Achieving sustainable industrialisation in Egypt: assessment of the potential for EIPs

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Abstract: This paper explores the prospects of Egypt in achieving sustainable development goal 9 (sustainable industrialisation). It looks at the national policy efforts of the new government and finds that environmentally-sound industrial production and overall sustainable industrial development is a priority in the country’s vision. The analysis then takes a closer look at three case studies of attempts of the Egyptian Government to promote sustainable industrial development by establishing or developing eco-industrial parks (Robbiki Eco-Leather Park, El-Safaa Metal Foundries Zone and Shaq Al-Thu’ban Marble Technology Park). The analysis of the three cases outlines a number of factors impeding the success of these attempts; including weak policy and regulatory frameworks, lack of strong enforcement mechanisms, poor planning, lack of financial resources to support the relocation of most vulnerable (smallest) enterprises and the negative impact of informal economy and criminal elements. The paper concludes with several recommendations to overcome these obstacles.

Keywords: eco-industrial parks; EIPs; sustainable industrial development; developing countries; Egypt; sustainable development goals; SDGs; sustainable development.


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1 Introduction

The year 2015 witnessed a number of events, which characterise a fundamental paradigmatic shift in how the world views its development path. In September 2015, the world governments adopted a 2030 global sustainable development agenda and a set of 17 sustainable development goals (SDGs) paving the way for a more sustainable, inclusive, equitable and innovative development (United Nations, 2015b). In July 2015, Addis Ababa Action Agenda for financing development outlined a strong foundation for sustainable development by aligning financial flows and policies with economic, environmental and social priorities (United Nations, 2015a). In December 2015, a historical Paris Agreement on climate change signalled a new level of ambition and commitment towards the reduction of the global greenhouse gas emissions through voluntary nationally determined contributions (United Nations Framework Convention on Climate Change, 2015).

These international policy developments set a global task of an unprecedented ambition, scale and complexity. In this light, middle and low-income countries face a number of challenges stemming from their current levels of economic and technological development. One of these challenges pertains to the outdated industrial technologies and practices prevalent in such states. SDG nine calls for sustainable industrial development by building resilient infrastructure and fostering innovation (United Nations, 2017). Industrialisation has a positive impact on the economy, including a job multiplication effect, which means that each job in manufacturing creates 2.2 jobs in other sectors (United Nations, 2017). Besides newly developed industries, promoting sustainable industrialisation also targets modernisation and transformation of existing unsustainable production practices. Low and middle-income countries face a difficult task of upgrading their industrial facilities and practices to higher international standards in the context of the global environmental degradation (UNIDO, 2016).

This paper focuses on the experience of Egypt, a middle-income Middle Eastern state, and the most populous country in North Africa and in the Arab world. Egypt’s economy is slowly recovering from the political events of 2011, which also brought about a new, modern constitution that aimed to set foundational grounds for the country’s development. With a GDP of $330.8 billion and an economic growth rate of 4.2%, Egypt’s industry is expected to grow by 2% in 2017 (World Bank, 2017). The manufacturing sector in Egypt is at the forefront of the new government plan for economic growth, contributing by 16.6% of the country’s GDP in 2015 (Oxford Business Group, 2017a). The main industries are automobile production, chemicals, consumer electronics and home appliances, steel industries and textile and clothing.

Textile industry has the largest number of enterprises (7,344) and employs 505,512 people, according to the 2014 data of the Ministry of Trade and Industry of Egypt (2017b). Textile is closely followed by the food and beverage production industry, with a total number of 7,225 registered enterprises and a total number of 329,246 employees. Engineering, electronic and electrical industry forms the third largest sector in terms of registered enterprises (6,698) and the number of employees (331,656). The government plan is to raise the share of the manufacturing sector in the GDP to 25% in the next decade, mainly through the promotion and creation of new industrial zones (Oxford Business Group, 2017b). Much attention is also paid to the support of small and medium enterprises, as well as micro-entrepreneurship, as the key economic drivers (Ministry of Trade and Industry of Egypt, 2015b).
Considering these ambitious plans, underpinned by the National Industrial Development Strategy (Ministry of Trade and Industry of Egypt, 2012), what are the country’s prospects for sustainable industrial development? That is, how would Egypt achieve the SDG 9 target by 2030, which requires upgrading infrastructure and retrofitting industries to be sustainable, with higher resource-use efficiency and more adoption of clean and environmentally sound technologies and industrial processes, especially with all countries taking action in accordance with their respective capabilities? This paper focuses on the role of eco-industrial parks (EIPs) as manifestations of sustainable industrialisation in Egypt’s efforts towards sustainable development, in addition to exploring several government attempts to create EIPs from scratch or via transforming existing, environmentally unsound industrial zones. EIPs are “communities of manufacturing and service businesses located together on a common property. Member businesses seek enhanced environmental, economic and social performance through collaboration in managing environmental and resource issues” (Lowe, 2001). EIPs, as a manifestation of industrial symbiosis, represent a model for sustainable industrial development, which incorporates SDG 9 requirements for resource efficiency and adoption of clean and environmentally friendly technologies and processes.

To address the research questions, the analysis relies on qualitative methods. First, to explore the role of sustainable industrial development in Egypt’s policy agenda, the study offers a literature review of existing policy documents, available in Arabic and in English, related to the sustainable industrial development in Egypt. This part also includes a number of academic publications and research reports from private consulting companies. Second, the paper employs the case study analysis method and focuses on three prominent cases of EIPs in Egypt. The sources of analysis data are policy documents, official industry statistics, in addition to academic and private research articles. The case study method is considered useful for new and less developed research areas (Darke et al., 1998), like the one in hand; due to the absence of rigorous analysis of EIPs in the context of sustainable industrialisation in Egypt, which is timely and important. Despite the dramatically growing role of sustainability in the Egyptian vision for industrial development in the new policy agenda after 2011, only few academic studies address this particular issue. This paper addresses a specific gap in scholarship and aims to prove useful for researchers and practitioners interested in national and local-level analysis of progress towards achieving SDGs.

2 Egypt’s Vision 2030 and the place of EIPs in it

Since the Rio Conference in 1992 and the adoption of the Agenda 21, Egypt has shown a high level of international commitment to sustainable development. The government initiated a number of environmental policies supporting the agenda, while there has been a broader movement towards decentralisation and implementation of sustainable practices at a local level, characterised by increasing activities of local non-government organisations (NGOs) and the private sector through corporate social responsibility (CSR) efforts (El Massah, 2016).

However, ‘Egypt’s Vision 2030’, a new strategy for sustainable development aligned with the 2030 Sustainable Development Agenda, was launched in March 2015 and
brought the national ambition and commitment to a new level (United Nations, 2016). According to the policy document, Egypt’s overarching goal is to ‘possess a competitive, balanced and diversified economy, dependent on innovation and knowledge, based on justice, social integrity and participation, in a balanced and diversified ecological collaboration system, investing the ingenuity of place and human capital to achieve sustainable development and to improve Egyptians’ quality of life, in a state-driven process, with the full participation of all relevant stakeholders’ (United Nations, 2016). Articulated through a democratic and participatory process, with the active engagement of experts, academics, private sector representatives, civil society, government officials and international development institutions.

Egypt’s Vision 2030 views sustainable development as the core value of the new revised Constitution. Egypt’s Sustainable Development Strategy covers all three dimensions of sustainable development and under each of them, focuses on several pillars. Thus, within the economic dimension, the strategy envisages work on the economic development, energy, knowledge, innovation and scientific research, transparency and efficiency of the governmental institutions. Within the social dimensions, the strategy elaborates on social justice, health, education and training, and culture pillars. Finally, yet importantly, under the environmental dimension the strategy works on the environment and urban development pillars (Egypt’s Vision 2030, 2017).

The document acknowledges that the path towards sustainable development is not an easy one and Egypt would have to tackle a number of national, regional, and international challenges along the way. At a national level, the country is facing a rapid population growth and should accommodate the growing numbers of youth within the economy. In 2016, the population of Egypt reached 91 million people and in 2014, an unemployment rate among young people has been as high as 27.3% [United Nations, (2016), p.10]. Large and growing population inevitably affects the economy and the efforts towards sustainable development.

Another key national challenge in Egypt is water scarcity. Together with changing weather patterns and climate change, water deficit makes Egypt one of the most vulnerable countries to climate change in the region. Moreover, studies show that climate change is going to have various other effects on the Egyptian economy. The state is highly dependent on the import of cereals, and the growing threat of climate change may have a negative impact on their supply (El Massah and Omran, 2014). Other inherent social challenges include informal economy and corruption, as well as spillovers from conflicts in neighbouring states, which have negative effects on the development in Egypt and in the region.

As part of the vision for sustainable economic development, several programs should help address key strategic priorities, including the creation of special industrial zones. EIPs are examples of such zones, defined as “communities of manufacturing and service businesses located together on a common property. Member businesses seek enhanced environmental, economic and social performance through collaboration in managing environmental and resource issues” (Lowe, 2001). EIPs are rapidly developing around the world as a solution for more sustainable industrial development. Although there are no EIPs currently functioning in Egypt, the overall idea of optimising and improving environmental and social impacts of industrial facilities, while optimising their economic performance through innovation and technological advancement, falls well within the outlined vision for sustainable industrialisation in Egypt (El Massah, 2017).
Achieving sustainable industrialisation in Egypt

The Egyptian Government tends to support the idea of EIPs as a manifestation of industrial symbiosis and sustainable industrial development. This support takes the shape of new regulatory and legal frameworks (for example, pollution control policies – EcoConServe, 2010) and of multiple initiatives aimed at transforming existing facilities into EIPs – or, at least, optimising their environmental performance. The potential for improvement and optimisation of Egypt’s industrial development is enormous. According to the latest data from the Egyptian Government (Ministry of Trade and Industry of Egypt, 2017a, 2017b), there are currently 131 industrial zones across 26 governorates in Egypt. The leading industrial land allocation area is in Cairo, with 19 industrial zones in place. It is followed by Alexandria (10) and Port Said (9) areas.

While there is no specific mentioning of EIPs in the Egypt Vision 2030, another important document, Egypt’s Strategy to Promote Industrial Development and Foreign Trade, has many references to various elements that constitute an EIP, without using this exact name. The first of the four main axes of the industrial development strategy focuses on strengthening several industries and improving their environmental performance. The plan is to establish industrial parks at a national level as a solution to support industrial integration between large factories on the one hand and small, medium and micro ones on the other hand. The strategy aims to encourage domestic and foreign investments in complementary industries, value-added industries, technology and knowledge industries, as well as projects supporting the development of the green economy. For example, one goal is to encourage investment in clusters of food industries to achieve the integration of the agricultural and the industrial sectors and to increase the value added in irrigation water and agricultural crops by creating a relationship between farms and plant and by increasing the economic value of agricultural products.

The target is to create 22 new integrated industrial complexes across the economy over the period 2016–2020 (Ministry of Trade and Industry of Egypt, 2015b). The key projects under this goal include aggregating industries around certain centers; for example, Robbiki Eco-leather Park (RELP) for leather tanning industry, Damietta industrial zone for furniture production, textile clusters in Minya, Dakahlia, Sohag and Assiut, mining industry in the ‘Golden Triangle’ in the South of Egypt, etc. (Ministry of Trade and Industry of Egypt, 2015b).

The focus of government’s efforts is not only on the industrial zones, but also on the infrastructure surrounding these zones. For example, an attempt to transform Borg El-Arab into an Eco-city was recently explored through a joint feasibility study done by some Egyptian and Finnish experts (Rozado et al., 2016). The Borg El-Arab example has also received attention as a potential site for improvement of its industrial processes, with studies outlining the possibilities for transforming parts of it into a functioning EIP (El Massah, 2017). Developing new industrial facilities and relocating or improving existing ones take into consideration the environmental dimension of industrial development and align with the overall economic dimension of the Egypt’s Vision 2030.

Another important element of Egypt’s industrial development strategy is the Green Economy project. This project promotes green economy-friendly industries, including low-emission ones and those based on environmental dimensions, such as industrial or agricultural waste recycling industries. The project mainly focuses on supporting those industries to address environmental compliance, which has become a major requirement for exports.
3 Attempts to develop EIPs in Egypt

Overall, there were several attempts to develop new EIPs or transform existing industrial facilities into EIPs in Egypt. In a report prepared by the Egyptian Ministry of Industry and Foreign Trade, El-Hadary (2011) lists three government-initiated attempts towards the creation of EIPs: Robbiki industrial leather and Tanners city; Marble Technology Park Shaq Al-Thu’ban and Foundries Cluster at El-Safaa industrial city. This study aims to evaluate the progress made on each of these projects and to assess their future perspectives.

3.1 Robbiki Eco-leather Park

RELP and Tanners city is an example of an attempt to develop a new environmentally friendly industrial city. It is an ongoing project aiming to establish and implement a new advanced technology industrial district in Robbiki for leather tanning and production. RELP is located between Badr city and the 10th of Ramadan city, designed jointly with the Italian Association of Tanning Machinery Manufacturers (ASSOMAC). The Implementing Agency is the ‘General Organisation for Industrial and Mining Projects (IMC)’, with a total planned budget of 5.5 billion EGP.

The project agreement was signed in the end of 2010 and implementation started in January 2011. The overall objective of the project is to relocate tanners from Magra El Ouyoun area aiming to improve the quality and productivity of the Egyptian leather industry, in addition to the environmental, health and social conditions in Cairo governorate. According to the international industrial zones’ standards, RELP is divided into four quarters: industrial units, service units, roads and green areas (El-Hadary, 2011).

By lowering pollution and increasing added value of its products, RELP aims to become a new EIP specialised in leather tanning. The creation of RELP supports sustainable development initiatives of the Egyptian Government in five main areas. First, it fosters technological cooperation with international partners for developing cleaner and more modern production processes. Second, the park envisages the establishment of a liquid wastewater treatment plant for general effluents, chromium recovery and saline water treatment. Leather tanning processes are known to require substantial water use, most of which is usually disposed with high pollution load (Tunay et al., 1999). However, water scarcity in the context of high population growth rates is considered one of Egypt’s top environmental challenges (United Nations, 2016). Accordingly, water use optimisation, especially water treatment facility at a leather tanning industrial park, is a high priority for Egypt’s water conservation efforts (Egypt’s Vision 2030, 2015). Third, RELP will have a solid waste treatment process in place, by establishing a landfill with a capacity of 33,000 m³/year and a solid waste treatment plant with a capacity of 400 tons/day. Leather tanning industry produces an average of 800 tons of solid waste per 1 ton of raw hide, primarily consisting of fleshing and chrome shaving, chrome spills and buffing dust (Kanagaraj et al., 2006; Zafar, 2015). Moreover, around 300 kg of chemicals are added per ton of raw hide for processing purposes (Zafar, 2015). Disposal of organic and chemical waste in a proper, environmentally friendly manner may not only improve the environmental performance of the production but also create opportunities for re-selling some of the treated waste as input materials in other production processes, e.g., glue, gelatin and poultry feed (Kanagaraj et al., 2006). Forth, RELP aims to establish an environmental laboratory and to set up training and technical support on eco-tanning
technology via establishing a Leather Tanning Technology Center, which would also contribute to the sustainable development initiatives of the Egyptian Government.

As a relocation project, RELP aims to facilitate a transition for tanners currently operating unsustainably in Cairo to a new ground. While there is substantial interest from tanners in Cairo for relocation, the project is still at an early stage of development, including preparations of a feasibility study (Ministry of Trade and Industry of Egypt, 2015a). Since 2011, the project requested several extensions that are not yet completed after six years. In 2014, the Egyptian Government has changed the overall plan; from gradual to ‘all-at-once’ relocation, which has led to an increase in the amount of needed financial resources and delayed the implementation. Besides, the new site does not provide housing for workers’ families, which hinders their relocation. At the same time, there is a lack of adequate transportation between the old and the new sites, which are 75 kilometres apart. Moreover, the facility does not provide equal opportunities for both large and small tanneries. Thus, small tanneries do not have sufficient financial resources to deal with the incomplete preparation of the new site (units, infrastructure, facilities and leather equipment).

Several factors on the ground determine the slow progress towards a successful EIP in Robbiki, including the lack of an effective site master plan, adequate common utilities and services and limited financial resources to support the transition of some individual firms (primarily smaller firms with fewer resources). In the early 2017, the Egyptian Government announced signing cooperation protocols with some banks to provide long run soft loans for small or medium-sized manufacturers in order to finance their needs within the new site of Robbiki after the completion of the relocation process. The government has further pledged to deliver the new tanneries with all utilities arranged and with fully equipped units.

3.2 El-Safaa industrial zone

El-Safaa industrial zone is another example of a relocation project in Egypt. It aimed at improving the operational conditions of a group of environmentally polluting industries, and enhancing metal production industry with new and environmentally sound technologies. The project, which started in 2008, aims to support the sustainable development strategy of Egypt. The area of El-Safaa occupies 143 acres of land and is located about two kilometres from the railway link between Shebin al-Qanater and Marj, 35 kilometres from Cairo airport and 200 kilometres from the port of Alexandria. The site is designed to accommodate 100 plots of land and envisaged to serve as a host area for the metal industry. More specifically, El-Safaa should welcome around 80 foundries – ferrous and non-ferrous foundries and smelters from a heavily polluted Shoubra El Khima city. The zone should have a standard quality control and assurance system and a training centre and to create 16,000 new job opportunities. The management plan for the foundries, developed in 2008, includes a plan to recycle metal waste from the factories (Ministry of Environment of Egypt, 2008).

An environmental assessment of the region was carried out (El-Hadary, 2011). It included an environmental management plan that defines the conditions for the construction and operation of foundries within El-Safaa area using cleaner production technology, according to the results of the air quality test model. The objective of the environmental management plan for this region is to minimise the negative impact of
metal production on the surrounding areas and to ensure its operational safety conditions within the region. The government offered the foundries owners who wished to transfer their facilities from Shubra to the area of El-Safaa full facilities at a preferential rate of 100 EGP per square metre, of which they would pay a 10% upfront and the rest as instalments paid over seven years at an interest rate of 3%. Since its establishment in 2007, investments in the region totaled around 402.5 million EGP, with 56 factories contracted with the government for relocation and provided 5445 jobs (Al Borsa News, 2014).

Most of the foundries and small workshops owners in Shubra al-Khaymah intended to move to the new area, however, the economic downturn after 2011 slowed down the relocation process. Many metal business owners had to sell their allocated land and to resort to other economic activities, such as cafés or toktok (transportation vehicle) businesses, to pay for their daily expenses. According to some estimates, as much as 90% of the foundries of Shubra have exited the industry since the 2011.

By tracking press reports and media programs, we can say that the security problems in the El-Safaa area caused by some Bedouin groups have prevented 12 factories from working. Some criminal and semi-criminal groups took over the land allocated for the factories transfer. They also prevented the entry of anyone without their permission (which had to be bought) and forced entrepreneurs to buy building materials and deal with workers only through their mediation. In sum, it seems obvious that the main reasons for the unsuccessful result of El-Safaa were the lack of strong legal framework and policies to protect property rights and ensure security in the new site, in addition to the limited financial resources offered by the government, which eventually raised the opportunity cost on individual manufacturers.

3.3 Marble Technology Park Shaq Al-Thu’ban

Finally, a major important attempt to optimise environmental performance of an existing industrial zone was made at the Marble Technology Park Shaq Al-Thu’ban, south of Cairo, the fifth largest marble and granite quarry in the world. The quarry annually produces 3 million tons of marble and granite and 1 million ton of waste, including 30 thousand tons of toxic and contaminated waste. Only 5% of this waste, according to El-Hadary (2011), is being recycled to produce cement bricks, cement and concrete mix and paints. Moreover, toxic and contaminated waste led to a deterioration of the residential environment of the nearby city of Helwan.

In 2010, the Egyptian Government proposed a three-stage transformative agenda aimed at recycling wastes and by-products on the site. The first stage is to establish a pre-processing industrial unit in the upper part of the zone to collect and sort the waste. The second stage would comprise efforts of labs, incubators and pre-processing industrial unit to use technological ‘know-how’ to create a small-scale production line. As part of linking industrial technology and research and development efforts, there is a currently on-going project at the American University in Cairo that focuses on developing technology for recycling marble waste at the Shaq Al-Thu’ban marble cluster (UNIDO, 2011). The final stage would be marketing for the new products and production technologies for the possible use of solid wastes from Shaq Al-Thu’ban. Alkalyoby (2011), for example, explored opportunities for recycling quarry residue in decorative rock production.
Despite the previous initiative being announced seven years ago, nothing has been implemented yet on the ground. Shaq Al-Thu’ban site and workers suffer from many economic, social and serious environmental problems. The lack of effective implementation of this initiative is due to several institutional, financial and security challenges that Egypt witnessed in the aftermath of the political events of 2011.

4 Success factors for developing EIPs in Egypt

Although EIPs have been mentioned several times in the Egyptian policy strategies and initiatives, nothing yet has been established on the ground. Many reasons help explain these unsuccessful attempts. Recent negative economic conditions and political instability after 2011 are on top of the list. Institutional framework and government institutions are ambitious but not stable enough to adopt new initiatives and follow them through to successful implementation. After 2011, the government has been more concerned with fulfilling short-term expectations of the citizens and addressing basic needs than with focusing on long-term development initiatives. However, the trajectory of development has been strongly supported by the launch of a new industrial strategy in 2016 and the adoption of the sustainable development vision in 2015.

Most success stories of EIPs around the world are based on government direct or indirect incentives along with the continuous dialogue and cooperation with the private sector. One approach adopted by the US Government in 1996 includes planning 15 environmental industry clusters and attracting companies to a specific geographic location by investing in the provision of public utilities, such as wastewater treatment plants or transport links (Deutz et al., 2003). Another approach by the Japanese Government was to develop a recycling legislation as a regulatory framework for a recycling-oriented economy. The legislation includes mandatory recycling rates and subsidies for recycling industries. Accordingly, Japan succeeded to develop 26 EIPs established during the period between 1997 and 2006 (Global Environment Center Foundation, 2005). Also, the Chinese experiment is a successful model of EIPs to follow a comprehensive regulation that aligns with the requirements of sustainable development agenda (Wang and Li, 2016). Another approach of indirect incentives by the government is to provide a complete database of input-output of materials in the industrial sector at the firm level, identify waste exchange opportunities and allow the investors of the private sector to recognise the long run economic benefits and good (green) image of collaboration through industrial symbiosis and EIPs establishment. On the other hand, international experience suggests starting the EIPs establishment by simple low-cost exchanges with potentially rewarding benefits (Heeres et al., 2004). Once they have proved to be successful, a step towards more complicated exchanges can be taken. It is recommended also to allow for dynamic changes within the EIPs after it starts working based on the practical feedback of working firms.

At this stage, Egypt needs to provide more incentives to support the establishment of EIPs, by supporting technical capacity, encouraging academic research and development efforts in the ecological perspective of industrial processes, allocating financial resources, updating information systems and human capital to promote community participation. One approach is to make use of existing success stories and best practices from around the world and from the neighbouring countries. Additionally, it is of great importance to
apply the principles of the Local Agenda 21 and to decentralise the implementation of sustainable development initiatives at the local level (El Massah, 2016). Most of the network development experiences that have relied solely on the top-down methodology in different parts of the world have failed, underscoring the urgent need to apply the principle of decentralisation and public-private participation (Salonen, 2007). It is important as well to involve private individual firms in the primary preparation plans to make use of their practical experience regarding available opportunities and requirements of involved industries.

Additionally, effective collaboration of the involved ministries and institutions enables the planning of Industrial Ecology investments, which would contribute to the accomplishment of industrial sustainable development in Egypt. Besides, awareness should be raised about waste treatment to alter the perception that it is only a burden, rather to consider it as a source of income and resources. Moreover, labour and industrial unions should promote the benefits of collaborative efforts by firms and create communication channels among these firms and between them and other influential community groups. It is important as well to build mutual trust among all the acting partners in EIPs; namely: the individual firms in the private sector, the members, the government and the community.

5 Conclusions

This paper explores the prospects of Egypt in realising SDG 9 and specifically the target of creating sustainable infrastructure, investing in innovation and achieving sustainable industrialisation. The study focuses on EIPs as a proxy for achieving sustainable industrial development. After adopting a new modern Constitution in 2014, Egypt placed sustainable development at the core of its values. In support of this priority, the government adopted Egypt’s Vision 2030 through a stakeholder participation process, which outlines the key dimensions of the country’s efforts in achieving sustainable development. Another important guiding document is Egypt’s industrial development strategy, which places much emphasis on the creation of new industrial clusters, aggregation of industries and overall improvement of the industrial environmental impact.

After discussing key policy vectors, the paper moves on to three case studies of government’s attempts to create or develop EIPs. This is an important contribution to the literature because currently there are no functioning EIPs in Egypt, despite the strong overall government support of the idea and its being embedded in the policy and strategy documents. The analysis of three cases (RELP, El-Safaa metal foundries zone and Shaq Al-Thu’ban marble technology park) indicates that the key factors impeding the success of EIPs in Egypt are weak policy and regulatory frameworks, the lack of strong enforcement mechanisms, poor planning, lack of financial resources to support relocation of most vulnerable (smallest) enterprises and the negative impact of informal economy and criminal elements.

To overcome these obstacles and achieve successful implementation of environmentally sound industrial development in Egypt, it is crucial for the government to incentivise the creation and development of EIPs. It is also critical to ensure collaboration and inputs from all relevant stakeholders. Communication with firms and
representation of the private sector in policy debates come to the forefront of the successful solutions of the problem.

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