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TOWARDS SUSTAINABLE INDUSTRIAL AREAS IN EGYPT: IDENTIFYING DEFICIENCIES IN THE CURRENT PLANNING PROCESS

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***Abstract*—Egypt has lately prepared a national urban plan for 2050, with industry as one of its economic bases. Yet, existing industrial areas (IAs) in Egypt are unsustainable. Future IAs areinclined toface the same fate, if their planning process resembles that of the existingIAs.In response, the Egyptian government has made some institutional and legislative arrangements, since the 1990s, to integrate sustainable development in its planning practices. However, literature reviewed doubts the ability of these arrangements to considerably reform the process through which IAs are planned in Egypt.**

Therefore, this research investigates the extent to whichthe current planning process of IAs in Egypt is sustainable. The study used data collected from primary documentary evidences such as lawsand establishing decrees ofrelevant governmental organizations; and semi-structured interviews with top officialsto identify how these legal sources are comprehended.This research finds thatIAs' planningprocess still lacks a local sustainable development (SD)platform; a national campaign to foster SD; a sound institutional/regulatory setup which is not characterized by artificial segmentation, overlapping jurisdiction, or low profile of environmental institutions; and a comprehensive, coordinated and integrated set of SD national, regional and local urban plans that observe the environment.A real shift towards sustainability on the ground is tied up to handling these process-related shortcomings.

***Keywords*— urban processes, industrial ecology, sustainable development, industrial areas, institutional and regulatory setup.**

I. INTRODUCTION

Egypt has lately prepared a new national urban developmental plan in which industry is one of the main suggested economic bases [1]. Yet, it has beenwidely argued that existing industrial developments in Egypt are unsustainable [2],[3]-[4]. Environmental conditions are likely to get worse, if the projected industrial areas (IAs) are going to trace the footsteps of the existing ones. What, consequently, becomes a necessity is a new sustainable development (SD) strategy, which has the ability to overcome current and expected dilemmas of protecting the environment [2]-[4].

Industrial ecology [1] (IE) is a keytool in how industry could contribute towards SD[5],[6]-[7]. It is the science of sustainability[8] that could make the concept of SD operational [9] and efficient [10] in an economically feasible way. Henceforth, it could be marketed easily to governments as well as investors.

In this respect,consideringthat lack of institutional and legislative reform in Egyptis one important cause of the decline of environmental capacity[11], the Egyptian government,since the 1990s, has made some institutional and legislative arrangements to effectively incorporate SDand fix problems in industrial development (as announced). (1) The most important of these arrangements are:amending the Environment law to give wider powers to, and restructure, the Egyptian Environmental Affairs Agency (EEAA);(2) enacting the Unified Building law number 119 with a special mention of SD; (3) entrusting the General Organisation of Physical Planning (GOPP) with the responsibility of fostering SD; and (4) establishing the Industrial Development Agency (IDA) as the sole body responsible for IAs' development[2][5].

[1] IE is concerned with shifting industrial processes from open loop (linear) systems, in which investments in resource and capital move through the system to produce waste, to a closed loop system where waste can become input into new processes [20],[21],[22],[23],[24],[7],[8]-[9].

[2]Indeed, there are other organizations and laws that relate to the subject, and will be addressed as proper throughout the rest of the paper.

However, the debate on whether the industrial system in Egypt is heading towards governance for SD is by no means resolved(see e.g. [2]-[3]).Further, the international discourse on governance and SD urges scholars to conduct more empirical testing to examine the impact of arrangements made towards sustainability worldwide, and the extent to which these actions have caused a real shift from government to governance[12],[13],[8],[14],[15]-[16]. Therefore, there is anutmost need to investigate the extent to which the above-mentioned governmental arrangements have considerably altered the process through which IAs are planned, towards integratingSD/IE in Egypt.

This paper focuses on the impact of these recent governmental arrangements on the*formal*process through which IAs in Egypt are planned. In this research,the formalprocess means the institutional and regulatory setting as designed, and as perceived by those responsible fortheplanning and implementation of IAs. Despite the fact that the actual process(as practiced)might diverge from the formal one, the impact of the latter is not deniable as it stands as the overall umbrella under which the actual process nevertheless proceeds. Further, understanding the actual process (in future research) cannot be separated from firstly studying the potential change that could have been brought to the formal process towards SD/IE.

II. Research Question and Significance

Having said that, the question posed in this research is:to what extent has the current formal process of planningIAspotentially become conducive to SD/IE? By answering this question, this research stands as a contribution to the international discourse as it conducts empirical testing to examine the performance of actions taken towards sustainability in Egypt. More importantly, identifying the impact of these actions is crucial for moving forward with regard to the relationship between industrial areas and sustainabilityin Egypt.

III. Theoretical Framework

To help answer this question, this research makes use of a previous study,which constructed an in-depth theoretical framework of the planning process through which IE could be normatively implemented in IAs' development (see [5]). It distilled from its framework the following structure to initially use in the investigation of the relevance of Egypt's recent endeavours to SD incorporation.The structure first presents basic understandings which normatively govern the formation of the planning process. Then, it shows the steps to be taken on national, regional and local levels to help setup the context and establish sustainable IAs.

*Understandings***:**SD/IE implementation is a societal task, where society, as a whole, has to develop the will to bring about IE.This requires a context-specific governance system whichhas to plan for and implement SD/IE in IAs, consideringwaste as a source, industrial symbiosis[3] as a primary concern, and industrial regions as counterparts for industrial areas.Sustainable networkinghas to be promoted among different stakeholders/establishments for inter-organizational knowledge/materials exchange.

*Planning Process***:**In light of these understandings, the planning process forSD/IE includes:

1. Nationallydefining local platform of SD/IE, and preparing a National Industrial Ecology Strategy (NIES)[4]which identifies and prioritises national goals of IE.
2. Setting up the context where:
   a. Education and media have to raise people's awareness on SD/IE issues; capacity building has to advance planning and management skills of industrial systems; and science has to develop research on new technologies and theories of SD/IE.
   b. Institutions have to be restructured to facilitate governance processes for SD, by fixing artificial segmentation of administrative arrangements, setting clear jurisdictions, resolving power politics,

[3]Industrial symbiosis/cycle closing indicates the co-location and integration of firms which can use or reprocess the waste of other industries in the same locality. This entails variety and redundancy in IAs firms/establishments [5].

[4]NIES is supposed to be one strategy in a series of integrated national sustainable development strategies.

coordinating among concerned authorities, and providing competence and mandate to environmental institutions.

c. Regulatory frameworks have to positively respond to IE requirements (technical and institutional), and be realistic and effective in protecting the environment.

3. Following the national IE strategy (as well as other national sectorial SD coordinated strategies), and with the participation of all stakeholders, a national interdisciplinary planning team prepares a contextual, comprehensive national urban plan. Then, a regional interdisciplinary planning team develops a regional eco-industrial plan through a participatory approach with relevant institutions and industrial firms, taking advantage of regional natural resources, potential waste flows, and considering environmental sensitivities[5]. And, finally, a local planning team develops and examines industrial clustering scenarios of the pioneer local industrial area to choose the preferable/marketable scenario with the highest industrial symbiosis.

IV. Research Methodology

This qualitative inductive multi-methodresearch attempts to answer thisresearch's question through collecting data from primary as well as secondary resources.Primary documentary sources used includedrelevant lawsand establishing presidential/governmental decrees of relevant governmental organizations[6]. Semi-structural interviews were conducted with top governmental officials[7] (from IDA (the Industrial Development Agency),EEAA(the Egyptian Environmental Affairs Agency) and GOPP (the General Organization of Physical Planning)) to identify how they comprehendthese legal sources (their comprehension indeed affects the way they apply them). Interviewing top officials helped fill the gaps in legal documents regarding details of the formalprocess. To avoid biasness, likely present when approaching governmental employees[8], data triangulation [17] was sought through interviewing key academic consultants of those governmental bodies. Interviewees were asked non-leading, unthreatening questions[9] about the nature of the formal process of planningIAs in Egypt and their appraisal of it in light of recent governmental arrangements.

V. Research Structure

The rest of this paper is organized in three sections following the structure of the theoretical framework mentioned above. The first investigates the presence of an Egyptian SD&IE platform. The second evaluates the extent to which the context is set up to foster SD&IE. The third examines the quality of the urban planning outcomein relation to sustainability. In these sections, an elaboration is performed on the extent to which IE-related understandings of the theoretical framework govern the current planning process of IAs. The conclusionsums up themain findings of the research, lays out future research avenues and proposes some recommendations.

VI. Egyptian SD& IE Platform

In February 2016, the Egyptian government officially announced Egypt Vision 2030 – Sustainable Development Strategy (SDS). The Ministry of Planning (MOP)[2] states that this is the first time in Egypt's history that an integrated singular announced strategy is developed domestically through a participatory approach. The strategy is modelled after sustainable development

[5] In this plan, leading industries around which others can congregate will be identified.

[6] Establishing laws/decrees describe the aim of founding those bodies, their interactive roles and powers with other stakeholders involved, and the institutional/legal setup controlling their interrelationships.

[7] According to the work atmosphere in Egypt, top officials are the ones who have the authority to partially take decisions according to what they understood from the legal resources, and more importantly, are allowed to disseminate data.

[8] Without doubt, because of the observer's paradox[25], once the respondent is questioned, he/she starts to construct a form of how the process and its details ideally would be done , and from this form the answers may come out .

[9] The questions were shaped away from citing any potential problems in laws/decrees except in cases where the researchers felt respondents were willing to speak.

principles and hence allocates the 12 pillars[10] under the economic, environmental and social dimensions. An in-depth reading of the issued documents has been recently made by Acumen Consulting; a multi-national firm specialized in business and management consultations. One important finding of its read is that there are pillars[11] which do not reflect trade-offs or directional decisions and seriously need improvement "for the strategy to become sustainable and effective" ([18], p.2). In addition, the new vision did not consider IE[12], the science of sustainability. Further,it classified 'following up unsustainable environmentally-polluting patterns of industrial production' (under the environment pillar) as a last-priority set of challenges to face. Hence,at least till the year 2030 there would not be any programs prepared to face them [13] . However, due to the newness of this strategy yet to be put into action, the question is still aboutthe current in-action platform, if any, which influencesIAs' planning process.

In this regard, the Unified Building law no. 119 gives one obsolete and vague definition of SD. It reads: meeting the needs of the present generation without compromising the ability of future generations to meet their own needs (which goes back to [19]). The official webpage of GOPP(the General Organization of Physical Planning), the sole governmental agency responsible, according to the Unified Building law, for putting the governmental policies on sustainable urban development, adds nothing to this definition. The Environment law no. 4 for the year 1994 only mentions the term "sustainable development" once in its first amendment[14] (according to the law no. 9 for the year 2009), and once in its second amendment[15] (according to the law no. 2 for the year 2015). In both positions, the law does not define what the elusive term of SD stands for, let alone the IE term which is not mentioned anywhere in laws or institutions' official websites relevant, including IDA (the Industrial Development Agency), the sole agency responsible for IAs development.

It is, therefore, plausible to suggest that a locally defined in-action platform of SD and IE that is particular to the Egyptian context does not exist; and, seemingly, the new 2030 strategy, if relating to SD (whatever the degree is), does not recognize the importance of IE in achieving SD in the industrial sector. Hence, a national IE strategy is far from being formed not only for now but also up to the year 2030 if an intervention to correct the path is not made.

VII. Setting up the Context

This section elaborates on whether the local context is properly set up to incorporate SD/IE, arguing that the steps the government has taken have not effectively made the context nearer to this incorporative setup(if not farther).

A. MEDIA &EDUCATION, CAPACITY BUILDING, AND SCIENCE

Media, education and capacity building, informed by science and technology, have a significant role to play in making the society willing and mobilized to bring about/accept SD/IE [5]. In this regard, the casein Egyptalmost shows a state of inefficiency.

The newly-announced SDS has spotted challenges that the State still has to face in terms of the level of Egyptians' environmental awareness, the role of science and technology in supporting SD,

[10] These include economic development, energy, innovation, efficiency of government institutions, social justice, health, education, culture, environment, urban development, foreign policy and national security.

[11] These pillars are environment, innovation, social justice, and transparency & governmental effectiveness.

[12]Some of the terms that can relate, if distantly, to IE's basic concepts have been *inconsistently* mentioned in the strategy and without clear contextual definition of their meanings/directional decisions, such as "waste recycling" (p.38, 53 and 54), and "industrial park" (p. 44) in the economic development pillar exclusively. "Green economy" is mentioned basically in- again -the economic development pillar (p. 52, 55, 56 and 68) and once in the environment pillar (p. 187).

[13]The Ministry of Trade and Industry (MTI) has announced its five-year plan (2016-2022) which expectedly follows the same SDS footsteps.

[14] This is regarding environmental management of coastal zones.

[15]This is in relation to the foundation of the fund directed to financing pioneering projects in the field of environmental protection.

and the environment-based capacity building programs [2]. Such challenges have compelled the vision to propose among its first-priority programs the establishment of a supreme council of SD. According to SDS, this council could make a difference in the future. Yet, this is doubtful when considering not only the absence of a locally defined SD/IE platform (as shown earlier), but alsothe current state of dispersed uncoordinated efforts, mandated by law, of different agencies relevant to the field of SD in relation to IAs.

According to the Environment law no. 4, the EEAA (the Egyptian Environmental Affairs Agency) is positively authorized to raise people's awareness on the environment. It is entitled to put, and help implement, public-informative programs; collaborate with the Ministry of Education to prepare training programs on environmental protection for schools; and prepare and publish regular reports on the environment.EEAA is also authorized to prepare, and supervise the implementation of, environmental training programs. In tune, its official website regularly announces training sessions[16] as part of what it calls: its plan of training different agencies and establishments relevant.

Yet, in another realm, the establishing decree of IDA (the Industrial Development Agency), the sole agency responsible forIAs development, authorizes it to build the capacity of those working in the industrial field but only for the purpose of better "meeting the industry's requirements" (not those of the environment). Further, IDA iscompetent of setting policies and developing mechanisms the purpose of which is to link different industrial sectors to science and technology to – again - meet the industrial development requirements. It has recently initiated its Centre of Excellence for Knowledge Transfer to basically "expand local industry" (with no mention of tuning it with SD). Further, the aim of IDA's publications, by decree, is to *market*IAs in collaboration with the General Authority for Investment and Free Zones. Apparently, the overall aim of these responsibilities is basically economic and not necessarily environmental. Quite assuring is the fact that IDA was founded in the first place to deal with a budget overdraft (as will be discussed later). So, while EEAA focuses on raising environmental awareness, IDA differently focuses on industrial business development. This situation is exacerbated with the presence of lack of coordination among Egyptian governmental institutions [2], where *coordination* is simply a caliche in relevant laws, according to the Director of Central Administration of IAs in IDA; and the limited role of EEAA as will be discussed later.

Moreover, in the realm of GOPP (the General Organization of Physical Planning), the Unified Building law, which sets it as the sole fosterer of SD, assigns it the responsibility of building the capacity of local urban planning administrative units, but ironically, without stating in which fields. And,likely, SD is not among those fields as the ex-Minister of Housing, Utilities and Urban Communities (to which GOPP is affiliated)stated that GOPP is the fosterer of SD only on paper.

Therefore, with the presence of these isolated, uncoordinated and, in some cases, disoriented efforts, it is plausible to suggestthat their overall outcome is likely to miss the general aim of making the society willing to adopt sustainability.

B. INSTITUTIONAL SETUP

As stated earlier, to theoretically facilitate governance processes for SD, institutions have to be restructured to secure effective administrative arrangements, assign clear jurisdictions, empower environmental authorities with wider jurisdiction, and promote inter-sectoral/inter-ministerial coordination. This section shows how the government contrarily increased artificial segmentation in its administrative arrangements, added to the fuzzy state of overlapping jurisdictions, and limited the role of environmental authorities.

1) IncreasingArtificial Segmentation: the Foundation of IDA

This section shows that,instead of fixing shortcomings in its institutional structure in relation

[16]Examples of sessions announced, in relation to the field of industry, include' Rehabilitation of Environmental Officials in Industrial Facilities,' and 'Laboratory Methods for the Analysis of Industrial Wastewater.'

to IAs development, the government,by founding the partially dependent IDA(the Industrial Development Agency), added to one of the problems Egypt (among other low-income countries) suffers from, which is artificial segmentation/proliferation of actorsin its institutional arrangements [2],[10]-[4].

Before the establishment of IDA, IAs' urban planning was the responsibility of New Urban Communities Authority (NUCA) in new cities, and of local governments in provinces. According to a key IAs planning consultant [17], the improvised, scattered and incomplete development of IAsand the related national budget overdraft then reflected: (1) a state of mal-coordination among concerned governmental authorities;(2) a flawed master mind on the central level which should govern and coordinate the actions of these governmental organizations; and (3)a flawed governmental structure which suffers from under-qualified personnel, bureaucracy and corruption.In response, the government, instead of handling these problems atthe roots, added to it by adding another partially dependent player, the IDA, into the messy field of institutional arrangements.

In other words, the government noticed ascattered improvised development of IAs that caused a national budget overdraft and incomplete IAs. The governmentcreated a new agency to bypass the existing governmental structure, which seemingly it found in vain to fix (at least on the short term), and, according to the Director of Central Administration of IAs in IDA, madeIDA solely responsible for IAs development.But instead of making it independent to be able to correctly function to achieve its founding goals[18], it made itdependent, to a great extent, on the existing governmental structure.

Ironically, the government thought that such a move could bypass the shortcomings of its existing structure, ignoring the contextual fact that, still, the new agency will work within, and be tied up to, the same institutional and regulatory frameworks, and, hence, will hardly do any better.For example, by decree, while IDA is authorized to solely conduct studies and prepare plans for industrial development, it is dependent on other competent authorities in implementing a significant part of these plans (as will be discussed later); and has to coordinate with governorates and other State's agencies relevant in relation to setting up industrial land development policies. Conclusively, what was meant to be independent from the existing governmental structure,to positively function,turns out to be significantly dependent, suffering again from the same shortcomings it was founded in the first place to bypass.

This government's move is not a single move but a phenomenon. In addition to the case of IDA, for example,the New Urban Communities Authority (NUCA)is the only body responsible for the foundation and management of new settlements. General Authority for Tourism Development is the body in charge of touristic areas. The General Organization of Physical Planning (GOPP) is the only body responsible for putting governmental policies for urban planning and sustainable urban development. Apparently, the government is celebrating the concept of isolated islands in its structure, according to a key consultant tothe Ministry of Housing, Utilities and Urban Communities(MHUUC) and GOPP [19]. Yet, effectively, these governmental bodies are not and cannot be separated (if in different degrees).This tendency of establishing new institutional arrangements to replace existing ones, if extended, will end up having two parallel but not separate governmental bodies, as the new ones are tied up to, and intermingled with, the old ones, best resembled by a spaghetti bowl. This rigid tendency is a sign of a blunt misunderstanding of what context-

[17]The interviewee is a planning consultant to IDA as well as a number of governorates and bodies including GOPP, and a professor of Urban Planning in one of the Egyptian universities.

[18]In institutions' management, there are no constant solutions that have to be blindly followed. Flexibility/manoeuvre is a key term. It is possible to make a parallel system to an existing corrupt one to achieve certain strategic/short term goals, according to a Professor of Business Administration, Cairo University.

[19]The interviewee is also the Head of Environmental Planning Department at one of the Egyptian universities.

specific governance means, a one that has to build on, not bypass, the existing institutional structure.

Interestingly, this tendency continues to be the state of the art of the Egyptian government, celebrating artificial segmentation, according to the ex-Minister of MHUUC. In support, while the new SDS for 2030 is keen to reduce inflation in current governmental personnel, it, surprisingly, recommended the foundation of two other central entities (with overlapping jurisdictions): Monitoring and Evaluation Unit annexed to the Presidency, and the Supreme Council for Sustainable Development annexed to the Cabinet Presidency. Both bodies are responsible for the coordination among different ministries in relation to SDS implementation[2].

In brief, the government ignored fixing the shortcomings of its existing institutional structure and, as a quick and easy alternative in the field of IAs development, founded IDA and authorized it with the sole responsibility of handling the existing defect status. Yet, ironically, the IDA can only function through dealing with this current ineffective institutional structure. Ultimately, The IDA has turned out to be an artificial addition to this alreadyflabby governmental structure.

2) Barriers to the Fulfilment of IDA's Powers

The previous subsection discussed the foundation of a new agency, the IDA (the Industrial Development Agency), that is assigned to bypassthe shortcomings of a flawed governmental structure, but, paradoxically, still has to deal with, and is tied up to,this structure in performing its assignments. This subsection elaborates on the extent to which this tie has negatively affected IDA in doing what it was founded to do. The section presents the powers given to IDA by decree in relation to its authority of developing industrial lands, and, then, highlights the barriers which hinder IDA from*fully* fulfilling its establishment objectives.

In relation to developing industrial lands, IDA is authorized to:

- Study and propose industrial legislations, and set up general policies and necessary (executive) plans for industrial development in coordination with governorates and other concerned authorities.
- Mark the boundaries of lands assigned for industrial purposes with/through the National Centre for Land Use Planning of State's Lands[20].
- Prepare industrial development studies and plans [21] geographically and sectorally, and encourage and follow up their implementation.
- Solely arbitrate requests for establishing/expanding IAs.
- Set up the enabling conditions for, and license, the private sector to contribute to the provision of serviced land lots to investors (to ease the matter on the State).
- Determine industrial activities/products and relevant services insideIAs with EEAA (the Egyptian Environmental Affairs Agency), governorates, other governmental bodies and the private sector.
- Follow up IAs development/execution with concerned governmental bodies to ensure the observation of IAs' usage terms.

In addition, the government allocated IDA a treasury, the Fund for Supporting the Establishment, Infra-provision and Development of IAs (FSEIDIA)[22], to *support* the establishment of, and the provision of public utilities to, industrial areas in Egypt.

An elaboration of the above-stated powers as read, and as perceived by top official personnel and experts,shows that the government attempted to deal with the deficient development of IAs through assigning the decision of establishing/extendingIAsand the preparation of industrial development plans to IDA solely,

[20]It is the sole governmental agency in charge of allocating (not planning) State's lands to different uses and solving disputes among different governmental agencies in terms of their land domains, as explained by the Advisor to the Head of IDA.

[21] IAs are either planned by IDA team, its consultants or developers. In the latter case, IAs are called industrial parks (IPs) and their plans are approved by IDA.

[22] FSEIDIZ's financial sources are funds allocated by the State, donations and fees from services which IDA offers to others. It is a separate financial entity from the Ministry of Trade and Industry (MTI), the purpose of which is to give IDA the freedom of movement needed away from a complex entity such as MTI (to which IDA is affiliated), as explained by the Executive Manager and the Vice Manager of the FSEIDIZ.

according to the Director of Central Administration of IAs in IDA, not only in governorates but also in new cities, according to the Director of Projects Administration in one of the new cities' Apparatuses. Yet, neither is IDA authorized to implementits plans(it is only authorized to follow up and encourage their implementation) nor financially enabled to *fully*finance its implementation. TheFSEIDIAis limited, in this regard, in terms of orientation and resources. It is in charge of mainly putting *incomplete*IAs in action by filling the gaps in necessary utilities*inside*IAs[23], according to the Director of Central Administration of IAs in IDA and IDA's main consultant, and is mainly directed to governorates in Upper Egypt, Delta, New Valley and Sinai in order to attract investors, according to the Head of IDA and FSEIDIA[24]. For sharing external utilities' completion, coordination is necessary with concerned authorities.In other words, the fund is not directed to establishing new IAs or providing utilities from scratch.

Regarding the provision of utilities (in and outside IAs) from scratch, the IDA's role is mainly limited to being a facilitator, as it checks on the provision plans of governmental authorities[25] concerned and links the investor/developer with them accordingly, as explained by the Director of Central Administration of IAs in IDA. Interestingly, while authorities of utilities provision are obliged by law to coordinate and cooperate with IDA to fulfil its duties mandated by law, these authorities, from their point of view, can only do that in accordance with their own provision plans, priorities and pace, simply, as utilities provision, by law, is not among IDA's duties. Therefore, according to a key planning expert of IDA, because of this shortage in IDA' duties complicated by lack of coordination among different governmental organizations,IDA is "a body without blood vessels." The apparent unbalanced power relationships accompanied by lack of coordination among these bodies[26] makes it difficult to reach governance for SD [10]-[4].

Further, in relation to industrial development plans, there is an overlap in jurisdiction between IDA and GOPP (the General Organization of Physical Planning). While IDA, according to its establishing decree, is entitled to prepare these plans geographically and sectorally (implying inclusiveness),GOPP, according to the Unified Building law, is the State's apparatus responsible for preparing development plans on national, regional and local levels. The law leaves to GOPP the freedom to determine relevant agencies to coordinate with in this regard. The only planning type left for IDA to handle, according to the Unified Building law, is IAs'detailed planning.This overlapping could lead to policy conflict, program duplication and inefficiency[27][4].

In brief, on one hand, while IDA is given the responsibilities of setting up IAs policies and planning,it is not authorized to fully implement them. On the other, The Unified Building law assigns GOPP the responsibility of planning on all levels diminishing the IDA's role to the preparation of detailed planning only. Overall, IDA is dependent, to aconsiderable extent, on other competent authorities, and, hence,is hinderedfrom fully fulfilling its duties which, further, overlap with those of GOPP.

[23]In this respect, in two years' time after its establishment, IDA succeeded, using a budget of a billion pound from FSEIDIZ, in attracting investments of around 5 billion pounds and running 492 factories, according to the Vice Manager of the FSEIDIZ.

[24] He also explained that developers are to help extending/establishing infra in already attractive investment areas like Cairo and Alex.

[25]Utilities in general lay under the control of sovereign bodies such as ministries of electricity, gas and water and sanitation. It is also the responsibility of provinces and NUCA to extend utilities within their respective regions.

[26]Yet, according to the Head of GOPP, the foundation of the Supreme Council of Planning and Urban Development (SCPUD), following the Presidential Decree no. 298 for 2008, would establish the link between economic and urban developmental plans, and coordinate among authorities concerned. However, as pointed earlier, the foundation of this council is to fix existing governmental shortcomings that should have been dealt with at the roots.

[27]On the ground, there is, however, sometimes ways to go around this overlap. For example, GOPP coordinated with IDA in the preparation of the guidebook for industrial areas planning, as narrated by a consultant to the Head of GOPP.

3) EnvironmentalInstitutions' LimitedPowers and Jurisdiction

It is stated earlier that the Environment law was amended to give wider powers to, and restructure, the EEAA (the Egyptian Environmental Affairs Agency) in favour of the environment. This section presents the powers given to EEAAand, then, highlights the shortcomings which hinder the EEAA from fulfilling its assigned tasks.

The EEAA's powers, mandated by law, could be grouped under three main titles: setting environmental policies and plans, giving supporting services to State's institutions, and following up environmental performance. In relation to setting environmental policies and plans, EEAA is authorized to set policies and plans to preserve the environment and follow up its implementation in coordination with concerned governmental bodies[28]; and prepare necessary draft laws and decrees relevant and lay down the regulatory environmental framework for development and planning.In relation to supporting services, EEAA is required to submit technical opinions to decision makers, compile and publish annual reports on the environment (which to be presented to the President and the Parliament), and take necessary steps needed to adhere to international conventions in force. In relation to following up environmental performance, EEAA is authorized to assess the environmental impact of projects, and take legal procedures against lawbreakers.

Similar to IDA (the Industrial Development Agency), while EEAA is authorized to set environmental preservationpolicies and plans, it is not authorized to implement them. It only *follows up* their implementation performed by other governmental bodies concerned. It intervenesneither in industrial projects' site selection[29](but only set some conditions to observe), according to an Environmental Consultant to EEAA, nor in IAsurban planning process[30], according to the ex-Minister of MHUUC(the Ministry of Housing, Utilities and Urban Communities). EEAA merely reviews IAs' plans on the basis of an Environmental Impact Assessment (EIA) reportto follow up the implementation of its plans and regulations, according to the Directors of EIA and Industrial Areas Development Administrations at EEAA. In support, the Head ofGOPP (with a doctorate degree and expertise in environmental planning) firmly stated, when asked about the power given to EEAA by the amended Environment law,"we have nothing in the Environment law but the EIA."Further, while the EIA report must be officially submitted, by law, before the implementation of industrial establishments, yet, interestingly, the Director of Projects Administration in one of the new cities' Apparatuses assured that IDA has come up to a conclusion, after investors' complaints, that an EIA report does not have to be submitted before obtaining building permits. In her point of view, this would only mean that EEAA is to be forced in one way or another to approve the EIA of an establishment as the latter would be already implemented. The ex-Minister of MHUUCadded that, while EIA reports are issued anyways, the existing IAs have not been evaluated on the basis of a strategicimpact assessment report[31]. And, from another perspective, despite that the Law has assigned EEAA the responsibility of taking legal procedures against lawbreakers, still, a wider and stronger role given to EEAA to prevent environmental violations in earlier stages of planning is undoubtedly absent.Collectively, this clearly points out to limited powers officially given to environmental institutions despite allegations

[28]EEAA is to implement some pilot projects though.

[29] It is relevant here to mention that the State-Ministry of the Environment is not among the board of directors of the NCLUPSL, the sole governmental land-use allocation agency.

[30]It only shares with IDA the allocation of industrial activities, products and relevant services of IAs at the detailed planning stage.

[31]"Strategic impact assessment (SIA) is a multi-disciplinary tool that evolved from environmental impact assessment (EIA). Whereas EIA is applied at the project level and considers specific environmental impacts, SIA is applied at the strategic level and considers the wider environmental, social and economic impacts" ([26], p.1).

made by the government ofgivingthem more competences to protect the environment.

Further, in relation to setting policies and plans to protect the environment, there is an overlap in jurisdiction between EEAA and GOPP (the General Organization of Physical Planning). While EEAA is in charge, by the Environment law, of settingthese policies and plans, GOPPis solely responsible for fostering SD in planning and urban developmentaccording to the Unified Building law, which also limits the role of EEAA in relation to IAs, to the detailed planning stage. Further, considering that GOPP is a strong and well-structured central organization[32], and is given the free will to choose which agencies to coordinate with in urban development plans, there is a little chance for EEAA, which is annexed to only a state-ministry(the Ministry of State for Environmental Affairs), to influence strategic decision making in SD incorporation/environmental protection. Having this in mind, the question is:if the GOPP is capable of tackling the SD task[33], for what reason was EEAA restructured and given more powers to perform?Indeed, artificial segmentation and overlapping in unbalanced responsibilities (disfavouring environmental institutions)make the process far away from principles of governance for SD [12].

In brief, the EEAA was restructured and allegedly given wider jurisdiction and powers to help protect the environment. Yet, its role is quite limited to consultancy works offered to different State institutions in the shape of drafting laws and technical opinion reports. Its regulatory and monitoring works are quite theoretical with no strong tools, but the weak EIA. Further, its responsibility of setting policies and plans to protect the environment is swallowed by the only powerful fosterer of SD, the GOPP.It is, then, plausible to question the actual purpose of developing such an environmental agency.

[32]GOPP enjoys far reach into different regions of the country through its subordinate regional centres to which local planning and development units of governorates report and await directions/approvals.

[33] which, ironically, is not the case, according to the ex-Minister of MHUUC.

C. REGULATORY SETUP

From section (6), it is noticeable that the current regulatory framework has fell short from contributing to a locally defined platform of SD/IE.Section (7-1) shows how it also fell short from contributing to the coordination of media, education and capacity building efforts towards making the society willing to accept and bring about SD. Section(7-2) shows how the regulatory framework has contributed to the increase in artificial segmentationby adding IDA to the existing flabby governmental structure; made it dependent on other competent authorities in terms of implementing its plans; and set the basis of a state of overlapping jurisdictions between IDA and GOPP.It also delineates how the regulatory framework limits the EEAA's role to consultancy works with no strong tools to implement its policies and plans of environmental protection, which is further dominated by GOPP. Hence, it is plausible to suggest that the regulatory framework has negatively responded to SD/IE requirements.

From another angle, the current legal framework is chaotic and defective containing a large number of conflicting laws with multiple and imbalanced penaltiesdirected to lawbreakers, according to a top legal official. This flawed setup has the potential to restrict the judiciary in issuing verdicts against lawbreakers, contributing, thereafter, when it comes to development, to environmental violation,uncontrolled spread of environmentally-unfriendly planning schemes and loss of trust among different relevant players causing the absence of networking among different stakeholders/establishments, necessary for the implementation of IE.

In brief, the current regulatory framework has not positively responded to SD/IE requirements and is neither realistic nor effective.

VIII. IAs' URBAN PLANNING

As stated earlier, GOPP, the sole central State's apparatus responsible for planning and sustainable urban development on national, regional and local levels, is entitled to whether invite IDA and EEAA to participate in IAs development.Considering that SD is not among GOPP agenda, according to the

ex-Minister of MHUUC, a comprehensive and coordinated set of SD urban plans onnational, regional and local levels is currently out of reach. In support, the SDS clearly states that a comprehensive national developmental plan does not exist, and recommends the issuing of a Unified Planning law that would organize and coordinate the efforts of different relevant agencies towards the preparation of this plan[2].

IX. Conclusions, Future Research andRecommendations

This research examines the extent to which the current formal process of planningIAs(industrial areas) in Egypt is conducive to sustainability. This concern stems from the fear that future IAs in Egypt are prone to the same destiny of past unsustainable ones, and the hope that institutional/regulatory stepsthat have been taken since the 1990s might have made a real difference.

To help collecting data necessary for this examination, this research utilizes a previous theoretical study on how sustainable IAs could be normatively founded. Following the structure of this theoretical framework, this research concludes the following:

1. A locally defined in-action platform of the ambiguous term of SD (sustainable development)which is particular to the Egyptian context does not exist, let alone IE (industrial ecology), the science of sustainability in IAs development, which is not officially cited. The Egyptian SDS (Sustainable Development Strategy), still to be put in action, needs to consider IE operationally and technically if a change in this regard is to take place in the future.
2. Isolated, uncoordinated and mal-oriented efforts of environment-related agencies in relation to media, education, capacity building and science would not be able to make the society willing and mobilized to bring about/accept SD.
3. The current institutional structure are most characterised by increased artificial segmentation in its administrative arrangements, fuzzy state of overlapping jurisdictions, unbalanced powers distribution, andlimited role of environmental authorities.
4. The current regulatory framework has not positively responded to SD requirements as it has contributed to the absence of a locally defined SD platform; the shortage in society's awareness of, and willingness to accept, sustainability; and the presence of a flabby governance system with environment at the bottom of its list. It is also unrealistic and ineffective when it comes to controlling environmental performance.
5. A comprehensive, coordinated and integrated set of SD national, regional and local urban plans that observe the environment are currently far from reach.

Therefore, the actions taken by the government to effectively incorporate SD have not made a significant shift in the formalplanning process of IAs in Egypt, as mandated by law and comprehended by relevant top officials.

To analyse the real impact of this unsustainable formal process on the ground, further research with a case-study approach is needed. Further research is, also, needed to identify the forces/levers which govern the formation of this unsustainable official process. This identification is the first step towards making a real shift towards SD implementation in IAs development in Egypt.

Nevertheless, some recommendations, albeit subject for further research, could be put forward as follows:

1. The society as a whole and the government specifically has to have the will to seriously bring about SD/IE, and take necessary steps to set the context to be ready to incorporate SD/IE.
2. The Egypt Vision 2030 – Sustainable Development Strategy (SDS), still to be put into action, has to pay attention to the IE concept being the science of sustainability in the field of IAs development, and has to put a locally well-defined platform for IE.
3. In institutional restructuring, priority should be given to getting rid of artificial segmentation, represented in this research by IDA(industrial Development Agency) and EEAA (the Egyptian Environmental Affairs Agency) in the field of IAs' sustainable development. The government has to adopt a context specific governance

system that builds on the existing governmental structure, by fixing it, not by adding more institutions which are rhetorically independent and effective, but effectively dependent and nominal.This study proposes bringing togetherGOPP (the General Organization of Physical Planning), IDA, and EEAA (in relation to IAs development) in one central agency annexed to the Ministers' Council to reach a set of coordinated effective steps towards the implementation of sustainability in the field of IAs' development.

4. In regulatory restructuring, priority should be given to setting the proper legal framework that positively responds to the previously laid out points. In addition, laws have to be filtered, reorganized and developed into a more realistic coherent code of law.

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