and it owns the regional franchise for Carrefour supermarkets. Carrefour has 30 branches across the Middle East region.</p>	<p>Al Ghurair have a transport subsidiary and silo capacity of over 1.5 m MT</p> <p>Majid Al Futtaim has a logistics operation with warehouse and yard space. The company holds contracts with military service providers to NATO forces.</p>