

# **Strategic Environmental Assessment in Land use Planning. - Toward Establishing its Framework and Technical Procedure in Egypt.**

## **Mohamed Salheen**

Associate Professor  
Department of Urban  
Planning  
Faculty of Engineering - Ain  
Shams University

## **Marwa Abou El Foutouh**

Lecturer  
Department of Urban Planning  
Faculty of Engineering - Ain  
Shams University

## **Samah Mohamed El Khateeb**

Teaching Assistant  
Department of Urban Planning  
Faculty of Engineering - Ain  
Shams University

## **Abstract:**

According to the EU SEA Directive (1), land use planning is one of the sectors that are obligatory to apply Strategic Environmental Assessment on it. SEA in land use planning have been developed in many countries in the world in order to integrate environmental thinking in early stages of decision making process and before we cascade down to specific projects. Many theories suggest that the appearance of SEA was to solve the limitation of Environmental Impact Assessment which is carried out on project level as damage of environment happened in early stage of decision making process.

In Egypt despite of increasing in environmental awareness, degradation of environment continued even it is obligatory by the Egyptian environmental law no.119 of 2008 to carry out EIA for any new projects or innovations of existing projects.

This paper discuss the importance of applying SEA in land use planning in Egypt and build an SEA model based on foreign experience and Egyptian condition, in order to help decision makers better understanding and consequently enhancement decision making process in the field of land use planning in Egypt.

## **Key words:**

Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), EU SEA Directive (European Union directive on Strategic Environmental Assessment), environmental assessment (EA).

## **1-Introduction:**

Planning is a future-oriented activity, strongly conditioned by the past and present. It links “scientific and technical knowledge to actions in the public domain” (Friedmann, 1987). Ideally, transparency and public participations between all groups and individuals interested in and/or affected by urban development and management activities are major part in land use planning

---

Directive 2001/42/EC of the European Parliament and of the council of the assessment of the effects of certain plans and programs on the Environment.

process. In practice, such comprehensive sharing of information and decision making is rarely found.

SEA is a supporting tool to decision making process, transparency and public participation is the backbone of this assessment, thus it is appeared in the last twenty years in the world to emphasis on the concept of sustainability via applying the mentioned two concepts.

Decision-making process has been defined as a process by which a person, group, or organization identifies a choice or judgment to be made, gathers and evaluates information about alternatives, and selects from among those alternatives (Lein, 2003).

Land use planning should be a decision-making process that “facilitates the allocation of land to the uses that provide the greatest sustainable benefits” – Agenda 21, Paragraph 10.5 (UNCED, 1993).

The role of SEA is to make that happen and to facilitate allocation of uses without causing environmental deterioration consequences caused from irreversible decision making.

The objectives of this paper are; (1) to understand concept of SEA and its role in enhancement decision making process. (2) To illustrate a road map for applying SEA approach in land use planning in Egypt.

This paper is divided into four sections, section one discusses SEA Definitions and procedure, section 2 discusses land use planning process, section three discuss integrating of SEA in land use planning process and fourth part is the construction of Egyptian SEA model which is appropriate to the Egyptian context.

## **2-SEA in Brief:**

According to (Fischer 2002), the term SEA was coined in 1989 and was initially envisaged as being based on the same procedural principles as EIA, only operating at a higher level of decision making process.

### **2-1 Concept & Definitions**

We must mention that there is no universal definition for SEA; however SEA is becoming an accepted and widely used instrument for integrating environmental issues into the formulation of plans and programs throughout the world.

SEA can defined as; “ The formalized, systematic and comprehensive process of evaluating the environmental effects of a policy, plan or program and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making.” (Therivel R. et al. 1992)

“SEA is a decision-aiding process that can be and should be applied flexibly to the decision cycle, recognizing that these terms mean different things and often cover different types of decision-

making processes. In all cases, the approach taken should be consistent with EIA principles. What does not automatically follow from this definition is the requirement to use EIA procedures and methods in SEA, though their use and adaptation for this purpose is widespread". (Sadler 1996)

## 2-2 SEA process:

The development and consequent adoption of SEA procedures have gained momentum in recent years. Not only have more countries revised their approaches towards the integration of EA at different tiers of the decision-making process, but the international arena has also played a vital role in re-emphasizing the importance of SEA through the endorsement of two important legal documents, namely, the European SEA Directive (2001/42/EC) and the United Nations Economic Commission for Europe (UNECE) 2003 SEA Protocol.

In this part the paper will compare SEA procedure in three different areas:

- 1- EU Directive for SEA which is applicable in all EU countries.
- 2- SEA in non European country (Turkish guideline)
- 3- SEA in international financial institutions like Organization for Economic Co-operation and Development (OECD ).

Item		EU Directive	Turkish Guidelines	OECD's SEA process
Location	EU country	√		
	Non EU country		√	
	Other			OECD Guideline
SEA Process	Screening	√	√	√
	Scoping	√	√	√
	Sitting alternatives	√	√	√
	Sitting objectives	√	√	√
	Environmental issues			
	Assessment of PPP	√	√	√
	Assessment of alternatives	√	√	√
	Mitigation monitoring	√	√	√
Public participation	Screening	√	√	√
	Scoping	√		
	Assessment	√	√	√
	review			

Table (1): Comparison between SEA process in; EU Directive, Turkish SEA Guidelines and OECD. Source: (Researcher, 2010)

Based on the previous comparison of SEA process in EU directive, turkey and OCED Organization the following part illustrate concluded steps.

**A- Screening:**

Screening exercise is undertaken to answer the following threshold question: should an SEA be conducted for the subject proposal?

**B- Scoping**

A scoping exercise is conducted to ensure that all high priority issues relevant to the decision being made are addressed in the SEA.

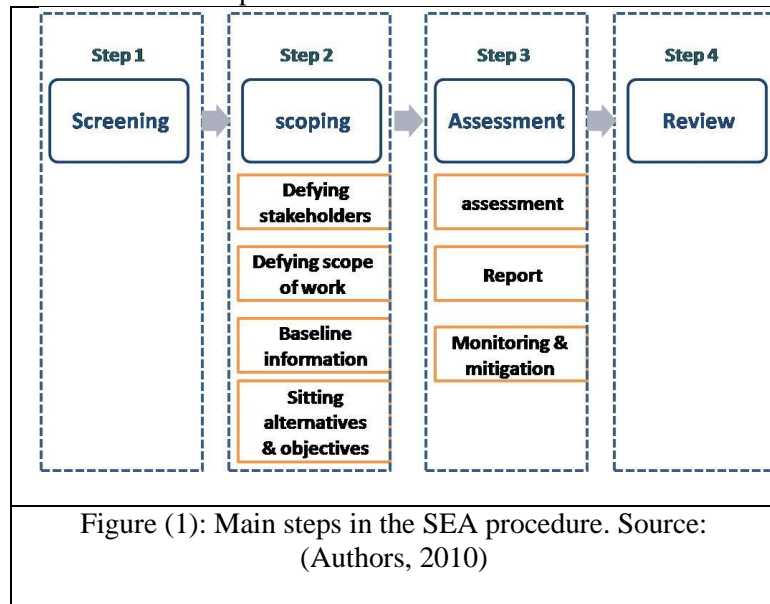


Figure (1): Main steps in the SEA procedure. Source: (Authors, 2010)

1- Defining stakeholder

All "stakeholders should be given an opportunity to participate in the scoping exercise. While consultation with stakeholders takes place at various points in proposal development, it is particularly important during scoping.

2- Defining Scope of work:

The scoping stage determines the likely extent (geographic, temporal and thematic) and level of detail of the assessment, the information to be included in the SEA and the environmental report.

3- Base line information:

In this context, baseline information and data needs have to be established. In order to be able to draw a realistic picture of the situation, it is important not only to consider the bio-physical environment, but also to take economic and social development objectives into account.

4- Sitting the objectives:

Objectives are relating to the policies, plans and programs. It is in all emphasis on sustainable development or other environmental strategies.

5- Sitting different alternatives :

At the scoping stage, different development alternatives should be identified that may be available for meeting environmental, economic and social objectives.

**C. Impact assessment and report**

1-Assessment:

This stage is at the heart of the SEA process. The impacts assessment includes all type of assessment including; direct and indirect (or "secondary") effects or any other types of assessment.

2-Report

The SEA report documents are the final product of the assessment process, it includes the findings of the assessment of the various proposed alternatives and the predicted impacts upon the environment.

3-Public participation

Public participation are the supporting step in the decision making process, the role of stakeholders and public participation appears in all SEA process, but the major involvement of these participation appears in scoping step and assessment step.

4-Monitoring & mitigation measures:

An SEA should include a plan for monitoring environmental effects so that mitigation measures can be implemented if unforeseen effects occur.

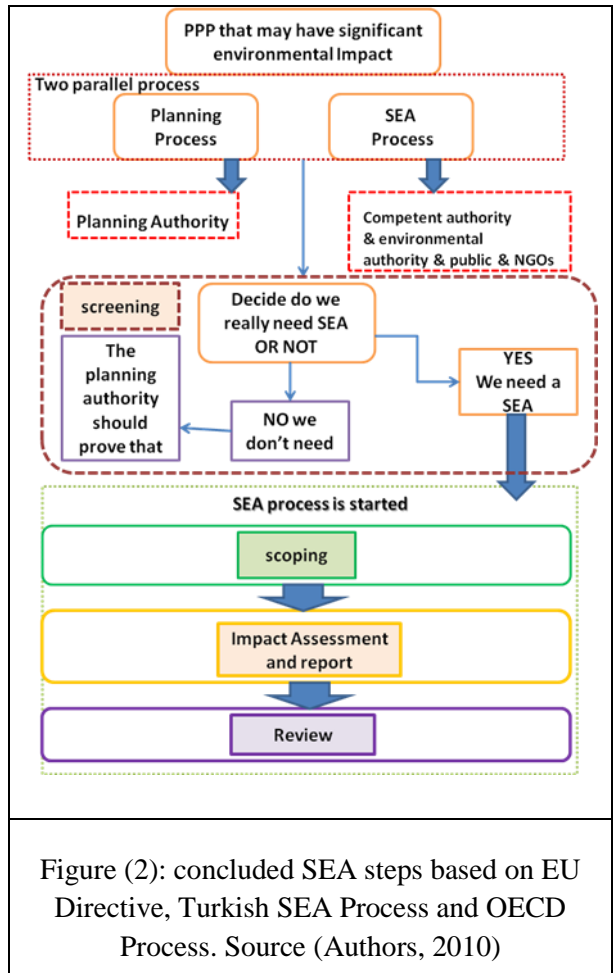


Figure (2): concluded SEA steps based on EU Directive, Turkish SEA Process and OECD Process. Source (Authors, 2010)

**D. Review & decision making approval:**

At the review stage, all the environmental information collected during the SEA process and presented in the SEA report is supposed to be checked.

This step is also called the decision making step as in this step we weighed economic and social matters against the environmental considerations brought forward by SEA. Within decision making, due consideration to the environment should be given and the decision maker should explain how a decision was reached and what information was used.

### **3- Overview of Land Use Planning**

#### **3-1 Concept of land use planning**

Land use planning (LUP) may be defined as a systematic process for the arrangements and allocation of land resources among period of time and space in accordance with the principle of sustainable land-use.

"Land use planning is the systematic assessment of land and water potential, alternative patterns of land use and other physical, social and economic conditions, for the purpose of selecting and adopting land use options that are most beneficial to land users without degrading the resources or the environment, together with the selection of measures most likely to encourage such land use "(Leslie et al. 2000).

#### **3-2 Levels of Land Use Planning:**

Land-use planning can be applied at three broad levels: national, district and local. These are not necessarily sequential but correspond to the levels of government at which decisions about land use are taken.

Different kinds of decision are taken at each level, where the methods of planning and kinds of plan also differ. However, at each level there is need for a land-use strategy, policies that indicate planning priorities, projects that tackle these priorities and operational planning to get the work done.

The greater the interaction between the three levels of planning, the better. The flow of information should be in both directions (Figure 3). At each successive level of planning, the degree of detail needed increases, and so too should the direct participation of the local people.

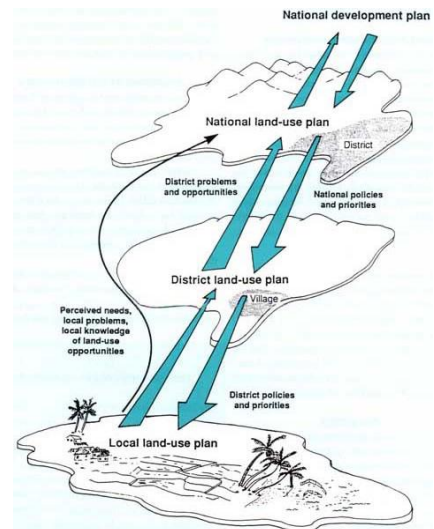


Figure (3): levels of land use planning.(FAO 1993)

### 3-3 Generic steps in conducting Land Use Planning:

Land use planning process is a flexible process; its step can change from country to another based on governmental legislations and framework beside institutions and governmental bodies involved in the planning process, the following part illustrates generic steps in conducting land use planning, the process can be divided into:

#### **Step (1): Preparation and Organization of Work:**

The planning effort is launched by discussions between those who want the plan (land users and government) and the planners. This crucial first step should be a mutual exchange of ideas and information ((FAO) 2008). This step is the beginning work necessary for the formulating the plan. This includes defining task descriptions, selecting the planning team, and drawing up a schedule of activities and objectives.



Figure (4): Generic steps in conducting Land Use Planning.

Source: (Authors, 2010) Adopted from ((FAO) 2008; Tang Tao et al. 2007)

#### **Step (2): Information & Data Collection.**

To get started, the planning team will need some basic information includes regional baseline data such as the population, local socioeconomic development goals, land resources and land-use data (Tang Tao et al. 2007).

#### **Step (3): Preparation of the Draft Plan.**

For any land-use master plan, it is first necessary to identify and analyze potential problems and conflicts in existing land-use patterns. Investigate existing site conditions, identify existing unreasonable land use practices and try to understand their causes, and identify potential constraints to proposed changes.

#### **Step 4: Compilation of Plan Document:**

Based on the overall scheme of the draft plan, the documents are compiled, organized and presented to facilitate the successful attainment of the goals stated in the plan. They include the various reports and drawings that have been developed.

#### **Step 5: Acceptance of the Draft Plan:**

These documents, the draft version of land-use master plan, are then presented to the local government. The draft plans reviewed by the local government are presented to the level of

government directly above them, until the authority undertaken the right of examination and approval(Tang Tao et al. 2007).

## **4-SEA in Land Use Planning**

It is widely recognized that land use planning and SEA are prerequisites for achieving acceptable forms of development and that the combination of the two processes can greatly assist decision-makers in working towards sustainable development. There is however, a continuing debate over the precise role and purpose of each activity (Belcáková 2002).

Land use planning integrates environmental, social and economic aspects of the spatial development. Taking into account the integration of these aspects is not a new requirement in land use planning. The innovation of this principle lies in a new vision of integrity in a context of sustainability. It is first of all their mutual influence in the final synergetic quality and not in additive integration.

Different countries have evolved their own approaches towards integrating land use planning and SEA, reflecting their cultures, history and political structures. An element of standardization has been introduced in Europe through the introduction of the SEA Directive (2001/42/ EC), but it is left to each Member State to determine the precise methods to be used.

### **4-1 Why SEA in Spatial & Land use Planning?**

SEA in Land use planning can make visible the environmental objectives and contribute to more systematic synthesis of local or regional environmental challenges. SEA can thereby make visible the priority to be given to environmental considerations in planning solutions.

### **4-2 Key Roles and Responsibilities of SEA on Land-use Planning**

In this section, the key actors within the process of developing the SEA on land-use master planning and their roles and responsibilities are identified.

#### **4-2-1 Institution Responsible for the Development of Land-use Master Planning. (Proponent Authority)**

To further functions of the institution responsible for the development of the land-use master plan mainly:

- Organize the SEA implement, including choice of a technical agency to conduct SEA, submitting the plan draft and SEA chapter or note
- In charge of emending the plan draft
- Organize the follow-up SEA



#### **4-2-2 Organizations Responsible for Carrying SEA (Assessment Team)**

EU Directive doesn't prescribe who have obligation to carry out the SEA, but it will normally be the responsibility of the environmental service agency.

#### **4-2-3 Institution for Review and Appraisal of the Proposed Draft Plan and SEA Document**

The institution in charge of review and appraisal of the proposed draft land-use plan is the higher authority that plays the role of final decision maker of the assessed plan. The SEA document must be submitted as an integral part of the draft plans to the plan review and approval authorities. The findings and conclusions of the submitted statement shall be the legal basis for integrating environmental consideration into the decision-making of land-use master planning.

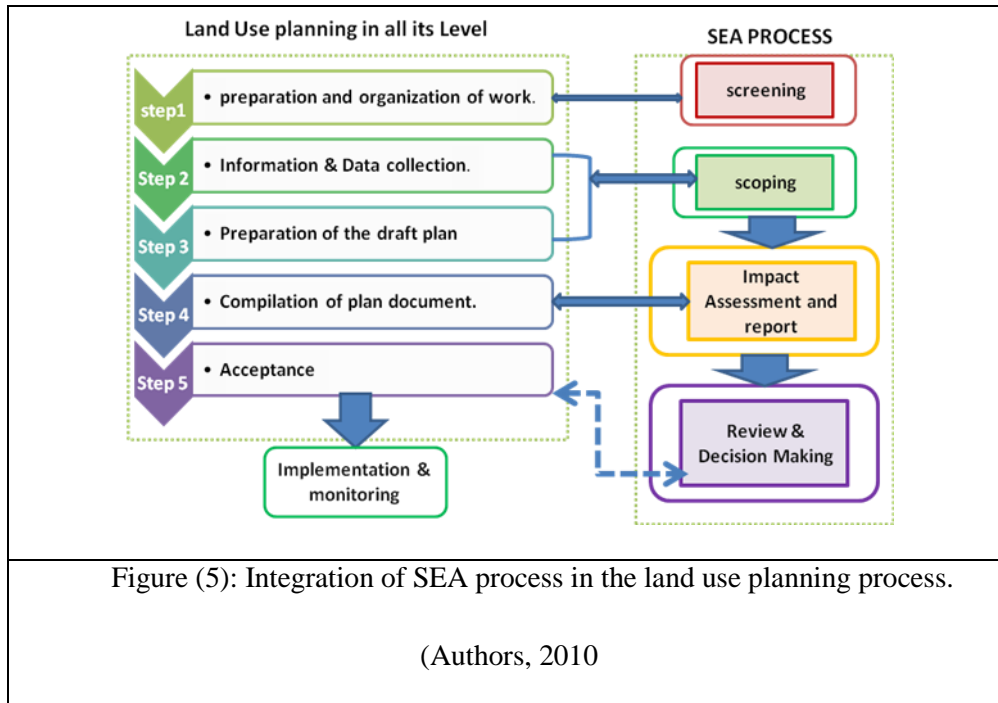
#### **4-2-4 Public Concerned**

Public concerns are a key consideration for any EA, especially for SEA on land-use planning. Making preliminary information available often facilitates public understanding of the proposed initiative and leads to more constructive input. Although confidentiality of some aspects of plan may preclude full public consultation, any effort to understand public opinions will improve the quality and credibility of the SEA and the plan itself (Tang Tao et al. 2005)

### **5- Integrating SEA process in land use planning:**

SEA must come as a parallel step to the preparation of land use plan; the major differences to the existing planning procedures are the following key issues:

- Set clear targets and objectives (especially environmental targets like air pollution, CO<sub>2</sub>, land consumption);
- Develop different alternative scenarios and assess them according to the targets;
- Develop a reasonable data base to monitor the real effects; and
- Implement a tiered (public) participation approach.



These integrated process involved different of governmental bodies and decision making authorities with the assistance of the stake holder and public participation from day one of screening step, the process starts from deciding of arrange this type of land use planning on any level from policy, regional to detailed level accordingly the SEA step starts from the same point in answering the question of is really this land use planning have any significant impacts on environment if the answer was yes, the SEA process I s started from this point.

Acceptance of SEA is the key step of accepting the proposed land use planning, if the decision making authority decide to accept it then the plan will be accordingly implemented, or it can refuse it so the process will start again and the proponent authority will propose another land use planning, the last act is to modify the proposed plan based on the recommendation of the SEA assessment team, then the proponent authority must modify its proposed land use plan.

This means that based on the decision making response on the proposed SEA report and land use plan the proponent authority will act one of this steps:

- 1- Re-propose another land use plan if the competent authority refused the Land use planning based on the results of SEA report.
- 2- Modify the proposed land use planning based on the recommendation of the competent authority.
- 3- Implement the land use planning and organize for the monitoring step.

## **5-integrating SEA in Land Use Planning in Egypt:**

Although Environmental Impact Assessment (EIA) has been applied to individual projects in Egypt since 1994, natural environment has continued to be negatively affected because of human activities. Today, parallel to the developments in the world, it has been discussed that it is necessary to strengthen project-level Environmental Assessment (EA) and to introduce the Strategic Environmental Assessment (SEA) (Salheen& El Khateeb, 2008).

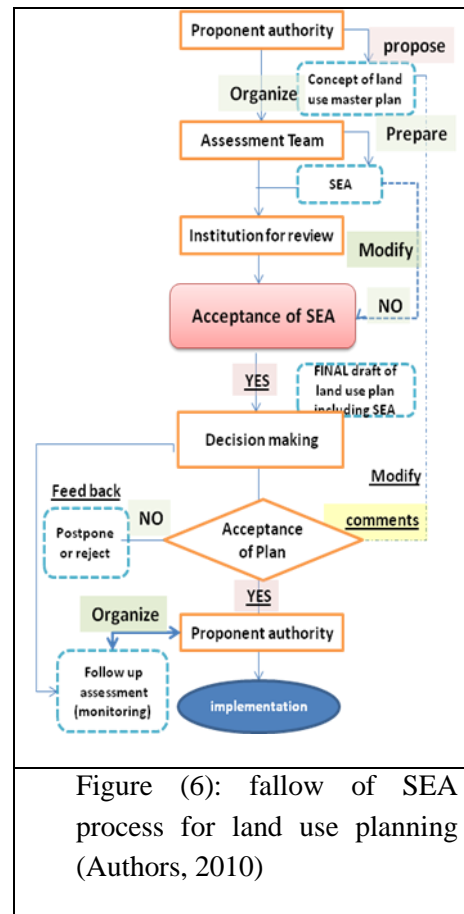
Till now there is no Environmental Assessment carried on land use planning in Egypt, and all environmental studies is carried in the step of preparation land use planning. Also building Law no. of 2009 doesn't mention in any part of its articles implementation of SEA and importance of its implantation in the land use planning procedure.

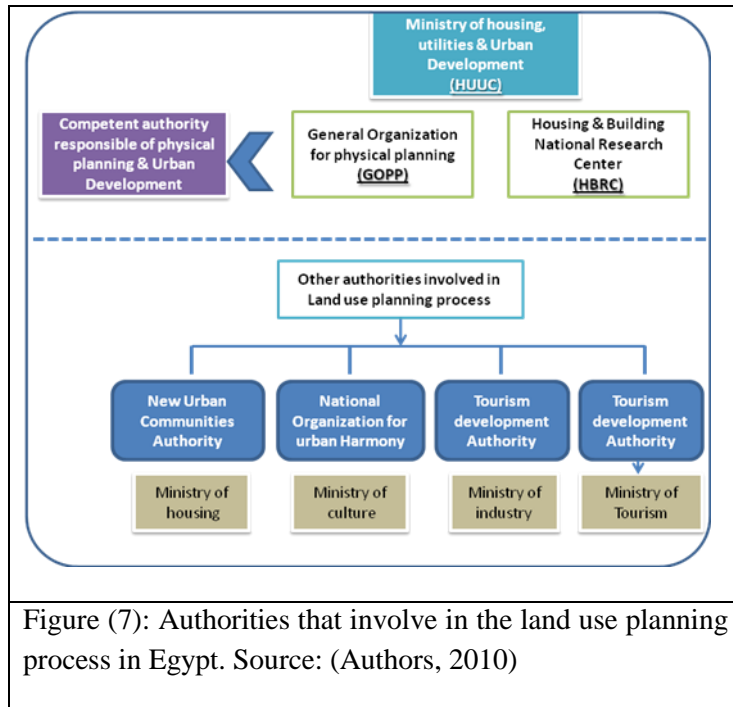
### **5-1 competent authorities responsible of land use planning in Egypt:**

GOOP(2) is the working arm of Ministry of Housing, Utilities and Urban Communities (HUUC) responsible of preparing all land use planning in Egypt based on law of 2009 it is obligatory by law to get approval of the GOPP on all new or upgrading land use planning in Egypt.

Beside GOPP there are number of other authorities involved in planning process by owning lands, and this ownership give them the authority to put land use planning but after they prepare it is obligatory by law to get the approval of GOPP on them.

The General Organization for Physical Planning (GOPP) is the administrative body responsible for making all regional and urban planning for any administrative unit in Egypt. More recently Law 106 / 2008 stated that the regional branches of the GOPP are also responsible for the revision of the detailed planning schemes developed by the local authorities'.





## 5-2 Hierarchy of land use planning in Egypt

According to Law No. of 2009 and based on interviews with key persons in GOPP land use planning in Egypt is divided into:

### **National Strategic Plan:**

It defines the objectives, policies and programs of urban development on the entire area of the Republic, and shows the national projects, which will be implemented, and implementation stages, and the role of each of the public and private actors in this implementation.

### **Regional Strategic Plan:**

It defines the objectives and development policies and programs of each of the urban economic regions shows that regional projects will be implemented and the implementation stages and the role of each of the public and private actors in the implementation within the framework of the National Strategic Plan.

### **Strategic Plan for the governorates:**



It defines the objectives, policies and programs of urban development in each province under the plan of the province that includes the province, shows the projects that will be implemented, and priorities, and implementation phases, and the role of each of the public and private actors in this implementation.

#### **Strategic plan of cities and the villages:**

Layout of the city or village, which shows the future needs of urban expansion and development projects and plans of economic, social, environmental and construction necessary to achieve sustainable development at the local level within the framework of the future vision of the scheme, which includes maintaining the city or village, and identifies the residential area of the city or village, and land use planning requirements and the various structural space Urban, programs and priorities and implementation mechanisms and funding sources.

#### **Detailed urban Design:**

Executive of the requirements of the planned construction, planning and operational programs to areas of land use and infrastructure adopted general strategic outline of the city or village, and includes all development projects of integrated urban design or land or facial coordination sites proposed for implementation within the General Strategic Plan.

### **5-3 establishing model of integration SEA in LUP:**

In first part of this paper we review SEA process and we conclude that there are four Main steps in SEA and inside it there are secondary steps, we notice also that each country or organization can build its own model or guide line base on its national condition.

#### **5-3-1 Key roles and responsibilities in conducting SEA in Egypt:**

Before constructing the model we must identify key roles and responsibilities of all bodies that will be involved in the SEA process

#### **A-Competent authority responsible of the development of land use planning (proponent Authority):**

Based on Law no. of 2009 GOPP is the competent authority responsible of review all landaus planning in Egypt and put all planning strategies.

#### **B-Assessment Team:**

As discussed before it is better that this team will organized from environmental authorities based on this, it is better to establish a committee its member are representative of different authorities; GOPP,EEAA<sup>3</sup>, TDA, and other environmental and urban planning experts .

#### **C-Institution for review:**

To make sure that we conduct SEA process with maximum transparency it is recommended to make a review authority follow the Council for Planning and Urban Development, to act as a higher authority.

This review authority work under the umbrella of this Council and its responsibility to make decisions concerning proposed land use planning based on the finding of the SEA report.

#### **D-Public concerned:**

As mentioned before that public concerned is the key of success of any environmental assessment it is important to make sure of this involvement in Egypt, this public participation can be conducted by many means varied from meetings, questionnaire or other tools. Nongovernmental organizations in Egypt can play a big role in this issue.

### **5-3-2 Technical procedure of SEA:**

A proposed technical procedure of SEA consists of three stages, which are building SEA outline, first step is preparation, second step is process and third step is review as shown in the next figure.

#### **Preparation step:**

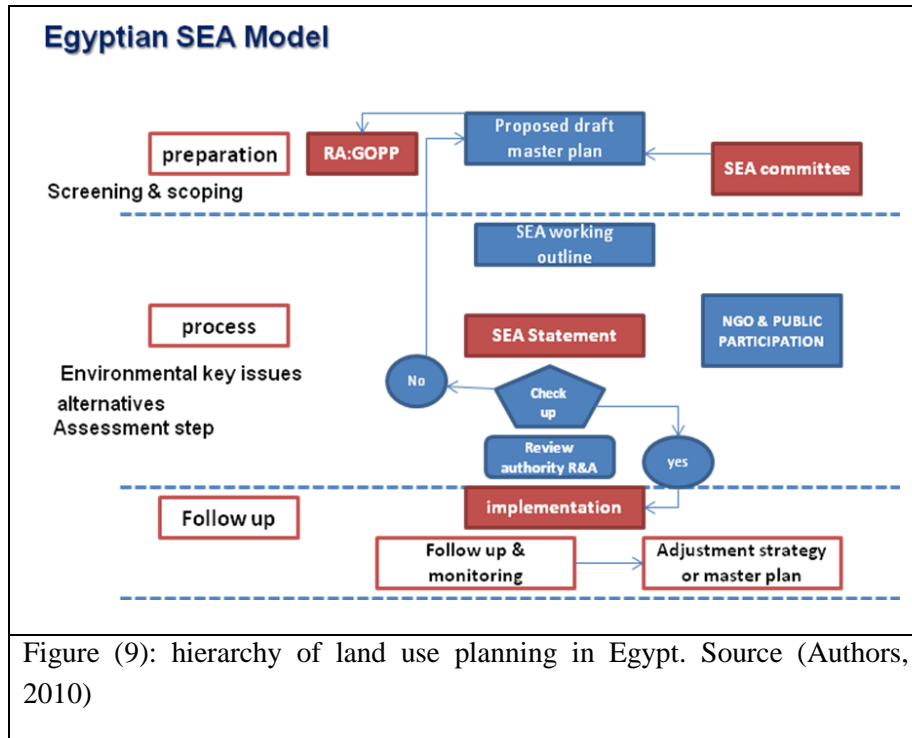
This step is a parallel step to the preparation step of land use planning it will be conduct by the assessment team with the help of proponent authority (GOPP).

At the beginning of this step screening is a must to determine whether the SEA is needed for the proposed Land use planning or not, and secondly scoping to determine the scope of SEA.

Scoping is an important step to determine the scope of base line data that will be reviewed in the SEA report.

---

<sup>3</sup> The Egyptian Environmental Affairs Agency (EEAA): The Egyptian Environmental Affairs Agency (EEAA) is the central institution involved in environmental protection and co-ordination in Egypt. EEAA, it operates under the Ministry of Environment under Laws No. 4/94 and No. 102/83.



**Process step:**

This step is heart of the whole process in it the work of assessment team is started, and also public participation is a necessary in this step too. In this step cooperation must be done with proponent authority and assessment team to put alternatives of the proposed plan and the role of the assessment team is to test it is impact in the environment based on approved key environmental issues, beside test sustainability of proposed plan objectives and its computability with approved environmental issues.

In the end of this step the SEA report is now ready to be reviewed buy the review authority.

**Implementation & Follow up:**

This step is the decision making step in it review authority will take the action of acceptance plan with modifications or refuse proposed plan. After this decision implementing plan is started but after building a monitoring plan and follow up any future impacts, this follow up is very important as from survey and questionnaire with key persons in EEAA we discover that one of the major problem of project level assessment in Egypt is follow up and monitoring and this weakness help in more environmental deterioration in the Egyptian environment.

## **6-Conclusion:**

Because of the rapid urban development in Egypt it is necessary now to start thinking of integrating SEA in land use planning process, to save the environment from current threats that made by irreversible decision making process.

SEA can play as a supporting tool for land use planning process in Egypt and can help better decision making.

Land use planning in Egypt is a process involved in it different parties and authorities but GOPP is the authority responsible of putting all land use planning policies, plans and programs and by law 2009 GOPP must approve any proposed plan from other authority; like tourism development authority for example.

In order to establish operating system for enforcing SEA in Egypt a lot of changes must made in the land use planning process in Egypt as integrating SEA is a parallel step to the land use planning procedure.

At the legislation level SEA must mentioned to be an obligatory by law and it must be conducted as parallel process to the land use planning process.

Secondly cooperation between authorities and organization is a must to make that happen by emphasis on the importance of having three main parties; these parties are responsible of the SEA process from its beginning.

The First is the Proponent authority responsible of land use planning (GOPP), the second is the assessment team which is a combination of experts and key persons from GOPP, EEAA and other administrative bodies, and the third is review authority which will follow the higher council of planning and have the authority to refuse or accept propose plan or program based on the SEA document.

In all SEA process public participation is a must to make sure that people are take their own decision and transparency is a millstone in this process, this can happen in Egypt by involvement of NGOs as they play a great role in the public awareness in Egypt.

Beside all that we must focus on building capacity of experts and land use planners to enhancement whole process.

## **References:**

- Salder B. (1996). Environmental Assessment in a changing world: Evaluating Practice to Improve Performance, in International Study of the Effectiveness of Environmental Assessment., (IAIA) International Association for Impact Assessment.
- FAO (1993). Guidelines for land-use planning. Development Series 1.
- Fischer (2002). Strategic Environmental Assessment in Transport and Land Use Planning London, Earth scan Publications..



- Friedmann, J. (1987). *Planning in the Public Domain: From Knowledge to Action*. Princeton, NJ: Princeton University Press.
- Belcáková, I. (2002). "SEA in spatial planning." Retrieved 6-2009, from [www.iaia.org](http://www.iaia.org).
- Leslie and Ratukalou (2000). *Review of Rural Land Use in Fiji: Opportunities for the new millennium*. Noumea, Secretariat of the Pacific Community.
- Lein, J. (2003). *Integrated Environmental Planning*. Blackwell Science Ltd.
- Salheen M., El Khateeb S., (2008), *integrating environmental assessment in the planning process in Egypt*, ARUP 2008.
- Tao T, Tan Z, and He X, (2007). "Integrating environment into land-use planning through strategic environmental assessment in China: Towards legal frameworks and operational procedures." *Environmental Impact Assessment Review* 27: 243-265.
- Therivel R., Wilson E, Thompson S., Heaney D. and Pritchard D. (1992). *Strategic Environmental Assessment*. London, Earth scan.
- UNCED. (1993). *Program of Action for Sustainable Development*. New York: United Nations