Industry Clusters and Innovation in the Arab World

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Industry Clusters and Innovation in the Arab World: Challenges and Opportunities

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Foreword

The Arab World has been a zone of treasure for the whole world with immense flow of natural resources, trained labor, and youth innovations. During the last few decades, many countries in the Arab World started to migrate from resource dependency and raw material exporting, to the development of heterogeneous resource bundles and building world-class competitive industry conglomerates. The emergence of the petrochemical industry cluster in Egypt, the tourism cluster in the UAE, the technology cluster in Saudi Arabia, and the artisanal cluster in Tunisia are just examples. Building clusters in the Arab World necessitates the existence of strong firm-level rivalry, government support, technical and vocational education, technological advancement, developed suppliers, and citizens that support their local brands. Only through clusters with those necessary pillars will the Arab World states be able to emerge as key players in international markets.

If we take Egypt as an example, the story of the Egyptian cotton is one of the marks in building the textile industry cluster in the region. Since the Pharaonic period, cotton cultivation has been a well-known commodity in Egypt, and has been a major factor that has affected the country's development over the past half-century. Undoubtedly, Egypt economic fate was linked to the flows of cotton production. As in 1927, cotton cultivation developed to cotton manufacturing when Talaat Harb established Egypt Cotton Spinning and Weaving Company as one of the companies of Banque Misr. The Company started its production at 12,000 reaching 357,000 spindles. Due to the country's pioneering achievements in the spinning and weaving of cotton, Egypt was able to establish a global reputation for its quality. This became a trademark of the country and the Egyptian cotton shirt; that is "Made in Egypt" is exported to various parts of the world. Referring to it as "white gold", Egyptian cotton exports are believed to be the past and future of the modern Egyptian renaissance rather than just a simple crop.

The Egyptian cotton shirt is manufactured with the finest Egyptian cotton, the latest spinning and weaving techniques, superior finishing materials, and unique design. Due to its strong competitiveness, technological advantages, and higher spinning consistency, it outperforms the quality of international kinds. All connected sectors, including those in research, agriculture, production, marketing, and industry, contributed their efforts to this outcome. This ultimately resulted in the creation of direct and indirect employment for one million people with investments totaling 26 billion Egyptian pounds in agriculture and its related

businesses, such as the textile industry, dyeing, and apparel industry. Currently, the textiles industry accounts for 20% of the country's employment, and it is one of the country's major exporters of high-quality cotton. Egypt is additionally one of the world's largest producers of long-staple cotton, which is a type of textile that is known for its superior quality. Egypt supplies around 17% of global long-staple cotton, which is about half the output of the United States (world's top exporter) as well as China.

The Arab World has always been a major contributor to global oil and gas production. It accounts for five of the top 10 global producers and is responsible for approximately 27% of the world's production. Two of the top market players in the Middle East are Saudi Arabia and United Arab Emirates. Saudi Arabia is a major producer and exporter of oil to the whole world. It has the second-largest proven crude oil reserves; holding 15% of the world's proven oil reserves. It retains the largest crude oil production capability at close to 12 million barrels per day and is the top crude oil exporter in the world. The Saudi Arabian economy is mostly based on oil exports; in 2020, oil exports made up over 70% of the nation's total exports in terms of value, and 53% of the Saudi government's revenue stemmed from oil. As for the United Arab Emirates, it is one of the world's largest oil producers. About a 100 billion barrels of proven reserves are located in Abu Dhabi, which is regarded the sixth-largest producer in the world. The country produces approximately 3.2 million barrels of oil and liquids per day. The country's reliance on hydrocarbons continues to be a critical part of its economy. About 30% of the country's GDP is derived from its oil and gas industry, and 13% of its exports. The UAE government continues to rely on the country's oil and gas exports for a huge portion of its revenue.

Instead of being heavily dependent on oil and gas exports, Saudi Arabia and the UAE induced development of industry clusters using oil and gas; including fueling new power stations, and water desalination plants. Additionally, major industrial facilities use gas as feedstock to produce petrochemicals, fertilizers, steel, metal smelting, and other products that in turn supply a booming industrial sector. One of the largest projects that was developed is water desalination plants, as water scarcity possess a serious concern all over the Middle East. Saudi Arabia owns the largest overall desalination plant in the world in Jubail located in the east coast, with an output capacity of 1.4 million m3/d. Additionally, the UAE uses natural gas in the process of oil production designed for pumping into the wells and for desalination of water. Moreover, gas has also been used for the jet fuel consumption; Saudi Arabia consumed a value of 16.91000 barrels per day in 1980 compared to 81.58000 barrels per day in 2019. Similarly, UAE has used 4.2000 barrels per day in 1997 compared to 163.75000 barrels per day in 2019.

The rapid advancements in the Arab World allowed the region to become a remarkable exporter after being limited to merely importing goods. Not only are there products being exported, but there are also national industries being established. These industries utilize national labor force, which in turn develop labor skills and build cadre of local talents. Hence, the overall education system evolves and adjusts accordingly. Therefore, when building the Arab industries, we are building skills, we are building an economy based on exports, and we are

building other industries (upstream and downstream) that increase the competitiveness of local industries to compete globally.

As the Chairman of the Federation of Egyptian Industries, we have been keen to move forward in construction, reform, and innovation and in strengthening the infrastructure of all sectors of the local industry. A strong industry can help provide the necessary financing for the development of various vital systems related to the lives of citizens. These include education, health, and scientific research. The yield from an industry can also be used to fund the establishment of other national industries in the region. Additionally, we work on the establishment of industrial parks in each governorate with the appropriate natural resources and the market requirements. Moreover, we are involved with supplementary industries for large industries in order to create new job opportunities especially for young people as well as the continuous effort to encourage exports, open new markets, and attract new exporters.

It is my utmost pleasure to present you this piece of work; the first book written on the development of industry clusters for innovation in the Arab World. Presenting cases from different countries in the region, this book, we hope, shall add to the knowledge of academics, students, and practitioners in various fields, and shall shed the light on the emergence of Arab world industries as the "new tigers" in the coming years. I dedicate this book to our Arab firms, local brands, and Arab conglomerates that make us all proud!

Thank you and hope you enjoy it!

Eng. Mohamed Zaki El Sewedy
Chairman of the Federation of Egyptian Industries (FEI)

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Preface

Over the last decades, studying industry clusters have risen to prominence and became popular among academics, policymakers, and economic development professionals, who have stressed the importance of encouraging and supporting clusters for national innovation and global competitiveness. Porter's seminal article "The Competitive Advantage of Nations," published by *Harvard Business Review* in 1990, drew the attention to the notion of industry clusters as a group of geographically close-by and linked – vertically or horizontally – industries; helping one another in a mutually reinforcing process. By definition, clusters are a group of similar things, or people, close together, to form a group, either by surrounding something, or by creating something, to achieve a shared vision. Within this perspective, business and industry clusters emerged and later, due to technological developments and globalization, innovation clusters and information clusters followed. Despite the differences among these clusters, but all serve as enablers to have easier access to skills, suppliers, customers, specialized information, and complementary products and services that lead to achieving lower costs and higher quality.

Clusters promote innovation via collaboration among businesses, businesses and research institutions, and businesses and governments, which lead to the creation and sharing of different aspects of knowledge. It promotes professional networking, interfirm links, access to spillover knowledge, and talent pool which are the necessary elements supporting the spawning of innovation. Moreover, clusters can spill over innovation through the demand conditions, due to the presence of sophisticated and demanding local customers who will force industry cluster firms to continuously innovate and stay on the leading edge. In turn, this will be the main pillar to achieve competitive advantage. Another reason for the increasing interest in clusters is its capacity to foster economic development, especially in emerging countries. In addition, the impact of industry clusters extends to improve micro and small firms' performance and induce their internationalization. This is through availing knowledge and information gained from the various cluster members, in addition to creating a pool of specialized labor. Furthermore, these linkages build suppliers' capacities in terms of their specialization and quality, making the way for those suppliers to also have international presence.

Examples from different parts of the world has shown that clusters helped in strengthening competitiveness by increasing productivity, stimulating innovative new partnerships, and presenting new opportunities for entrepreneurial activity and new SMEs' formation and growth. Consider the IT cluster in Bangalore/India, that was identified as one of the most important and growing IT clusters

outside the US and OECD region. Nigeria has another successful example for micro, small, and medium enterprises forming industry clusters, which helped in the creation of competitive advantage for various industries and advanced the Nigerian economy in the past years. To name a few, there is the leather and apparel cluster in Aba, Abia State; the Kannywood cluster in Kano, and the Adire tie and dye cluster in Abeokuta.

Thus, there is no doubt that industry clusters are capable of supporting the Middle East North Africa (MENA) countries in their socioeconomic development and transformation. The region is endowed with a central geographic location situated at the crossroads of three continents, a growing young well-trained and educated population, and a significant share of the world's energy resources. However, the MENA region is increasingly under pressure to face the external and internal challenges that have slowed the economic development of some of its countries. For example, the region has witnessed unprecedented turmoil over the last 10 years, a rapid population growth with high unemployment rates, low economic diversification, geopolitical tensions, and fluctuations in foreign currency exchange, which all threaten long-term economic growth. Despite of these challenges, the countries in the region have embarked on a series of reforms to increase economic openness and diversification, improve productivity, and encourage innovation and competition. These reforms initially led to an increased investment, trade, an improvement in the levels of innovation and entrepreneurship, as well as economic growth. In the core of these reforms, different MENA countries have integrated the establishment of industry clusters as a central component of their 2030 vision. For example, Saudi Arabia is establishing an automotive industry cluster, the United Arab Emirates is giving attention to its Tourism cluster, Egypt is focusing on its textile and furniture clusters, and Morocco is developing its agriculture cluster.

Since most of published research on industrial clusters and its impact has focused on developed countries as well as countries in Asia, this book is one of the few attempts to shed light on the emerging industry clusters in the Arab World. Industry Clusters and Innovation in the Arab World introduces readers to wide array of pragmatic perspectives and case studies on successful industry clusters in the region, and demonstrates the challenges faced by industries in different Arab countries with suggested solutions that are practically applicable. The book constitutes 10 chapters, shedding the light on different industry clusters in number of Arab countries and explaining the macroenvironmental characteristics surrounding these clusters, posing opportunities or threats.

Chapter 1 focuses on the strategies that the Algerian public authorities may employ to build a solid National Innovation System (NIS) to improve economic performance in Algeria. The chapter analyzes the different components of the Algerian NIS, evaluates its learning and innovation capacities, and measures the production of innovation, as well as how these affect the economic performance of the country. Chapter 2 tackles the automobile industrial cluster in Egypt that possesses promising potential yet faces some challenges. The chapter displays the importance of the labor dimension in increasing the labor competitiveness of the cluster and showcases this through two cases of German automobile

manufacturers that pioneered in venturing into the market through employing technical and vocational education and training (TVET).

Chapter 3 takes us to Saudi Arabia, which investigates how clustering promotes knowledge sharing and transfer in an emerging, government-directed industry cluster. It is determined that lateral actors play a key facilitating role, and that cluster knowledge exchange is supported by the existence of formal, informal mechanisms, and interpersonal links among actors. Limited social capital strength and depth, as well as a lack of trust that prevent knowledge sharing are partially explained by the cluster's limited vertical and horizontal actors. Chapter 4 explores how state-business relations (SBR) in the Arab World influence public policy on industrial clusters and the resulting economic benefits from these clusters on innovation and productivity. This chapter suggests that the development of industrial clusters in the Arab world necessitates institutional reform addressing the power relations governing SBR in the region. Chapter 5 examines the competitiveness of the tourism cluster in the United Arab Emirates (UAE) by applying Porter's competitiveness of nation diamond model, with its four dimensions factor conditions, demand conditions, the related and supporting industries, and, lastly, the firm's strategy and rivalry. Chapter 6 applies the five drivers of productivity framework to regional microdata for Egypt and extends it by introducing an index of industrial clusters as an explanatory factor of the productivity performance of local private sector firms.

Chapter 7 illuminates out understanding of the Palestinian context, where the chapter analyzes the challenges facing five Palestinian clusters and to comprehend their dynamics and level of development. The five clusters in Palestine are located in a complex environment that imposes a mix of challenges, which adversely affect their performance. As for Chapter 8, it proposes a framework for developing an index measuring both organizational cluster involvement and organizational supply chain including the three pillars (Economic, Social, and Environmental). The proposed framework aids firms within a cluster in making timely decisions about what needs addressing to improve supply chain sustainability performance. Chapter 9 illustrates the role of higher education establishments in Middle Eastern countries specifically in Saudi Arabia. The contributions of higher education establishments are particularly significant in relation to regional and national innovation system, which have been earmarked as engine for growth of the local economy across the region. Chapter 10 is a practitioner view for understanding the challenges facing agricultural micro and small enterprises in Egypt, and the role of Agro-Industrial Parks (AIP) in creating synergies and competitiveness in the sector.

It is our utmost honor and pleasure to present you with this piece of work that spans across the borders of the Arab World, brining diversified knowledge, experience, and novel ideas for the development of the region. Hope you enjoy it!

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