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Are the industrial economic clusters the right answer to stimulate the development of Upper Egypt's lagging governorates?

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Abstract
Industrial cluster concept has been conceived as the main policy tool to leverage the competitiveness and to modernize the existing industrial zones IZs in the lagging nine Upper Egypt Governorates accompanied with enhancing their business milieus to attract more local investors and FDI. The two initiatives; Egyptian Inclusive Economic Development Program for Lagging Regions (IEDLR) and the Upper Egypt Local Development Program-for-Results Project (UELDP) are adhered with the World Bank initiative (Cluster Competitiveness Initiative CCI), and its main Industrial Cluster Concept, through establishing 22 industrial clusters in nine lagging governorates since 2016. This paper argues for the appropriateness and effectiveness of the proposed industrial cluster concept by World Bank Experts to stimulate the local economic development in these governorates in general, and the appropriateness of the chosen key industries to formulate these clusters in specific. Therefore, the key focus of this paper is to evaluate the appropriateness of the process of developing these industrial clusters in case of Qena and Sohag governorates, particularly evaluating how the key industries have been chosen to formulate these clusters. Thus a mixed method approach was employed in this paper comprising quantitative method (by conducting a close ended questionnaire to measure the vertical and horizontal interlinkages among existing factories) and a qualitative approach (by conducting many focus groups with the stakeholders of local economic forums at city region level, Markaz level).The results show that, it is highly expected that the industrial cluster policy will confront many obstacles in Egyptian lagging governorates due to; the absence of a network of inter-related suppliers and distributors (weak value/supply chain), the absence of core export-oriented industry able to formulate the cluster, the absence of any king of clustering among the existing firms, whereas most of them relying on outsourcing firms to provide them with their industrial inputs beyond their industrial zone, and their severe economic leakages based on the high volumes of imported industrial inputs from outside Egypt. Thus, the paper concludes with the inappropriateness of the industry cluster policy to leverage the local economy of these governorates. Then the paper recommends that, Egypt has to replace industrial cluster policy with much quick win policy to boost its lagging governorates' LED such as the Agro-Industry (Agro-business) poles, furniture and handicrafts SMEs/clusters, as well as proposing alternative industrial clusters which are much more able to nest and interlink perfectly with their local economies and existing IZs.

Keywords: Industrial clusters, lagging regions and Governorates, emerging economic /industrial clusters and supportive industrial clusters, core cluster activities, buyer-supplier linkages, value/supply chain

INTRODUCTION

The Government of Egypt (GoE) recognizes that citizens in Upper Egypt lagging governorates are unable to achieve economic growth sustainably and inclusively. They are more vulnerable to poverty, high unemployment rate and low livelihoods (MIC, 2016). Moreover, the regional disparities between the urbanized urban governorates and the rural ones have been intensified, whereas the poverty rate in rural Upper Egypt at approximately 50 percent compared to less than ten percent in metropolitan areas (MHUUC, 2016). Therefore the Egyptian Inclusive Economic Development Program for Lagging Regions (IEDLR) has been launched in 2016, which is guided by Constitution Article 236, identifying lagging regions as Upper Egypt, Matrouh, Nubia, and Sinai (MIC, 2016). IEDLR seeks to tackle the urgent need to discover more rigorous overarching three policy pillars to achieve sustainable local economic growth and development in Upper Egypt and to enable the private sector to lead the development, comprising; leveraging competitiveness, improving infrastructure, and enhancing business environment (IEDLR, 2016). One of the key policy measures to achieve the program objectives is to enhance the competitiveness of industrial sectors through a

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complete program to establish 22 industrial clusters in nine Upper Egypt lagging governorates (IEDLR, 2016). Moreover, in March 2017, The Government of Egypt signed a loan agreement with World Bank for half billion dollars to develop two of its lagging governorates namely, Sohag and Qena, under the umbrella of the Upper Egypt Local Development Program-for-Results Project ((UELDP)) to enhance the business milieu for attracting investors, to reinforce local government capacity for providing more quality infrastructure and service, and to leverage the competitiveness of these governorates (World Bank, 2016). Thus, Egypt has followed the most globally interesting concept of the industrial cluster to stimulate the local economic development in lagging regions, like many other developing countries (Abdelaziz et al., 2018). Thus, UELPD depicts that the proper implementation of its initiative (cluster competitiveness initiative CCI), will be achieved through establishing a number of industrial clusters and allocate them in the existing vacant low demand industrial zones in Upper Egypt Governorates. Therefore, these industrial zones IZs have to be modernized and provided by their essential and basic modern infrastructure prior to developing the anticipated industrial clusters. Again, one year later, the industrial cluster has been conceived as the key focus of this program to achieve multiple objectives comprising; to catalyze private investment, to achieve more value-added and to create more jobs (DMI Associate, 2017. Therefore, seven industrial clusters have been developed in Sohag and Qena governorates since 2017 (DMI Associate, 2017).

However, given the fact that most of Upper Egypt' industrial zones IZs have been developed without a definite and overarching industrial program or policy to identify their key industries, and to determine the technical vertical and horizontal economic linkages between these industries(World Bank, 2018), has raised many question about the fate of these proposed industrial clusters. Particularly, to answer the extent to which they are really able to leverage the economic development of these lagging governorates, to modernize their industrial economic base, to lure more private investment and to create more jobs. Thus, this paper tries to answer the question of whether the intended industrial clusters are the right answer to boost the industrialization of Upper Egypt governorates and to leverage their competitiveness. Therefore, this paper investigates how these industrial clusters have been identified in case of Qena and Sohag governorates and how the key industries, which formulate the cluster, have been chosen and to what extent the local potentials and resources have been considered while proposing these industrial clusters. Then, this paper introduces a number of policy recommendations, as its main significance and contribution to knowledge, on how to establish a sustainable and competitive industrial cluster in the lagging regions, particularly proposing alternative industrial clusters which are well nested with already allocated industries in their IZs. Moreover, the paper will illustrate the key learnt lessons for other Upper Egypt' lagging governorates, which are seeking to undertake industrial cluster- based development policy.

1- Literature review

2-1 What is meant by industrial clusters, and what is the benefit to agglomerate industrial firms in an industrial cluster?

This section reviews the cluster theory and explains why economic clusters in general and industrial clusters are crucial to a regional economy, in the same time highlights the importance of industrial clusters in revitalizing the lagging local and regional economies.

Given the interlinked industrial linkages among all industries comprising the industrial cluster; *Sandag (2015*) considered industrial cluster is representing the entire value chain of a broadly defined industry from suppliers to end products. The industrial value chain contains core interlinked industries in addition to supporting services and specialized infrastructure regardless of these economic interlinkages have resulted in both high and low-value-added employment (*Sandag,2015*). Similarly, the United States Department of Commerce at 1997 was identified industrial cluster as an agglomeration of rival and cooperating industries as well as a network of horizontal and vertical relationships including strong common buyer-supplier linkages. By focusing on the role of the industrial cluster to promote wealth locally through increasing exports and reducing imports, Roberts and Lindfield (2000) affirmed that, because industrial clusters always rely on core export-oriented firms, thus they stimulate the regional economic growth and wealth formulation. The same meaning has been identified by Iwuagwu (2011), who conceives industrial cluster as a group of interlinked industries in a region, that are interwoven due to the existence of a network of inter-related suppliers and distributors. The importance of leveraging the export economic bases as the key rationale behind formulating an industrial clusters has been also accentuated by Stimson et al (2002), who conceived Industrial clusters as groups of inter-related industries in sake of maximizing local exports either being goods or services and minimizing the economic leakages through reducing the imports from outside the city or the region. In this vein, Schwab (2017) affirmed that an industry cluster has to have at last one core industry having tremendous comparative advantage though leveraging its productivity and enhancing the quality of its products in comparison with those of other regions. These industries are considered the regional economic engine regardless of the sum of employees working in these industries, whereas mostly never representing the majority of the regional total employment (Schwab, 2017).

Other scholars gave more attention to the spatial dimensions of the industrial cluster such as *Sandag (2014*), who interpreted industry cluster as inter-related industries which are geographically concentrated accompanied with establishing more robust internal and local economic interlinkages among each other than their linkages with the rest of the regional and national economy. Other scholars focus on the reasons behind constituting industrial clusters and reasons behind agglomerating different industrial firms together and concentrating them spatial in one location, specifically the externalities and agglomeration economies effects, in this vein, World Bank (2018) depicts an industrial cluster as the agglomeration of factories, suppliers, service providers, distributors, and related institutions in a specific industry, interdepended on each other by externalities and complementarities. The specific locational externalities of the industrial cluster have resulted from the geographical proximity of different factories and vicinity of interrelated supporting economic activities (Boja, 2011). Other externalities have resulted from other factors

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comprising; access to specialized human resources and suppliers, knowledge spillovers, pressure for higher performance and face-to-face competition (World Bank, 2018). Well-connected and well-functioning regional industrial clusters gain a competitive advantage over less connected and poorly functioning clusters.

Moreover, well connected economic cluster policy is an incremental policy, which will interlink with other regional clusters in the future (Park, 1995). This, in turn, has accentuated the importance of spatial concentration and spatial agglomeration of economic firms constituting the economic cluster. In this vein, Markus (2013) and Humphrey (1995) and affirm: agglomerating clustered small economic firms and factories in one place will afford them both the benefits of agglomeration externalities and cluster complementarities through gaining economies of scale and scope, as well as more specialization and competitiveness.

Firms within a cluster exhibit strong inter-relationships. Sweeney and Feser(1998) explained why the geographical concentration of firms will lead to more specialization, this is because more geographic concentration may lead to the development of specialized skills, institutions, and alliances within the cluster, such as institutions providing industry-relevant training.

2-2 What are industrial clusters for?

Industrial clusters as policy or as a tool prove itself as a key driving policy to recover the economy of any region and city, to combat the economic leakage, to modernize the industrial economic base of the region, to create more employment opportunities, and then to enhance the regional and local quality of life (Sandag, 2015). Sometimes, industrial cluster policy is introduced to recover some of the lost high-value jobs and to revitalize the economy (Schwab., 2017). However, industrial clusters should not understand as a tool to create more high skill job opportunities or to promote mega winner companies (Kuah. 2002; Sandag., 2015). Contrarily, Clusters serve as a policy to boost the competence of local economy and its ability to multiply its size and its bearing capacity in creating more jobs and to expose the economic importance of local industries (Boja, 2011). A cluster initiative aims to knock wider markets, to leverage the cluster competitions and its business strategies over those of its competitors, to overcome its business constraints hindering its growth and development as well as to assure its dominance over its existing markets, products, linkages, externalities, and synergies (Andersson et al., 2004). The key objective of specialized SME or industrial clusters is to strengthen the potential value chain, to raise the competitiveness of these SME clusters through training programs, advisory services, technology transfer, access to markets, and access to finance and finally to provide the produces with technical and marketing support (Schwab., 2017). In the Egyptian context, it has been depicted that, developing industrial cluster in lagging governorates will boost the local economic development through; finalizing needed missing infrastructure and basic facilities for reinforcing and completing the emerging value/supply chain in Upper Egypt, tackling low geographical connectivity and low market access; offering the needed technical assistance for the proposed industrial clusters, fostering supportive activities to support industrial clusters such as technology, training, and skills development (World Bank, 2017)

2-3 Types and levels of industrial clusters and the difference between old and new industrial clusters

Generally, the industrial clusters can be classified as the network or hub-and-spoke cluster based on the cluster orientation (Mattoon &Wang, 2014). Moreover, the industrial clusters can be classified based on other factors, as Held (1996) identified, comprise; the pattern of inter-firm linkages, the number of cluster industries and their scopes, and the extent to which the cluster has constituted a value-chain. It is highly expected these factors will differ from region to another; therefore cluster's policy intervention will differ on a regional basis (Held, 1996). Andersson et al (2004) distinguishes between the local cluster mainly (low order industrial cluster) and modern export-based clusters as follows;

"Modern Export-based cluster" is a cluster which constituted to interlink with one of the leading set 16 export-oriented industries comprising more advanced industries such as Bio-medical industries, Bio-tech, pharmaceuticals, business services, electronics and defence and aircraft as part of the modern –export-driven economy (Sandag, 2015). Contrarily, the low order industries clusters seek to satisfy the local demand such as building material and construction industrial clusters, real estates, retail, clothes, and food processing, which is called the population support industries to serve the local market (Kuah, 2002). Moreover, the basic concept of the industrial cluster as a group of highly interdependent industries, that buying and selling each other more than other industries, thus they need to be agglomerated in one place (region or city), is not new (Ecotec Research & Consulting, 2002). This in turn, entails distinguishing between the old and recent new concept of industrial cluster.

Old industry cluster concepts were firmly entrenched in manufacturing sector only and the role of the industrial cluster is to maximize the industrial added value through allocating the supportive and complementary industries to reduce economic leakages through imports and then to penetrate the external markets to maximize exports(Boja, 2011). This, in turn, affirms the first type as export-oriented industrial clusters (Mattoon &Wang, 2014). Paradoxically, given the importance of the existence of at least one export-oriented industrial firm to constitute the industrial cluster, as the first step towards luring other industrial companies to integrate with it vertically and horizontally and establish the network of common buyer-supplier linkages, has raised the question of the appropriateness of the industrial cluster policy in Upper Egypt governorates, whereas most of their industrial firms are very local and unable to export or even to compete with those of Greater Cairo Region and those of Egyptian planned IZs in new towns (MIT, 2016). Instead, the Upper Egypt industrial cluster can be developed as a local or regional cluster which grouping interlinked industries with their supporting suppliers and distributors networks. Even though, this, in turn, entails the existence of both core group of basic industries in every governorate or industrial zones as well as the existence of a complex network of inter-related suppliers and distributors in order to build the anticipated industrial cluster successfully, which many scholars can argue for the existence of such prerequisites.

Contrarily, the new industry cluster concepts, especially in developed economies, interweave high value added production processing industries with their interrelated services with technology. Thus, industries having strong horizontal and vertically

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linkages, particularly fully assembled products, are mostly the target to be globally processed to be updated and modernized through the intensive knowledge-based- innovative economy and high production services and technology (Stimson et al., 2002). This, in turn, affirms the second type as intensive knowledge-based and globally processed high order service/industrial cluster, based on the fact that the concept of thoroughly combined production centers is no exist in the existing globalized economy (Boja, 2011). Furthermore, the rationale behind developing these new types of industrial clusters is the required new production systems, the existence of high new skills and economic competitiveness driven by globalization (Andersson et al, 2004). The investment location is always influenced by the locality competitiveness, which can be reinforced through the strategic alliances with value/ supply chains, the agglomeration of interlinked industries and by establishing high order modern industry clusters (Porter 1998)

Ironically, such high order global industrial and economic cluster cannot be built or proposed for the Upper Egypt lagging governorates, given the fact that most of the production chains in the most advanced industrial clusters in developing countries, particularly the services one and most globally nested ones are imported from developed countries causing high economic leakages (MIT, 2016).

Based on the spatial scale of industrial clusters, we can distinguish between the national and regional level industrial cluster accompanied by giving more attention and priority for the regional ones. This is because; the industrial cluster is more operative at a regional level rather than at a national level, whereas the industrial cluster linkages are regional by definition. Also, mobilizing resources and achieving integration is much easier at the regional level through the vicinity of the production factors (Kumar, 2006).

Further, two more industrial cluster types can justify the rationale behind promoting the concept of industrial cluster to foster the local economic development in Upper Egypt lagging governorates, particularly to introduce new industries have not been allocated there before, namely, the emerging commercial/industrial clusters and supportive industrial clusters which we can distinguish between them as follows;

Emerging clusters are groups of emerging small scale interlinked industries that have recently introduced to the locality (considered as non-tradition industries), accompanied with achieving high growth rates (Sweeney &Feser, 1998), such as producing electricity from solar energy in Hew industrial cluster in Qena Governorate), which have not previously been identified during developing the industrial cluster. They may emerge due to the change and advances in technology, telecommunication, and logistic services and most importantly due to the improvement in connectivity and regional transportation facilities, like what have been happened in the two case studies. However, importantly, the emerging clusters to formulate an independent cluster entail to be highly concentrated, export-oriented and inter-related and focusing on high-value-added jobs (Stimson et al, 2002).

On contrary, the supportive clusters comprise many supportive economic activities beyond the industrial activities, although the manufacturing sector used to be the primary driver of a regional economy and was the recipient of past economic investments, currently leading economic activities are not only located in manufacturing Bergman et al, 1997). They emerge due to the requirements of the core industries too numerous supporting economic activities such as real estate, construction, banking, education and maintenance services and all other economic activities that cooperate with the core industrial firms (Kumar, 2006)

2-4 How to build a thriving industrial cluster:

Firstly, every industrial cluster has to select the core industry or a core economic activity which will create the industrial cluster, particularly those the region has robust has comparative advantages,

Secondly, the local government should develop short and long-term strategies for creating a positive environment to nurture these clusters. Particularly developing the strategic infrastructure will afford cluster industries other comparative advantages accompanied with those resulting from their shared geographic location,

Thirdly, to determine the existing gaps in industrial production linkages particularly gaps in the value/ supply chain that exist in the city region, based on analyzing the different production process and steps of a good or service. The analysis has to conduct profoundly reviewing for the production process steps either being the initial, primary input suppliers and continue up to the end producers, including supporting distribution services. Thus we can determine the production gaps which will be considered as investment opportunities and potential added economic activity to the existing one (Abd El Hamid, 2014).

Fourthly, the local government has to recognize the spatial orientation rationale behind agglomerating different economic firms and different factories in one place to adhere with one of these three spatial attributes to plan the supportive and complementary activities, as follows;

(a) ***Shared end-markets.*** This includes companies that produce similar goods for several markets, and have similar relationships with other industries, wholesale retail trade sectors or directly with consumers.

(b) shared labor pools,

(c) the existence of leading or core economic firm and the existence of supporting institutions

(d) ***Strong buyer-supplier linkages***. Clusters tend to have meaningful relationships with suppliers, particularly for the globalized products and exported ones due to the huge volume of out-sourced inputs into production.

(e) ***Shared technology and know-how***. Clusters are likely to share techniques, information and skills in their work, particularly true for knowledge-based industries (Abdelaziz, 2018)

Fifthly, employ the quantitative and qualitative analytical tools and methods to identify the core and leading economic activities or key industries to set up the cluster. The quantitative tools include input-output modeling to identify buyer-seller relationships, and export-base theory to describe the leading sectors within a region. However, these quantitative tools will not be appropriate in the case of an emerging cluster, which is trying to benefit from a specialized regional labour force, but there is no buyer-seller

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relationships have been established. Thus the qualitative analysis tools will be employed to capture the informal institutions and resolutions that are crucial to the development of a cluster. Therefore, we can analyze the relative strengths of each cluster in terms of market growth potential and competitiveness within its region (Abd El Hamid, 2014)

Sixthly, the local government, in order to avoid underperformance by an industry cluster, has to conduct potential market analysis which entails careful evaluation of competitor position in terms of their products and markets (Bergman et al, 2001).

Finally, the local government or cluster development agency has to establish the key strategic factors essential to build a successful industrial cluster comprising;

(a) Strategic leadership and infrastructure
(b) Networking
(c) Market intelligence
(d) Capacity building
(e) Maximizing the use of endowed resources (UNIDO, 2016)

2- MATERIAL AND METHODS

Given the key purpose of this paper is to evaluate the applicability and effectiveness of the industrial clusters policy as the key policy to leverage the competitiveness of the lagging Upper Egypt Governorates particularly in the case of Sohag and Qena governorates based on the debate around how these industrial clusters have been identified. Mainly because most of them have not adhered with the well-known application and analysis method to identify the cluster properly which is called the application of industry cluster analysis (ICA). This in turn, has accentuated the importance of the question of assessing the criteria behind selecting the core industrial activities to constitute the proposed industrial clusters, as well as to assess the extent to which the selected industries are considered the first priority industrial clusters as conceived by local investors and beneficiaries as declared in the local economic forums consultation session conducted by the researcher and other researchers from PCO and other World Bank staffs. This, in turn, raises this paper main question, which is to validate the feasibility and effectiveness of the concept of the industrial cluster by answering three questions as follows;

- To identify the status quo and the existence of any industrial clustering in the existing six industrial zones in both governorates, through assessing the status of the value/supply chain as the base to build the proposed industrial clusters. This entails conducting a structured questionnaire with the tenants (key managers of owners) of the existing industrial firms in the six IZs;
- To validate the appropriateness of the chosen industrial cluster and industrial activities to be clustered. This entails to employ Porter industrial competitiveness statistical technique to assess the appropriateness of the selected cluster, as well as conducting focus group workshops with the local economic forums to explore the expected challenges which will confront the proposed clustered and may hinder their development; and
- Finally utilize the local economic forum focus group workshops to recommend alternative industrial cluster and further potential clusters, based on their local knowledge about the most rigorous local potential and leading industries and crafts, to be considered in the future

Thus, this paper employs both quantitative and qualitative approaches to evaluate and analyze the proposed industry clusters in the two governorates. The quantitative approaches typically analyze industrial sector data using methods that measure industry size and change- based on employment and industrial firms statistics as well as inter-industry linkage level. To validate the appropriateness of the chosen industrial cluster, the author has employed SPSS software to conduct the statistical analysis for the outcomes of the close-ended questionnaire with the owners and key managers of the existing firms in the six industrial zones in both Sohag and Qena Governorates, accompanied with comparing the results with the national benchmarks. This entails conducting fieldwork survey comprising a place of work questionnaire for the owners and key managers of the existing factories in the six industrial parks in the two governorates, including Industrial Zones in Sohag and Qena (El Kawther, West Tahta, El Haiwa, West Gerga, Hew (Nag Hammady), and Qeft), whereas most of the proposed industrial and economic clusters will be located in these sex industrial zones. A random sample of 150 respondents was conducted during 2017 and 2018 as selecting 25 respondents (the owners of the existing factories and the key managers) from every industrial zone out of the six IZs in the two governorates.

However, some relevant statistical methods for analyzing the vertical and horizontal industrial linkages in specific industrial clusters such as Shift-share and input-output models cannot be employed due to the absence of reliable data. This in turn, explain why the author utilizes the mixed method approach to obtain a profound insight of the strength of the existing value/supply chain and inter-industries linkages within the key industrial clusters in the two governorates.

Qualitative analysis will focus on analyzing the outcomes of the focus group workshops which were conducted with the local economic forums on city-region levels (Markaz Levels) for all Markazs in both Sohag and Qena Governorates. Local economic forums were formulated based on the request of World Bank advisory team to ensure a robust local participation process has been taken place in identifying the key investment projects to utilize the loan beyond the central government orders. Local economic forums were formulated to include different stakeholders on Markaz level including the key businessmen, suppliers and investors of both value chain and supply chain for the existing six industrial zones. Local economic forums through digital applications such

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as WhatsApp and consultation sessions have conceived as the core policy to implement the cluster competitiveness initiative CCI. It is conceived that, success requires increasing the involvement of private sector leaders, the cluster's support entities, who represent greater portions of its value chain, through dialogues and consultation sessions in order to result in a common strategy for competitiveness that is owned by the private sector and supported by the government. The rationale behind involving local economic forums businessmen, investors and suppliers is that businessmen will be aware of the structure of suppliers and distributors within the region, and the magnitude of sales or purchases made between core industries and the supplier network. Therefore, the key purpose of the focus group workshops is, to explore the strength of the existing value/ supply chain, the inter-industries linkages and existence of any key or leading industrial firms which are able to formulate an industrial cluster. Additionally, it will help to identify what type of existing agricultural crops, local products and potentials are eligible to constitute further and alternative industrial clusters. Furthermore, the local economic forum workshops and focus groups were asked to validate and prioritize the proposed industrial clusters by World Bank in the two Governorates. The qualitative data and focus groups data have been analyzed by using NIVIVO program.

Statistical analysis

In order to validate the appropriateness of the chosen industrial cluster Porter (2001), competitive industrial cluster analytical technique has been employed to show how the competitive position of industry clusters in the regional economy to scale its relative importance to competitor clusters. Every industrial group is positioned on two axes which relate to the level of employment growth (vertical axis) in the period 2010/2018, and a measure of the relative concentration of employment in the local cluster vis a vis that for the industry at the national level by utilizing the location quotation technique for the concertation of employees in every industry cluster at 2018. The employed benchmark is the data for Egypt (national level). Secondly, the author has employed SPSS software to conduct the statistical analysis for the outcomes of close-ended questionnaire with the owners and key managers of the existing firms in the six industrial zones in both Sohag and Qena Governorates, accompanied with comparing the results with the national benchmarks.

3- RESULTS AND DISCUSSION (EMPIRICAL WORK)

4-1 Overview on the Significant of the industry sector in Egypt:

Historically, the textile industry has traditionally dominated the manufacturing sector in the period 1952 till 2002, but its share in manufacturing value-added has fallen considerably, dropping from 30% in the early 1970s to 13% in 2002 (Djoufelkit, 2008). Other manufacturing activities, particularly agro-food (20% of GDP and of employment), remained stable over the period. The sub-sector that benefited was the involvement of private sector and FDI after the open-door policy in 1975 is petrochemicals, whose share rose from 2% in the early 1970s to 30% in 1990 and then 36% in 2010. However, since 2005, Egypt's has three principal manufacturing activities (excluding petrochemicals), namely textiles, metal goods and agro-food, the private sector generates over 50% of value-added and absorbs more than 30% of total employment in addition to two rigorous industries namely; chemicals industry which has increased to 32% and 14.5% in terms of value-added and employment respectively and the mineral industry that has also expanded (9% of value-added and 8% of manufacturing employment), driven by cement production (UNIDO, 2016).

Overall, the share of manufacturing in the Egyptian economy is very low in terms of sharing in GPD (less than 17%), ability to absorb new entrant to labor force market, solve the problem of unemployment or leverage the exports (counts for less than 10%), much lower than in other countries of the Middle East/North (Abdelaziz et al, 2018). It has long been oriented to serve the domestic market. Thus, given the fact that the structure of Egyptian industry has thus remained more or less fixed, dominated by a few large sectors such as the chemicals industry, this, in turn, has emphasized the importance of designating a new industrial modernization policy which has been launched since 2015 to leverage the competitiveness of the Egyptian industrial sector and overcome the drawbacks and the cut of the industrial growth during the Egyptian spring revolution period from 2011 till 2014(UNIDO, 2015).

4-2 The current Egyptian program to build 22 industrial clusters to foster the development in Upper Egypt lagging governorates

The Government of Egypt (GoE) seeks to eradicate poverty and improve the livelihoods of all its citizens in its nine lagging governorates located in Upper Egypt, whereas People in Upper Egypt face numerous challenges, they have low access to finance and although agriculture is the main economic activity, crops cultivated have low market value and do not provide people with sufficient income and food security. As well, there are few alternative employment options due to limited non-agricultural economic activities in the region. Therefore, it has initiated the Egyptian Inclusive Economic Development Program for Lagging Regions (IEDLR (UNIDO, 2016). The key objectives of IEDLR are improving competitiveness, infrastructure, and business milieu for attracting private sector. And the program main policy pillars are three-folds as follows;

- Improving the competitiveness of industrial sectors and SMEs
- modernizing Upper Egypt industrial zones
- strengthening and adopting the proposed industrial clusters to be located in the existing SMEs (MIC, 2016)

Later in 2017, The World Bank and government of Egypt signed a loan agreement, formally commencing the Upper Egypt Local Development Program-for-Results (World Bank, 2016). The UELDPs include improving the business milieu for attracting private sector and strengthening local government competence for delivering quality infrastructure and service in Qena and Sohag governorates. To create jobs and economic development in Upper Egypt, (ELDP) Program has a focus on the development of

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Cluster Competitiveness Initiatives to catalyze investment and grow jobs and sales in Qena and Sohag governorates. Cluster Competitiveness Initiatives (CCIs)—a combination of sector-specific and firm-specific initiatives—are launched in the two governorates to lure private investment in existing and emerging industries (World Bank, 2017)

The rationale behind introducing the industrial cluster policy to modernize the industrial sectors and boosting its competitiveness, through developing many small and local/or regional industrial clusters in the existing small industrial zones IZs or SMEs in Upper Egypt lagging governorates, is that the Egyptian government strongly believes that Upper Egypt has significant economic potential, either being human or natural resources (Abdelaziz, 2018).
22 specialized industrial clusters are proposed by The Ministry of Trade and Industry to be located in 7 lagging governorates, in addition to eight clusters in Sohag and Qena governorates will be developed by World Bank loan counted for 0.5 billion dollars. Most of these 30 industrial clusters will be located within the existing industrial zones IZs, on the form of specialized SMEs industrial clusters in the nine lagging governorates to strengthen the linkages between SMEs and big producers (AAA- Arab African Advisers, 2016; World Bank, 2016).
The key and leading industry to formulate the cluster has been chosen to be one of the following four-fold industrial activities;

- SME clusters in Agro-Business, Building Material, and Furniture,
- SME cluster in traditional products and handicraft products,
- SME cluster to shipping and processing the natural potential and building material such as Marble & Granite processing cluster, and
- The SME cluster in the engineering industries and high advanced industries (World Bank, 2016)

Many experts criticize the selection for some of the key leading industries to formulate the industrial clusters, warning Egypt to avoid selecting the high advanced industries particularly the engineering industries and the fourth industrial wave industries, whereas the improper selection of the key sectors is considered the main causes of the ineffectiveness of this policy in many developing countries (UNIDO, 2016). This is meant that the fourth selected industrial cluster namely, SME cluster in the engineering industries and high advanced industries, is not appropriate the lagging Upper Egypt Governorates. Alternatively, Egypt has to focus on the first and second industrial cluster types namely; Agro-Business and traditional handicraft products such as what have been proposed and lunched in Akhmim in Sohag which is specialized in the production of silk fabric; and Hallayeb and Shalatin which are specialized in leather products, as well as furniture workshops in Tahta (CMI, 2017).

4-3 The current Industrial Cluster Initiative and program in Sohag and Qena governorates
World Bank missions during 2016 and early 2017 identified the most overriding competitive industrial clusters in the two governorates comprising the following industrial clusters;

- The overall agriculture/agro-business cluster (e.g., CCIs in agricultural waste, processed agricultural products such as paste and sun-dried tomatoes, dried onions, and fresh herbs);
- light manufacturing cluster (e.g., furniture CCI in Tahta, solar power CCI in Qena);
- meat processing industrial cluster in West Gerga- Sohag Governorate
- mining and materials processing cluster (marble processing CCIs in Qena and Sohag);
- tourism and handicraft cluster (e.g., handicraft CCIs in Qena and Sohag);
- IT/business process outsourcing and other business services cluster (e.g., call centers CCI in Qena). (World Bank, 2018)

These competitive industrial clusters have been selected based on the following criteria to assess their current and potential future competitiveness;
1- Current Size of the Cluster (existing scale) Volume/Value of production and Number of Employees/Farmers
2- Cluster Potential and Impact expected market growth**,** potential to improve productivity, R&D capabilities and potential to move up the value chain**,** environmental impact, and social sustainability, including poverty reduction impact
3. Readiness for Clustering existing level of collaboration (current organization and mobilization within sector associations, business clubs etc.) **as well as** readiness and willingness of leaders to engage in a clustering process
4. Ease of Implementation (Cluster Initiatives) Risks outside cluster members' control (political, environmental etc.) and Cost-effectiveness (DMI Associates, 2017)
Some of these criteria have received many criticisms particularly, the third criterion, which is considered the most criticized criteria. No one of the interviewee believe in the readiness of any industrial clusters currently or even in the nearest future due to the totally absence of any kind of collaboration between the factories owners and the absence of any industrial activity association such as the absence of the furniture producers association in West Tahta to mobilize the relocation of furniture workshops from Tahta existing city the new location of the cluster in West Tahta IZ. Moreover, no willingness of the industrial investors exists to engage in a cluster or supply chain in the future (focus group with factories' owners, 2018).

4-4 Do Upper Egypt lagging governorate' IZs have substantial value/ supply chain to formulate an industrial cluster?
Based on The World Bank Group operation in Upper Egypt lagging governorates, particularly in Sohag and Qena Governorates, the Author was contracted as local economic development LED expert to enhance economic competitiveness, connectivity, economic infrastructure, and basic services in the targeted localities through conducting a survey with 150 existing industrial tenants in six industrial zones (25 respondents from each industrial zone). The purpose of the survey is to validate the appropriateness of the concept of industrial clusters, which conceived as the main policy tool to improve competitiveness and

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supporting the growth. This, in turn, entails examining the existence of any Value chain/supply chain, in terms of source of industrial inputs, place of customers buying final products, place of competitors, intension for future expansion in the same industrial zone and the satisfaction with current IZ location as a base to allocate the industrial cluster. Table no (1) illustrates the results of the structured questionnaire as follows;

Table (1): The status quo of value/supply chain as the base of the existence of industrial clusters in Qena and Sohag Governorates

The status quo of value/supply chain as the base of the existence of industrial clusters		Sohag Governorate IZs				Qena Governorate IZs		Average
		Kawther IZ	Tahta	Gerga	Ahaywa	Qeft	Hew	
Source of industrial inputs	Obtain main industrial inputs from sources outside Upper Egypt	67.7%	52.4%	45%	55%	54%	55.7%	55.7%
	Obtain main industrial inputs from Upper Egypt	20.6%	30%	11.7%	27%	20%	19.9%	19.9%
	Industrial inputs are directly imported from outside Egypt (economic leakage)	8.8%	17.6%	30%	9.1%	22%	16.3%	16.3%
	Obtaining industrial inputs from same IZ/ same governorate	2.9%	0%	13.3%	9.1%	4%	6.6%	6.6%
Place of customers buying final products	Selling final products for businesses customers	70.6%	81%	73%	91%	66%	76.9%	76.9%
	Selling final products for government bodies/ministries	17.6%	9.5%	6.5%	9%	0%	8.8%	8.8%
	Selling final products for customers in Upper Egypt	71%	66.6%	47.7%	35%	66%	57.7%	57.7%
	Selling final products for customers in same governorate	23%	19%	40%	35%	5%	26.5%	26.5%
	Selling final products as exports	2.9%	0%	6.7%	0%	11.1%	4.0%	4.0%
competitors	Universal competitors	0 %	9.5%	33.3%	0%	33.3%	12.7%	12.7%
	National competitors	29.4%	2.5%	13.2%	36%	11%	17.0%	17.0%
	Regional/ local competitors	45%	70%	33.3%	35%	22.2%	45.9%	45.9%
	Informal sectors	26.5%	18%	20%	36.5%	33.3%	25.7%	25.7%
Sources of managers and high skills labor	Problems in recruiting Managers	10%	5%	10%	3%	5%	6.3%	6.3%
	Problems in recruiting high skill labor	80%	46.7%	70%	54.6%	44.4%	59.6%	59.6%
Plan for expansion	Intension for expansion in same industrial zones	73.5%	95.5%	80%	45%	70%	75.7%	75.7%
	Source of financing expansion from bank loans	52%	20%	30%	10%	40%	33.7%	33.7%
	Source of financing expansion from personal savings	33%	80%	70%	90%	60%	63.8%	63.8%
Satisfaction with location of IZ as place of allocating industrial clusters		91.2%	80%	38%	27.6%	77.8%	35%	58.3%

Source: the author-based on World Bank UELDP program for Sohag and Qena 2018.

The value/supply chain analysis of six IZs-based enterprises indicates that vertical integration among different industrial activities within these six IZs is at its minimum, whereas only 6.6% of total respondents obtain their main industrial inputs from the same IZ , indicating the absence of sufficient local alliances to stimulate the formulation of any industrial cluster. Moreover, only 19.9% of the respondents obtained their inputs from the same governorate or other neighbouring Upper Egypt governorates. On contrarily, 55.7% of the respondents receive their input from sources located outside Upper Egypt governorates accompanied with 16.6% of the industrial inputs are importing directly from outside Egypt (as the main source of economic leakages). It is worth to notice that, the minimum level of imported inputs indicate that, imported data are supplied through Egyptian importers who are agents or dealers, rather than being imported directly. This is, in turn, affirming two facts, the small size of the IZ-based enterprises, and the relatively high level of similarities in the types of activity (questionnaire respondents, 2018)

There is no significant difference among IZs regarding the relative distribution of the customer base, for most tenants (76.9%) the main customers were businesses while 8.6 % pointed out that the main customers is government Customers, benefiting from

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public procurement. Traders – both wholesale and retail – account for a large share, as compared to larger manufacturers. This phenomenon entails the fact that feeding industries in these IZs need to be encouraged in the context of future development actions. Once again the distribution of customers accentuated the absence of robust value/supply chain, whereas 57.7% of the tenants selling their final products for customers located outside Upper Egypt governorates, while only one quarter sell their final products for customers in the same governorate or in the same IZ. Exports constituted the main market for a mere 4% of tenants, indicating that most of these IZs are not connected with any international operations (questionnaire respondents, 2018).

Interestingly enough, the two extremes on the range of competition – in terms of the strength of business establishment – account for the major parts of the competition faced by IZs' tenants. In specific terms, the main competition for tenants surveyed came from imports (global competitor) and informal sector as reported by 12.7% and 25.7% of the respondents respectively. Ironically, the most robust competitors come from the regional (Upper Egypt) and local (within governorate) competitors, which in turn indicates the repetition of the same industrial program in almost all IZs in Upper Egypt (questionnaire respondents, 2018). Furthermore, most of the tenants encounter big problems in recruiting highly skilled and skilled labors as 57.7% of the respondents indicate, due to the lack of qualified staff available locally. So to overcome this challenge, they have to seek skilled labors beyond the governorate, accompanied with offering high salaries, training, and bearing high costs in affording ample daily transportation for daily commuters or offering housing and resettlement opportunities. Contrarily, they never confront any difficulty in recruiting managers or unskilled workers.

Tenants of IZs industrial firms exhibit good potential for growth as 75.5% of respondents indicated they plan to expand in the coming three years mainly by hiring more labor, expanding the area of facilities, and increasing their assets. Two third of tenants will finance these plans through their own saving beyond the institutional bank loans. Finally, the location of industrial zone seems to be one of the key factors hindering the work of value/supply chain and constitute a robust industrial cluster, whereas only 58.2% of the respondents demonstrate their satisfaction with their location in the current IZ as the place of allocating industrial clusters (questionnaire respondents, 2018).

Thus, the results have accentuated the fact that Egypt, like other many developing countries, will encounter many obstacles in developing their industrial clusters in its lagging governorates. Mattoon & Norman (2014), has summarized the key six issues of developing industrial clusters in developing countries as follows;

(a) Lack of industrial cluster overarching strategy to affirm the existence of adequate resources throughout the process. Cluster-based initiatives require the commitment for a long time, more energy and financial resources, which might be tapped from a variety of sources, including private firms, major employers, trade associations, chambers of commerce, retired professionals, academic institutions, governments, and non-profit foundations (Mattoon & Norman, 2014)

(b) The availability of skilled labor and efficient human resources(Kumar, 2006)

(c) The existence of highly committed leadership; including 'champions' who may be from business, the private sector, or institutions like universities. (Abd El Hamid, 2014)

(d) Lack of required technology and low technological competence, which is essential for improving production efficiency (Abd El Hamid, 2014)

(e) Lack of advanced infrastructure, facilities and amenities comprising; fiber optic cable systems, data processing centres, efficient transportation systems, waste management services, education training and community facilities will have a significant impact upon equipment and human performance in supporting the development of industry clusters and attracting new industries to regions (Kumar, 2006)

(f) Poor access to financial capital hinders further investment in industry clusters (Abd El Hamid, 2014)

(g) Lack of specific incentives base to encourage the investment in cluster supportive activities such as offering more incentives for research and development, high environmental performance, and for cleaner, production-will creates the essential economic foundations that nurture cluster development. Ironically in the case of Egyptian industrial cluster initiatives, most of the incentives are concentrated in the forms of tax incentives and other incentives which have a significant impact on the cost of business (Abdelaziz, 2018)

(h) Central government-oriented- business without proper engagement with the other potential implementation institutions, accompanied with the flattering the energy of the central government leader because, building s thriving industrial cluster is a long term process which entails a policies to sustain momentum and commitment through delegating the central government duties to other participants and stakeholders (Kumar, 2006).

However, Egypt adds more issues and obstacles confronting the development of industrial clusters in its lagging governorates based on its industrial sector low productivity and competitiveness due to several factors, including; underdeveloped markets, value chain gaps, limited access to markets, lack of business development services, incomplete infrastructure, labor challenges, and the quality and availability of government services (CMI, 2017).

4-5 To what extent the chosen industries are the most appropriate and competitive ones to constitute the anticipated industrial clusters??

Although the Egyptian national industrial modernization center identified since 2010 the anticipated high competitive industrial clusters intended at the national level comprising the following industrial clusters;

• Food & Agro Business
• Furniture and Wood Industries

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• Building Material, Construction and Metallurgical Industries
• Leather Tanning & Leather Goods Industries
• Textiles and Ready-Made Garments
• Engineering Industries
• Chemical Industries
• Pharmaceuticals, Cosmetics and Appliances
• Printing and Packaging Industries (IMC, 2011)

Most of the proposed industrial clusters in Upper Egypt have not adhered with the targeted industrial cluster on the national level as many respondents affirmed.

Thus, in order to validate the appropriateness of the chosen industrial cluster, the paper adopted Porter industrial competitiveness statistical technique to assess the relevance of the selected cluster. In order to validate the findings, the author conducted many focus group workshops with the local economic forums to explore the priority and proper industries to be developed to constitute the clusters as well as identifying the expected challenges which may confront the proposed clustered and may hinder their development.

Porter (2001) competitive industrial cluster analytical technique has been employed to show how the competitive position of industry clusters in the regional economy to scale its relative importance to competitor clusters. Every industrial cluster is positioned on two axes which relate to the level of employment growth (vertical axis) in the period 2010/2018, and a measure of the relative concentration of employment in the local cluster vis a vis that for the industry at the national level by utilizing the location quotation technique for the concertation of employees in every industry cluster at 2018. The employed benchmark is the data for Egypt (national level). This analysis enables the decision to recognize the most competitive industrial clusters currently in Upper Egypt lagging governorates, which is highly expected to be chosen when proposing industrial cluster policy in these areas. Moreover, from this type of analysis important decisions can be asked about how to reposition or to maintain the stability of an industry cluster relative to competitor clusters. Porter Diagram has been classified the industries to four quarters/groups comprising;

- High competitiveness industries, the most growing and allocating industries (First priority)
- Assets have to be leveraged, allocated, concentrated and agglomerated industries but start to stagnate (have to be revitalized), second priority
- Fast-growing industries need to be concentrated (emerging third priority)
- Low competitive industrial groups (have to be avoided due to its stagnation and low competitiveness)

Fig no (1) and (2) and table (2) illustrate the competitiveness of the different industrial groups/ clusters in both Qena and Sohag governorates as follows;

Table (2): the competitiveness of industrial clusters in Sohag and Qena Based on Porter competitiveness model

industrial group	industrial employees -Sohag Gov 2018			industrial employees –Qena Gov 2018		
	growth rate 2010/2018	location quotient	%	growth rate 2010/2018	location quotient	%
Food, drinks and tobacco	0.01	3.95	61.7%	-2.32	1.78	27.8%
Yarn, fabric, garment and leather	-7.89	0.29	7.5%	-0.01	0.16	4.3%
Wood and its products	7.07	2.15	4.5%	0.29	0.86	1.8%
Paper and cardboard and its products	13.75	1.03	4.8%	1.89	1.35	4.3%
Basic chemicals and their products	2.40	0.745	9.1%	-0.66	0.12	1.5%
Ceramics, refractories and building materials	8.58	0.53	4.3%	11.58	0.71	5.8%
Basic Metals	8.07	0.14	0.8%	0.00	9.14	53.7%
Engineering, electronic and electrical industries	4.74	0.32	7.2%	4.18	0.04	0.8%
Other manufacturing industries	0.00	0.01	0.0%	0.00	0	0.0%

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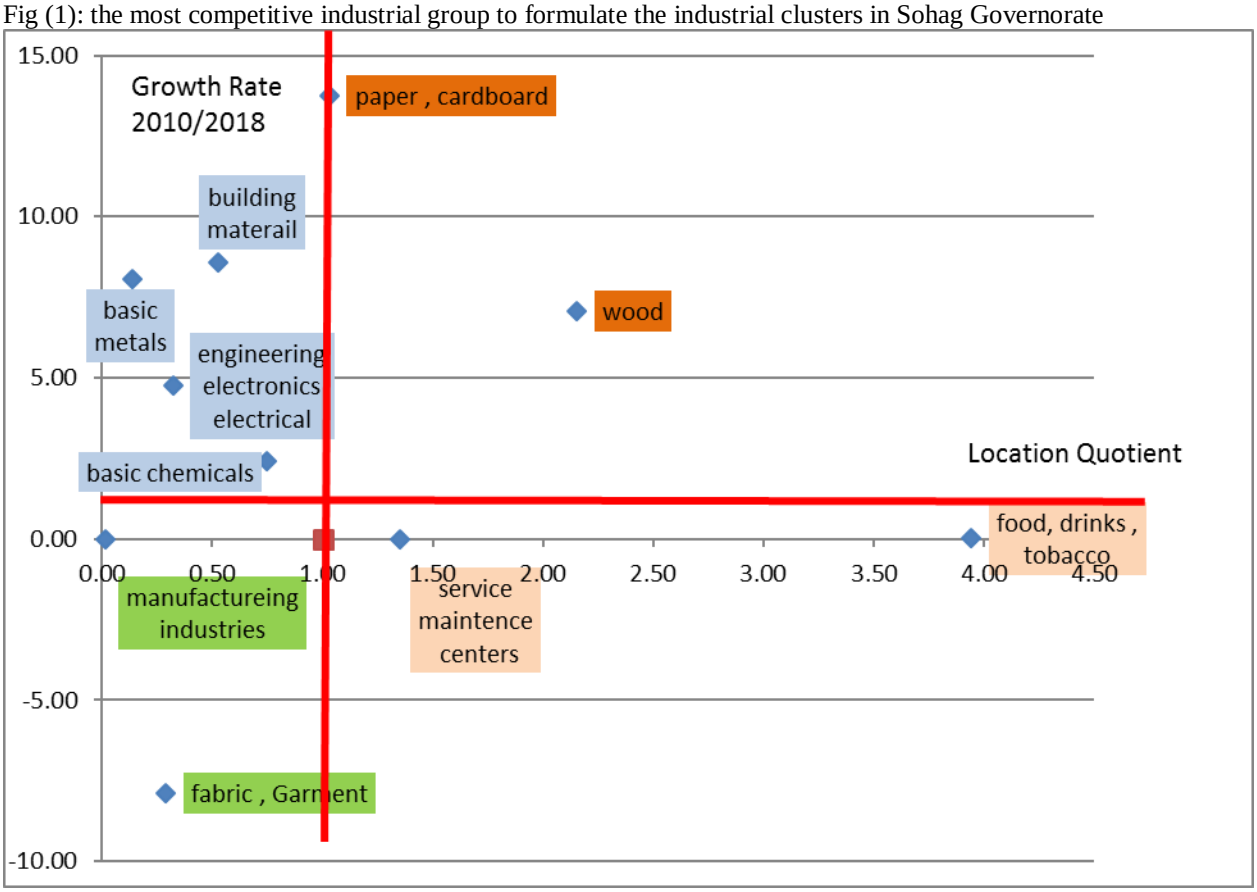
Maintenance and service centers	0.00	1.35	0.1%	37.80	0.90	0.05%
total governorate	0.98		100.0%	-0.19		100.0%

Source: the author-based on World Bank UELDP program for Sohag and Qena 2018

Fig (1): the most competitive industrial group to formulate the industrial clusters in Sohag Governorate



Source: Author based on Egyptian industrial development Agency (IDA) Data 2010, 2018

From the above figure, it is easy to determine the inappropriateness of the proposed industrial clusters in Sohag governorate based on their competitiveness as follows;

Competitive industrial groups		Proposed clusters from World Bank Team	
High competitiveness	Wood processing	Compatible cluster	Wood and furniture cluster in Tahta
Missing high competitive clusters	Paper and cardboard	Missing cluster /high potential	---------
Assets have to be leveraged	Food, drinks and tobacco industries	Potential cluster	----------
	Service and maintenance center		---------
Fast-growing industries need to be concentrated	Building material Basic metal Engineering industries	Second priority cluster	------
	Agro - industries		Meat processing in West Grega
Low competitive industrial groups	Manufacturing industries /recycling industries	Incompatible cluster/ low competitiveness	Agro-waste recycling cluster in Al-Kawther IZ
	Fabric- Garment		Silk wears clusters and handcraft cluster in

Source: based on focus group workshops with local economic forums in Sohag Governorate.

Only one industrial cluster out of the proposed four clusters by World Bank team for Sohag governorate has shown competence and competitiveness based on the results of Porter (2001) competitive industrial cluster analytical technique, namely Wood and furniture cluster in West Tahta, which is considered the most competitive industrial cluster. Contrarily, two proposed clusters are incompatible and encountering low industrial competitiveness in Sohag governorate namely; Agro-waste recycling cluster in Al-Kawther IZ and Silk wears clusters and handcraft cluster in to support the tourism development. Moreover, one cluster is

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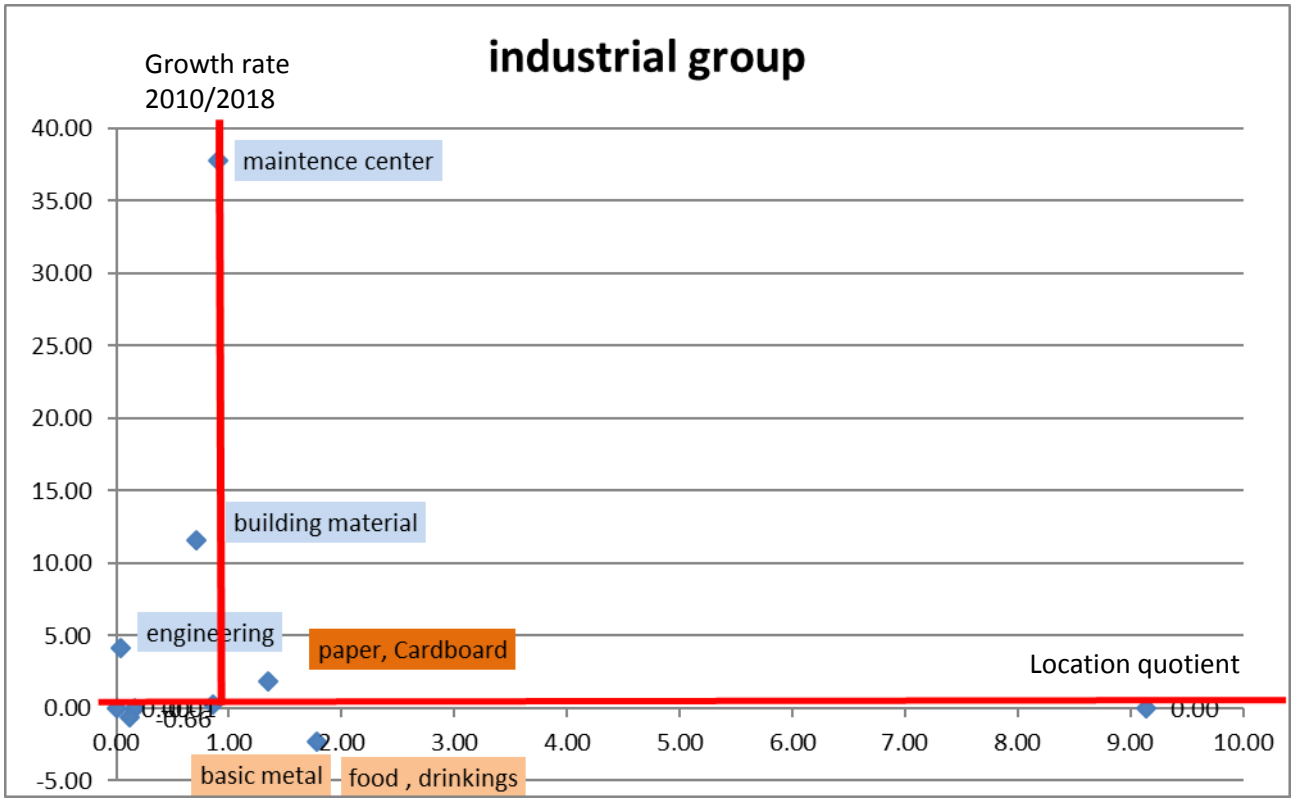
considered as second priority cluster due to its moderate industrial competitiveness which is the proposed Meat processing in West Grega IZ.

Ironically, many high potentials and first priority clusters have not conceived or proposed yet by the World Bank team. These high potential clusters have been identified by local economic forums comprising agro-industries such as paste and sun-dried tomatoes, dried onions, and fresh herbs, as well as utilizing and recycling sugar reeds manufacturing wastes in producing paper and cardboard industries and building material industries such as marble processing clusters. All of these well nested industrial clusters with local economies have been ignored (focus group consultation session with local economic forums, 2018)

Fig (2): the most competitive industrial group to formulate the industrial clusters in Qena Governorate



Source: Author based on Egyptian industrial development Agency (IDA) Data 2010, 2018.

From the above figure, it is easy to determine the appropriateness of the proposed industrial clusters in Qena governorate based on their competitiveness as follows;

Competitive industrial groups		Proposed clusters from World Bank Team	
High competitiveness	Paper Cardboard	Compatible cluster Missing cluster /high potential	--------
Missing high competitive clusters	Maintenance and repair centers	Missing cluster /high potential	---------
Assets have to be leveraged	Basic metal Food and Drinking	Potential cluster	paste and sun-dried tomatoes, and dried onions, agro-business cluster in Hew
Fast-growing emerging industries need to be concentrated	building material Engineering industries	Second priority cluster	--Marble and Granite processing cluster in Qeft Solar power equipment is Hew
	Manufacturing industries /recycling industries	Incompatible cluster/ low competitiveness	Agro-waste recycling cluster in Qeft
	Handicraft		Copper and Clay Mansfield Handicraft cluster in Nacada city

Source: based on focus group workshops with local economic forums in Qena Governorate

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Similarly, in Qena governorate, the results from Porter (2001) competitive industrial cluster analytical technique show that none of the most competitive and first priority industrial clusters has been chosen by World Bank team, whereas they have not chosen the paper and Cardboard industrial cluster or even Maintenance and repair centers

Second priority cluster has been depicted, which is mainly considered as Assets have to be leveraged, in the Food and Drinking industrial group, named paste and sun-dried tomatoes, and dried onions, agro-business cluster in Hew.

Moreover, two clusters are considered as third priority cluster due to its moderate industrial competitiveness which is the proposed Marble and Granite processing cluster in Qeft and Solar power equipment (Engineering industries) in Hew, as well as building material clusters such as the proposed Marble and Granite processing cluster in Qeft.

Ironically, two proposed clusters are considered as low competitiveness a stagnated industries, have been chosen by World Bank team namely; Agro-waste recycling cluster in Qeft IZ and Copper and Clay Mansfield Handicraft cluster in Qena city in to support the tourism development.

To affirm and validate the previous results, the author asked the existing industrial firms owners and leader to determine the anticipated key challenges which are highly expected to hinder the development of the eight proposed industrial clusters in Sohag and Qena governorates as shown in Table (3).

Table (3): The key challenges facing the development of the proposed industrial clusters in Sohag and Qena Governorates

governorate	**Cluster**	**Drawbacks and key challenges/ needed key actions**	**governorate**	**Cluster**	**Drawbacks and key challenges**
Sohag	**Furniture Cluster In West Tahta**	No obvious policy and Support for the movement and consolidation of furniture workshops from Tahta to West Tahta IZ • Absence of furniture association •lack of shared production facility with CNC and advanced machinery • Absence of establishing a joint marketing initiative Lack of creation of furniture design center	Qena	**Renewable Energy/ Solar Power Cluster**	• Absence of buyer/ supplier linkage program. Inabilities of Support suppliers to identify buyer's needs (specifications, quantities, qualities) • Absence of Incubator for new entrepreneurs for solar energy complex (e.g. solar system installation companies, solar cells manufacturing.) • Absence of Training centers for solar energy technicians and workers Lack of any Support to SVU R/D center for renewable energy
	Agriculture Waste and Solid Waste Recycling	-No formation of an association for agriculture waste collectors and processors - No development of a pool of collection and processing equipment (e.g., tractors, waste cutting and processing machines) - Absence of incubator and innovation center for agricultural waste product development - No automation and upgrading program of solid waste sorting and handling systems - No clear Investment attraction program for agriculture waste product development		**Agricultural Waste Cluster (initial focus sugar cane)**	Absence of observatory and R&D center for agricultural waste products (ethanol, wood, perfume, paper, molasses, perfume, energy, animal feed). • No Attraction policy for private and FDI investors and strategic alliances (e.g., Germany) • Development of export markets for ag waste products
	Handicraft Cluster	-No joint purchasing Support for access to raw materials (e.g., silk, silver thread, wool, etc.) -No development so far of new design center and strategic alliance with fashion in EU and		**Handicraft Cluster** Nacada,	• Absence of training center for handicraft design improvement and innovation, and training of designers, • Low skills for most of the handicraft works

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		USA -No development of handicraft market observatory -Absence of specialized handicraft product associations			• Lack of handicraft packaging and labeling program • No strategic market development initiative (Louvre, Berlin, NY Metropolitan Museum, etc.)
	Meat processing in West Gergga	-No formation of association for cattle raising feeder and small suppliers - No collaboration with the new modern slaughter - absence of logistic services and cold storage yards Absence of buyer/ supplier linkage program			

Source: the author based on focus group outcomes with factories' owners, 2018.

4-6 The Identified Alternative high priority potential industrial clusters in Sohag Governorate by local economic forums:
The local economic forums in Sohag Governorate were asked at 2018 to identified other high priority potential industrial clusters in every district to foster their local economic development, based on the following criteria;

- The existence of some clustering and collaboration
- Utilizing the most famous handicrafts, the key agricultural crops,
- The presence of central wholesale market for fruits, vegetables and camels and cattle, warehouses, logistics facilities, supporting agricultural facilities such as slaughterhouse and cold storage zones.
- the proposed industrial clusters have the potential to be relocated in the planned industrial zones and economic zones.

The results have been rendered in fig (3). Also, table (4) illustrates the differences between the high priority potential industrial clusters to be established in Sohag Governorate from the point of view of local economic forums stakeholders against the proposed one by World Bank experts, which indicates that only two clusters proposed by World Bank staffs are accepted and prioritized by local economic forums namely;

- Establishing a new economic cluster for meat processing industries and Leather Tanning and Leather Manufactures in Western Gerga IZ
- establishing Furniture cluster in West Tahta planned industrial zone

Contrarily, many other alternative industrial clusters proposed by local economic forums have high potential and more interlinked with the existing local economies and have to be replacing the proposed ones by World Bank team including;

- Establishing a new Economic Cluster for Drying onion, garlic and legumeS in Western Gerga IZ- tama- El-kawthar
- Establishment new industrial zone in Dar Alsalam to allocate the economic cluster for marble, granite, and building materials and producing RDF woods from recycling agricultural waste
- Establishing a handcraft and vernacular crafts in Ahkmeem city

Table (4): The priority alternative industrial clusters proposed by local economic forums against the proposed one by World Bank Team

Pillar		**projects**	local authorities	proposed from local forums	proposed from previous studies	proposed from the World bank	has the potential to allocate	priority
establishing a handicraft industrial zones and industrial clusters	**Tama**	Establishing a new complex to allocate the informal and spontaneous workshops in Tama city	■	■	■		■	1
	Gerga IZ	Establishing a new economic cluster for meat processing industries and Leather Tanning and Leather Manufactures in Western Gerga IZ		■	■	■	■	1
		Establishing a new Economic Cluster for Drying onion, garlic and legumeS in Western Gerga IZ- tama- elkawthar		■	■		■	2

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	Dar Alsalam	Establishment new industrial zone in Dar Alsalam to allocate the economic cluster for marble, granite, and building materials and producing RDF woods from recycling agricultural waste						1
	SAQULTA	Establishment of an industrial zone in Jalawia, where a wholesale market for vegetables and fruit, feed and livestock market will be established - Saqulta District						2
	Tahta	establishing Furniture cluster in West Tahta planned industrial zone						1
	El Maragha	Establishing a new Economic Cluster for producing RDF woods from Agricultural wastes Recycling process in El Maragha city						2
supporting the activities of the agriculture sector	**SOHAG**	Establishing Liquid nitrogen production unit to serve farmers and cattle growers of the governorate in Sohag City.						2
supporting the activities of the tourism sector	**Ahkmeem**	Establishing a handcraft and vernacular crafts in Ahkmeem city						1
		Completing the upgrading of different archeological sites in Sohag - Akhmeem- albalina cities.						1
	Sohag / Al-Kawther IZ	Training center for archaeological and handicraft industries and restoration of antiquities in Al-Kawther IZ						2

Source: local economic forum consultation sessions on district levels in Sohag governorate, 2018

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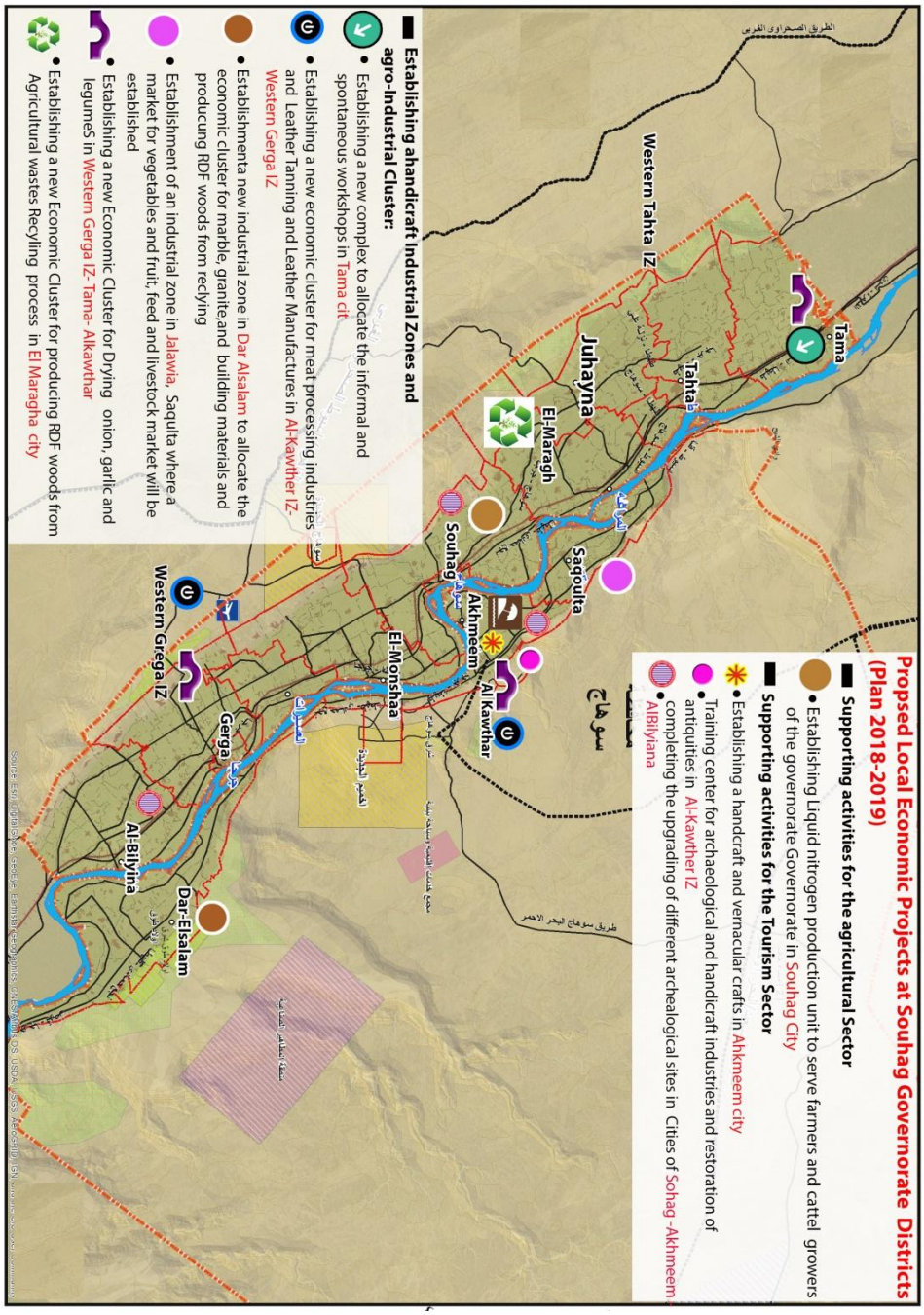

Fig (3): high potential and priority industrial clusters proposed by local economic forums in Sohag governorate on districts level

CONCLUSION

Given the contradiction between the concept of industrial cluster which is built on a leading competitive industries interlinked with other supportive industries to establish a value/ supply chain in one hand, and the nature of the Egyptian industrial sector which is geared mainly to serve the domestic market and is not very competitive at the international level, this is turn accentuated the inappropriateness of industrial cluster to boost the local economy of Upper Egypt lagging governorates. Thus, it is highly expected that the industrial cluster policy will confront many obstacles in Upper Egypt lagging governorates due to the lack of the following prerequisites to reinforce the emerging or even the existing informal clusters;

- The absence of a network of inter-related suppliers and distributors
- The absence of core export-oriented firms having a high comparative advantage
- The absence of the interlinked industries which the interlinked flows of goods and services among them is stronger than the flow linking them to the rest of the economy
- The severe economic leakages through the high volumes of imported industrial inputs from Greater Cairo or from outside Egypt

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Paradoxically, given the importance of the existence of at least one export –oriented industrial firm to constitute the industrial cluster, as the first step towards luring other industrial companies to integrate with it vertically and horizontally and establish the network of common buyer-supplier linkages, has raised the question of the appropriateness of the industrial cluster policy in Upper Egypt governorates, whereas most of their industrial firms are very local and unable to export or even to compete with those of Greater Cairo Region and those of Egyptian planned IZs in new towns.

Building a successful and effectiveness industrial cluster entails choosing the leading industries properly and then frame-working the industrial cluster to achieve the following attributes;

- Is market-driven considering both demand and supply
- is inclusive of large and small business, of supplies, and of supporting economic institutions
- seeks collaborative solutions
- create value through vertical linkages that enhance exporting industries
- reinvent new local suppliers or business services that enhance productivity and generate local employment

None of the above criteria has been employed in selecting and envisaging the proposed industrial clusters, accompanied by the absence of understanding the regional economic portfolio and recognizing regional capacities. Furthermore, none of the proposed industrial clusters in the two case studies has identified the complementary policies to assure the existence of sufficient forward and backward interconnectedness of supply chains, some types of collaborative efforts or firm-level assistance required to develop competitive cluster connections among firms. Therefore, the industrial clusters have been conceived in the Egyptian experience as numerous co-located industries within IZs in Sohag and Qena, rather than being a part of a cluster competitiveness initiative (CCI).

The results accentuate the inappropriateness of the industry cluster policy to leverage the local economy of Upper Egypt Lagging governorates, due to the findings of the empirical work, which illustrates that, there is currently no evidence for any kind of clustering among existing industrial firms, whereas most of the existing factories rely on outsourcing firms to provide them with their industrial inputs beyond the industrial zone where they located. The value/supply chain analysis of six IZs-based enterprises indicates that vertical integration among different industrial activities within these six IZs is at its minimum, whereas only 6.6% of total respondents obtain their main industrial inputs from the same IZ, indicating the absence of sufficient local alliances to stimulate the formulation of any industrial cluster. Moreover, only 19.9% of the respondents obtained their inputs from the same governorate or from other neighbouring Upper Egypt governorates. On contrarily, 55.7% of the respondents obtain their input from sources located outside Upper Egypt governorates accompanied with 16.6% of the industrial inputs are importing directly from outside Egypt (as main source of economic leakages). Moreover, 57.5% of the industrial tenants sell their final products outside Upper Egypt governorate and only 6% have some competitiveness competence and can export their final products. Finally, about 60% of the tenants get their high skill labours from outside the governorate where the industrial clusters have been allocated. Thus, it is obvious that industrial cluster policy will have minimal impact on triggering the local economic development in these lagging governorates.

It is highly expected that the proposed industrial clusters will encounter many challenges in the future which may jeopardize their positive impact of boosting the local economy as many respondents indicate. For example, two clusters from four proposed clusters in Sohag Governorate are incompatible and encountering low industrial competitiveness namely; Agro-waste recycling cluster in Al- Kawther IZ and Silk wears clusters and handcraft cluster in to support the tourism development. Moreover, one cluster is considered as second priority cluster due to its moderate industrial competitiveness which is the proposed Meat processing in West Grega IZ. In the same time, many high potential first priority clusters have not conceived yet comprising agro-industries such as paste and sun-dried tomatoes, dried onions, and fresh herbs, paper and cardboard industries and building material industries such as marble processing clusters

Alternatively, the employed qualitative and quantitative mixed-method approach and analysis in this paper show the existence of numerous potential numbers of industrial clusters. These clusters are working and organizing currently by informal collaboration methods and means, that can be developed in both Qena and Sohag governorates and having more priority than the selected ones by World Bank Experts. Local economic forums indicated that only two clusters proposed by World Bank staffs are accepted and prioritized by local economic forums. Then, they propose alternative most priority handicrafts and agro-business clusters comprising; medical and aromatic plants, sugarcane waste recycle and complementarity industries, drying tomatoes, onion and garlic seeds in the agribusiness sector; ready-made garments and carpets in the handicrafts sector, furniture and marble, Granite and building material processing clusters.

Thus, the paper concludes that Egypt has to replace the industrial cluster policy with much quick win policy to boost the economy of its lagging governorates such as the Agro-Industry (Agro-business) cluster, furniture and handicrafts clusters, which are much more able to nest and interlink with these primary economic stage (farming) economies, and never need too much time to be well established.

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