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The consideration of water resources within environmental impact assessment process in Egypt

El-Sayed A. Badr
Environmental Sciences Department, Faculty of Science at Damietta, Mansoura University, New Damietta City, PO Box 103, Egypt

ABSTRACT

Water impact assessment (WIA) is a sub-discipline of environmental impact assessment (EIA), focusing on potential impacts of a proposed development on the water environment. This study aimed to evaluate "how well" the EIA process is working in practice, particularly for water resources section. Forty randomly selected environmental impact statements (EISs) produced between 2000 and 2007 were reviewed for the quality of addressing water resources by using a quality review package. The 40 EISs were randomly selected for various project types including industry, tourism, infrastructure, energy, landfill and agriculture. The review concluded that about 60% of the EISs sampled were found to be of satisfactory quality in assessing potential impacts on water environment. WIA proved to be poorer in quality in relation to EISs overall quality. Scoping, alternatives, impact predication, significance evaluation and monitoring proved to be the main weakness areas for WIA. It is inferred that WIA is less problematic for certain development categories (i.e., energy and infrastructure) than others. The paper identified main strengths and shortcoming regarding assessing potential impacts of proposed developments upon water resources.

Key words: EIA in Egypt; environment impact statement; quality review; water resources.

INTRODUCTION

Environmental impact assessment (EIA) is a process by which potential environmental impacts of a proposed development are assessed at an early stage of decision-making (Glasson *et al*., 2005). Research on the effectiveness of EIA frequently focuses on the environmental impact statement, the resulted report, as this is often the only accessible component of the EIA process (Badr *et al*., 2004). The overall quality of the EIA process depends, in part, on the quality of the produced document, environmental impact statement (EIS). There are two categories of academic studies on EISs quality, aggregated and disaggregated. Aggregated approaches consider overall EIS quality or EIS quality for a specific project type such as landfill or roads. Although aggregated studies indicated that EIA have been problematic in many regions of the world, there is some evidence that EIS overall quality is improving with time (Lee and Brown 1992; Lee *et al.*, 1999; and Badr *et al*., 2004). On the other hand, disaggregated approaches focus on the quality of addressing individual environmental component (such as ecology, or water resources) or performance with respect to certain EIS components such as alternatives or monitoring. Disaggregated studies indicate that the quality with which certain constituent environmental components are addressed is significantly more problematic than indicated by aggregated studies (Thompson *et al*., 1997; Cooper and Sheate, 2002; and Chadwick, 2002).

Water resources, covering more than 70 % of the earth surface, are one of our most essential resources for sustaining life on the earth surface (Cunningham and Saigo, 1995). Main water resources in Egypt include the Mediterranean Sea, the Red Sea, Northern lakes, ground water, rainfall and the River Nile as the main source of fresh water. Egypt is facing shortage in water as a result of population growth, urbanisation, industrial development and cultivation of desert land (Abdel Wahaab and Badawy, 2004). Hence it is important to sustain water resources in a good quality and implement an adequate water management strategy. All types of development projects have varieties of potential impacts upon the water environment ranging from changes in water quantity due to abstraction, and alteration of drainage pattern that can increase flooding risk, to deterioration of water quality and aquatic life (Morris and Biggs, 1995). Changes in water quality include depletion of dissolved oxygen, enhanced concentration of organic matter, eutrophication, elevated levels of toxic metals and pesticides resulted from both point and diffuse source of pollution. These impacts on water can cause a cascade of further impacts on socio-economic variables, human health, ecology and climate. Water impact assessment (WIA), a sub-discipline of EIA, is a systematic, predictive process to identify and evaluate the potential impacts of a project on the water environment (Brookes, 1999). WIA can overlap with the assessment of other environmental components such soils, geology, climate, and ecology due to the complex interaction between all of them (Morris and Biggs, 1995). There has been little systematic research on the quality with which impacts upon aquatic environment are considered in the EIA process (Badr *et al*., 2004).

As illustrated in figure (1), The WIA process in term of best practice follows the same steps as the EIA process, but related to impacts on hydrological systems; and should be a cyclical process with feedback, and have a strong link with water quality monitoring. More

* *Corresponding Author: ebadr@mans.edu.eg*

details about WIA procedures are described in Atkinson (1999); Biggs *et al*. (1995); Brookes (1999); and Morris and Biggs (1995). Potential impacts of various development types upon the water environmental result from either direct use / control of water resources or sitting of a development within a watershed or a coastal zone. Hence, a broad distinction can be drawn between those developments concerned with direct use, control or manipulation of water resources (e.g., dams, marinas and water abstraction projects) and those that result in impacts upon water quality as an indirect consequence of the development activity (e.g. roads, industrial projects, power stations, and agriculture) (Brookes, 1999). For instance, the main potential impact of landfill is the formation of leachate; which constitutes a serious threat to the water environment due to its chemical composition with high level of organic and inorganic substance. Moreover, the potential water impacts from industrial developments result from high pollution levels and a wide variety of pollutants including toxic metals, inorganic salts, detergent and nutrients, micro-organic such as pesticides, as well as thermal pollution. Therefore, EIA process of any proposed development should consider all potential impacts on the surrounding aquatic environment including physical hydrology, physiochemical characteristics of water and aquatic flora, fauna, and suggest the relevant mitigation measures to avoid, reduce, control or compensate for significant impacts (Morris and Biggs, 1995 and Atkinson 1999).

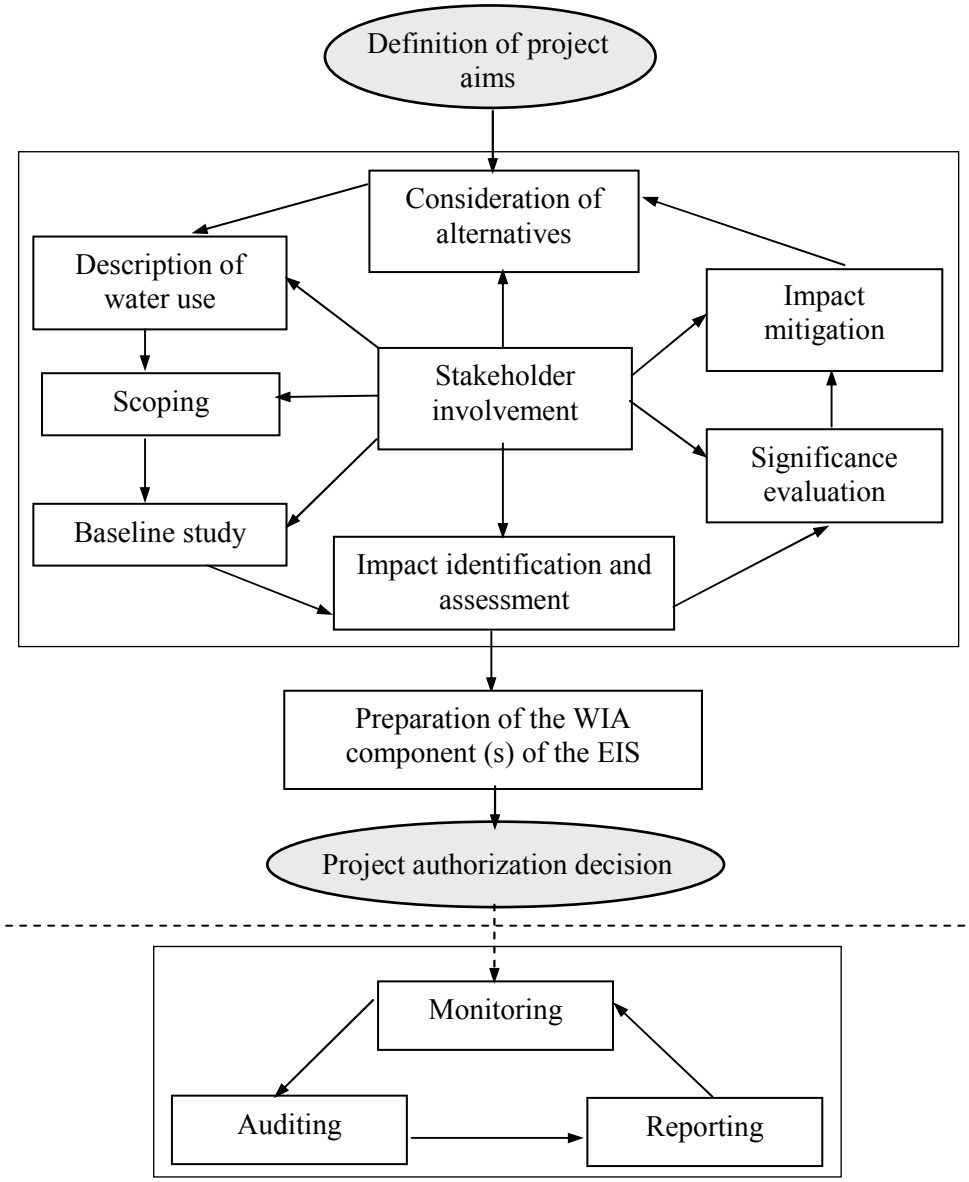

Figure (1): Idealised conception of the WIA process (Source: Badr *et al*., 2004)

The aim of this paper is to investigate the effectiveness of considering potential impacts of proposed projects upon water resources in Egypt contributing to the development of detailed empirical understanding of operational effectiveness of the Egyptian EIA system. The research used a developed review criteria to review impacts upon aquatic environment with a sample of 40 EISs produced in Egypt between 2000 and 2007. The 40-EISs were randomly selected for various development types including industrial projects, energy, infrastructure, tourism, agriculture, and landfill.

THE EGYPTIAN EIA SYSTEM

Formal EIA system was introduced in Egypt through the Environmental Protection Law No. 4 for 1994 and its Executive Regulations in 1995. The Environmental Management Sector under the Egyptian Environmental Affairs Agency (EEAA) is the national competent authority in charge of setting principles and measures of EIA. The Egyptian EIA system classifies projects into three categories (A, B, and C), on the basis of their probable environmental impacts (EEAA, 2009). Category A projects typically cause only minor, insignificant environmental impacts. This category of projects requires submission of a completed 'Environmental Screening Form A' in which developer provides basic project data. Category B includes projects which may result in significant environmental impacts. The developer is requested to provide a preliminarily assessment using 'Environmental Screening Form B' which should provide data on the project, relevant environmental baseline, initial analysis of possible environmental impacts and proposed mitigation measures. Category C projects are characterised by their potential for significant environmental impacts and require a submission of a completed EIA study.

MATERIAL AND METHODS

The preparation of high quality EIS is an indication of effective application of EIA system in practice, as a good EIS will not result from a poor EIA process (Polonen, 2006; Sandham and Pretorius, 2008). A Water Impact Assessment Review Checklist (WIARC) developed by Badr *et al*. (2004) was used, with minor modifications, to assess the quality of addressing water resources within EISs in Egypt. The framework of the WIARC was based extensively on the methodological and hierarchical structure of the Lee and Colley EIS Quality Review Package (Lee *et al*., 1999). The checklist consists of nine review areas (with a set of questions) chosen based on an idealised conception of the WIA process as shown in Figure (1). The WIARC review areas include water uses, baseline study; scoping, alternatives, impact assessment (identification and prediction), impact significant evaluation, mitigation measures, monitoring, presentation, and additional consideration by the reviewer.

The assessment process proceeds on the basis of an analysis of the degree to which individual review criteria have been fulfilled. Each review area is then assigned a grade from A to F (see Table 1) depending on how adequately their constituent review questions were addressed. The overall quality of the WIA is also graded on a scale of A to F, based on a judgement concerning the quality and the relative importance of individual review areas.

Table (1): Assessment symbols (Source: Lee *et al*., 1999)

A	Relevant tasks well performed, no important tasks left incomplete.
B	Generally satisfactory and complete, only minor omissions and inadequacies.
C	Can be considered just satisfactory despite omissions and/or inadequacies.
D	Parts are well attempted but must, as a whole, be considered just unsatisfactory because of omissions or inadequacies.
E	Not satisfactory, important task(s) poorly done or not attempted.
F	Very unsatisfactory, important task(s) poorly done or not attempted.
NA	Not applicable. The Review Topic is not applicable or is irrelevant in the context of the statement.

The number of EIAs submitted to EEAA for category C projects is in the range of 131 – 267 since 1998. Forty EISs produced for Category C projects in the period 2000 to 2007 were selected for analysis. EISs produced prior to 2000 were excluded from the study due to the limited availability of these EISs within the EEAA archive. The research concentrated on a number of development categories which cause potential impacts upon the water environment, namely industrial projects, energy, infrastructure, tourism, agriculture, and landfill. The studied sample comprised: 10 EISs for industrial projects; 10 EISs for tourism projects; 8 EISs for energy; 8 EISs for infrastructure; 2 EISs for landfill; 2 EISs for agricultural developments. The EIS sample for landfill and agriculture was constrained by the limited availability of EISs at EEAA. Data were also collected for such factors as the date of EIS publication, length of EIS, language used, and the experience of consultant in undertaking EIAs, to evaluate their influence on quality. Full details of the EIS sample are included in Appendix (1).

RESULTS AND DISCUSSION

1. Overall trends of WIAs quality

The results are described in terms of the percentage of the statements assessed to be satisfactory (i.e. those receiving an overall score of A, B, or C) and unsatisfactory (i.e. those receiving an overall score of D, E or F). A further distinction is made between WIAs classed as good (a score of A or B), borderline (a score of C or D) and poor (a score of E or F). The WIA overall quality results are summarised in Table (2). It is indicated that less than two-thirds, 60% (24), of the

WIAs sampled were satisfactory in quality, with only 27.5% (11) classed as good. This is in close agreement with the results of similar study reviewing 50 EISs produced in the UK but in the period 1993 – 2001 (Badr *et al*., 2004). Two statements (from industry and energy) assigned a score of A and covered all the nine review areas, including problematic areas such as consultation process, consideration of alternatives, impact magn-itude, criteria used for evaluation and on-going monitoring program. While one statement (from tourism), assigned F, did not address water resources in details and did not mention the reasons for exclusions. EISs were of higher quality, with 69% and 35.5% graded as satisfactory and good, respectively as shown in Figure (2) (detailed EISs quality is published elsewhere). Previous studies indicated that the quality with which certain constituent components (i.e. ecology, water, socio-economic) is significantly more proble-matic than EISs overall quality (Thompson *et al*., 1997; Cooper and Sheate, 2002; Chadwick, 2002; Badr *et al.,* 2004).

Table (2): Overall quality of WIAs

Overall assessment	Percentage of sample [Number (out of 40)]
Satisfactory (A, B, or C)	60% (24)
Unsatisfactory (D, E, or F)	40% (16)
Good (A or B)	27.5% (11)
Borderline (C or D)	65% (26)
Poor (E or F)	7.5% (3)

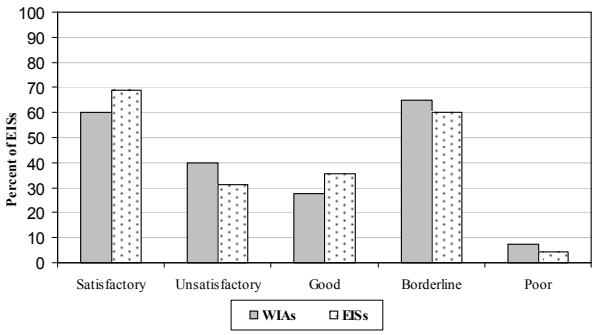

Figure (2): Overall quality of WIAs and EISs

2. Results of WIARC review areas

A more detailed analysis of WIA practices was undertaken by examining the performance of individual components of the WIA process. Data on the quality with which different WIA components were taken are summarised in Table 3. It is indicated that the best performed elements of the WIA process were: description of a project's water uses, the baseline study, identification impact, mitigation measures, and presentation of information on the WIA process within the EIS in Figure (3). In contrast, scoping, consideration of alternatives, impact magnitude, the evaluation of significance and monitoring were found to be particularly poor in quality. These findings are in qualitative agreement with the results of similar study on WIAs quality (Badr *et al.,* 2004).

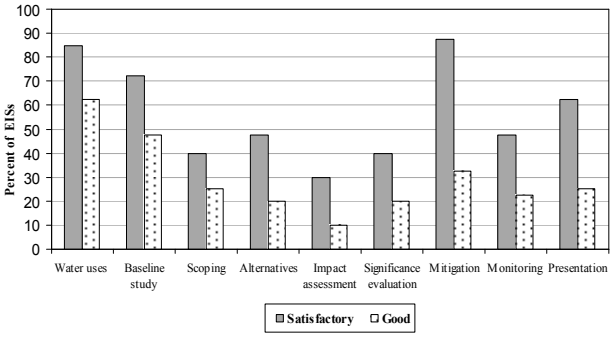

Figure (3): Percentage of satisfactory and good WIAs for the nine review areas

a. Description of water uses

This review area assessed the adequacy of information on a proposed development action's use and emissions of water. Description of water uses was the second best performed components of WIA process, where 85% (34) of the WIAs were satisfactory. Although most WIAs contain adequate general description of water uses, many failed to provide detailed description of methods used for quantification of water uses.

b. Baseline study

This review area examined the types, sources and comprehensiveness of data collected to describe the baseline of aquatic environment. The majority of the statements (72.5%, 29) were satisfactory for baseline study, with 47.5% (19) of good quality. A common problem with baseline study is the lack of adequate national data base of environmental information. Where, only 30 % of statements reviewed approached available data sources. Consequently, environmental analysis of water was conducted in 75 % of WIAs to compile the needed baseline data. The data used in description of current environmental conditions should be of sufficient quality to support the conclusion drawn from them (Morris and Biggs, 1995 and Atkinson, 1999). Of the statements reviewed, 40 % did not consider the future change in baseline conditions due to other activities. Baseline study in many cases focused predominately on physiochemical aspects of the aquatic environment and no much detail on ecological aspects (Biggs *et al*., 1995).

c. Scoping

Consideration of scoping to identify impacts up on the aquatic environment was one of the worst performed elements of the WIA process, as 40% (16) of the EISs were satisfactory. Half of the statements indicated scoping was conducted, with only 32.5% (13) gave adequate details about the consultation process. It is widely accepted that effective scoping require the involvement of a broad range of stakeholders including

both "expert" and "lay" group (Sadler, 1996). Public consultation has ignored in practice as it was not mandatory. Recently, the EEAA has started to request the developer to conduct public consultation for the proposed project prior to approval as recommended by a World Bank study in 2005 (Badr, 2009). The public needs to be aware of a project's environmental consequences and understand their responsibility to ensure efficient public engagement (Slotterback, 2008).

d. Consideration of alternatives

This review area examined what, if any, alternatives had been considered during the WIA process. In two cases (graded A overall), a series of alternative sites, the do-minimum option, different processes and design layouts were evaluated in detail and justification presented for the selection of the preferred alternative. Overall, however, treatment of alternative was of low quality as 47.5% of the statements were satisfactory, with 20 % of good quality. Evidence of comparative assessments having been undertaken to consider alternatives was recorded in 65% of the reviewed EISs. However, the majority of these comparative assessments focused on alternative processes and the do-nothing option. Moreover, consideration of alternative sites was recorded only in 6 cases (15%) of the population sampled. This might be explained as EIA process is usually conducted after some decisions, regarding the proposed development such as location, have been made (Glasson *et al.,* 2005).

Table (3): Variations in WIA quality within review areas

Review areas	Percentage of sample				
	Satisfactory	Unsatisfactory	Good	Borderline	Poor
Water uses	85	15	62.5	32.5	5
Baseline study	72.5	27.5	47.5	45	7.5
Scoping	40	60	25	55	20
Alternatives	47.5	52.5	20	52.5	27.5
Impact assessment	30	70	10	70	20
- Impact identification	27.5	27.5	37.5	5.50	7.5
- Impact predication	15	85	5	22.5	72.5
Significance evaluation	40	60	20	57.5	22.5
Mitigation	87.5	12.5	32.5	62.5	5
Monitoring	47.5	52.5	22.5	67.5	10
Presentation	62.5	37.5	25	67.5	7.5

e. Impact identification, assessment and significance evaluation

These review areas examined the methods used to identify, assess and evaluate impacts as well as the nature and comprehensiveness of these predications. This has been found to be a problematic aspects of EIA practice in previous research (Barker and Wood, 1999; Badr *et al.,* 2004; Peterson, 2010), despite being a key component of the EIA process (Glasson *et al.,* 2005). The current study proved that impact prediction is also a problematic aspect of WIA practices. Overall, the review of impact assessment showed that 30% (12) of the statements were satisfactory, with 10% (4) of good quality. Impact identification was less problematic than impact assessment, with 72.5% (29) of the statements were satisfactory in identifying impacts, but not all types of impacts. Of the reviewed statements, 57.5% (29) did not mention what methodology was used for impact identification and a few statements mentioned using systematic methods such as checklist / matrices.

It was found that predicting impact magnitude was the least adequately addressed component of the WIA process with a satisfactory grade an achieved in just 15 % (6) of cases for the EISs population sampled. A few statements (15%, 6) mentioned using mathematical or computer modelling for impact magnitude. Generally EIA practitioners tended to describe simply whether impacts were adverse or beneficial, direct or indirect, or short/ long term. Furthermore, magnitude of impacts was quantified, to some extent, in only 20% (8) of the reviewed statements. Impact significance was stated explicitly in 77.5% (31) of WIA, but only 40% (16) were deemed satisfactory. This is because the methodology used in significance evaluation was not described in 65% (26) of WIAs, and even where the method was described it is often lacked transparency.

f. Mitigation measures and monitoring

The description and assessment of impact mitigation for the water environment was the best performed component of the WIA process with 87.5% (35) of WIAs assessed as satisfactory. Those WIAs (5%) graded as poor in quality for impact mitigation were also poor in WIAs overall quality. The finding that impact mitigation was of high quality is predictable given that EIA process is widely regarded as successful in identifying appropriate mitigation measures (Sadler, 1996). However, only 25% (10) of the reviewed statements considered residual impacts after implementing mitigation measures. Proposed mitigation measures, like data in the baseline environment, focused predominantly on water quality aspects and not ecological aspects of the aquatic environment.

Provision for, and commitment to, monitoring of impacts upon the aquatic environment was stated explicitly in 87.5% (33) of WIAs, but only 47.5% (19) were deemed satisfactory. Moreover, two third of WIAs were assessed as borderline in monitoring of impacts. Proposed monitoring scheme focused predominantly on operation stage and less attention was given to monitoring of impacts during construction. Even though follow-up monitoring is always ignored in practice once the project is approved. Monitoring should be a key component of any development proposal so that the success of mitigation measures can be assessed and post-development environmental problems identified and rectified (Thompson *et al*., 1997).

g. Presentation

Presenting data and information of WIAs section within EISs were deemed satisfactory in 62.5% (25) of the reviewed statements. One recurrent limitation in the presentation of in formation was a failure to make adequate use of tables and figures. Moreover, references have been acknowledged (list of reference) in just 60% (24) of the sampled EISs. Only 42.5% (17) of WIAs explained scientific term / use glossary related to water resources. WIAs were considered under a specific heading within EISs in 57.5 % of the statements.

3. Results by project types

The review results for different development categories are illustrated in Figure (4), although the data should be interpreted with caution given the small sample for some categories. The percentage of satisfactory WIAs was highest for energy (100%, 8) and infrastructure (75%, 6); lower for industry (50%, 5) and tourism (50%, 5). Whereas, the worst performed WIAs were associated with agriculture and landfill (100% unsatisfactory). The poor quality of WIAs for agriculture and landfill projects might reflect a perception such projects are essential for developments and would have little impacts on the aquatic environment and thus less attention will be given to WIA process and generally EIA.

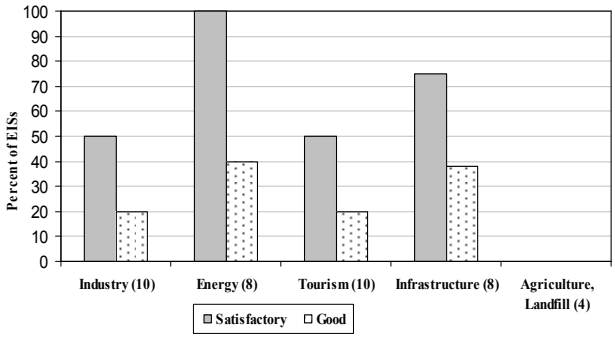

Figure (4): Percentage of satisfactory and good WIAs for different project types.

4. Year of preparation

The data in Figure (5) would seem to indicate that there is no apparent relationship between the quality of a WIA and the year in which it was prepared. This finding is at variance with the results of previous similar research (in the UK, Spain, Denmark and Ireland) where quality was found to be improved with time (Lee and Brown, 1992; Cashmore *et al*., 2002; Badr *et al.,* 2004; Glasson *et al.*, 2005). There are various reasons why the quality has not markedly improved over time. Firstly, this study reviewed WIAs within EISs produced in Egypt since 2000, five years after formal introduction of EIA. It might be expected that by this times consultants and competent authorities were reasonably experienced in undertaking EIAs. It is indicated from the current study that the quality of WIA is affected to some extent by the experience and background of consultant(s) who conduct the EIA study. Moreover, experience and familiarity with a particular project type may also influence EISs (consequently WIAs) quality. Lack of implemented accreditation system for EIA practitioners might also affect the quality of conducted EIA studies.

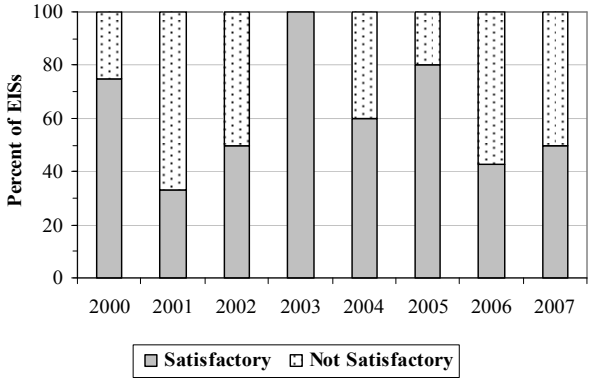

Figure (5): Temporal trends in the quality of WIAs

CONCLUSION

Water is a highly regulated component of the environment due to the importance of maintaining clean and adequate supplies of freshwater for society, industry and biodiversity (Morris and Biggs, 1995). Quality review of 40 EISs produced in the period 2000 – 2007 with respect to potential impacts upon aquatic environmental for various project types indicated that 60 % of WIAs were of satisfactory quality. Previous similar disaggregated studies indicated that assessment of socio-economic, water and ecological impacts within the UK statements are poor in quality in relation to EISs overall quality (Thompson *et al.*, 1997; Byron *et al.,* 2000; Chadwick, 2002; Badr *et al.*, 2004).

The current study proved that impact assessment; scoping, significante evaluation, monitoring, and alternatives proved to be the weakness areas for WIA, as the percentages of the satisfactory statements were less than 50%. Higher percentages were assigned for presentation (62.5%), baseline study (72.5%), water uses (85%) and mitigation measures (87.5%). These findings proved that descriptive tasks tend to be performed better than scientific tasks. The quality of considering water resources within the EIA process has also been shown to be influenced by a number of

additional factors such as the nature and size of the projects, the use of professional consultants and the nature of project proponents. It could be inferred that the WIA process is less problematic for certain development categories (i.e., energy and infrastructure) than others.

The performance of certain elements of the WIA process is presumably more explained by the complexity of the task. Prediction of impact magnitude was not well addressed because of the sophistication of modelling that required a qualified specialist staff; lack of time and resources, as modelling is time consuming and expensive (Morris and Biggs, 1995; Brookes, 1999; Wood *et al*., 2000). Moreover, lack of quantitative analysis indicated that EIA practitioners could not compare predictions with environmental quality and legislative standards, and this was partly why the evaluation of significance also was very poorly attempted. It is difficult to consider alternative locations as it is predefined (Glasson *et al.,* 2005).

Significant improvements in WIA practices and EIA practices more generally are needed to ensure greater environmental protection. For conducting WIA process effectively, a professional water scientist should carry WIA among the multidisciplinary team of EIA study and best practice guidance should be published and used for conducting WIA. The newly designed water resources checklist can be used, as generic guidance, for evaluating WIA quality. Treatment of alternatives through introduction of strategic assessment needs to be strengthening in order to ensure early consideration of modifications. Since most of Egypt's water uses are within the agricultural sector, EIA of the proposed agricultural projects should effectively assess potential impacts on water resources and suggest the relevant mitigation measures to those significant effects. Provision of national data base of environmental information is essential to improve baseline study of the aquatic environment as well as efficient prediction of potential impacts. An accreditation system for environmental consultants should be implemented to ensure that EIA and WIA studies will be prepared only by accredited qualified professionals.

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مدي إعتبار مصادر المياه في إطار تقييم الأثر البيئي في مصر

السيد عبد الرحمن بدر
قسم علوم البيئة – كلية العلوم بدمياط – جامعة المنصورة – دمياط الجديدة – جمهورية مصر العربية

يعتبر دراسة التأثيرات البيئية للمشروعات المختلفة علي البيئة المائية جزء هاما من عملية تقييم الأثر البيئي. يناقش هذا البحث مدى الأخذ في الإعتبار لمصادر المياه أثناء إجراء عملية تقييم الأثر البيئي للمشروعات. ولقد تم االتركيز على التأثيرات البيئية للمشروعات الصناعية، الزراعية، السياحية، البنية الأساسية والطاقة على نوعية مصادر المياه في مصر. حيث تم تقييم ومراجعة أربعون حالة من دراسات تقييم الأثر البيئي للمشروعات التي قدمت لجهاز شئون البيئة في الفترة 2000 – 2007 باستخدام حزم مراجعة الجودة لمصادر المياه. أوضحت الدراسة بانه تم تقييم التأثيرات المحتملة على البيئة المائية بصورة مرضية في 60 % من عينات الدراسة. ولقد تبين من هذا البحث أهم نقاط القوة والمعوقات فيما يتعلق بتقييم الآثار المحتملة للمشروعات المختلفة على البيئة المائية. وأهم نقاط الضعف تشمل دراسة بدائل المشروع، التنبأ للأثر البيئي باستخدام النماذج الرياضية، الرصد البيئي، وعجز البينات والمعلومات البيئية. كما أثبت الدراسة أن مشروعات الطاقة والبنية الأساسية تم تقييم تأثيراتها البيئية علي المياه بصورة جيدة بالمقارنة بالمشروعات الأخري. ويمكن إستخدام منهجية البحث في كيفية الإعداد الأمثل لتقييم التأثيرات المتوقعة للمشروعات التنموية على البيئة المائية.

Appendix (1): Environmental Impact Statements reviewed**.**

No.	Title	Date
Industrial projects		
1	EIA for New Cement factory at Beni Suif Governorate of Hours Cement Company	06/2000
2	EIA for Trust Chemical Industry's Factory at Kantara Shark, Industrial Zone, Ismalia Governorate	11/2001
3	EIA for Chemicals Industry Factory at Port Said	05/2002
4	E IA for Co-incineration of Hazardous Waste in Cement Kilns of Egyptian Cement Company	04/2003
5	EIA for Proposed Ammonia plant, Suez Industrial Zone	08/2004
6	EIA for the Extension of the Egyptian Fertilizer Company (EFCII) to produce Ammonia and Urea at Ain Sokhna	01/2005
7	EIA for EMAK Salts & Mineral Extraction, Northeast of Lake Qarun, Fayoum Governorate	10/2006
8	EIA for Egyptian Sponge Iron & Steel Company, Sadat City	12/2006
9	EIA for a Proposed Methanol Facility of E-Methanex in Damietta Port	02/2007
10	EIA for Biodiesel Production Plant, Suez Governorate	07/2007
Energy Projects		
1	EIA for Electric De Frances International (EDF) Boot project 2 x 341 MW Steam Power Plant at Suez Gulf site	05/2000
2	EIA for West Delta Deep Concession Natural Gas, Simian / Sapphire Development Project	06/2002
3	EIA for Egyptian Liquefied Natural Gas (LNG) Sediment Disposal in the Sea	04/2003
4	EIA for North Shadwan Offshore 3D Seismic Survey, Gulf of Suez – Red Sea	09/2004
5	EIA for Marine Platform & Pipeline for ES Bakr Offshore well, Gulf of Suez	01/2005
6	EIA study for Beni Suef – Abu Qurqas Gas Pipeline	08/2006
9	EIA for New Sidi Krir Power Plant (750 MW)	04/2007
8	EIA for New Cairo West Power Plant (2 x 350 MW), Thermal Steam Project	08/2007
Tourism Projects		
1	EIA for a Proposed Hotel in Wadi Lahmy, South Marsa Alam	04/2000
2	EIA for a Proposed Telifric Passing two Islands in the Nile, Aswan City	07/2001
3	EIA of Happy Tourist Village in Marsa Alam	05/2002
4	EIA for Beach Improvement to serve Hotels in El-Montzah Tourist Centre, Sharm El-Sheik	01/2003
5	EIA of Roman Theater within the Beach Area in Sharam Elsheikh	06/2004
6	EIA of Ramses Tourist Village in Hamata, Red Sea	08/2005
7	EIA of Venus Village, Hurghada	02/2006
8	EIA of Titanic Tourist Resort, South Hurghada, Red Sea	11/2006
9	EIA for Dolido Tourist Resort, Red Sea	06/2007
10	EIA for KIMICO Tourist Resort, Red Sea	07/2007
Infrastructure Projects		
1	EIA for Grater Cairo Wastewater Project Connections to Maadi Rock Tunnel	07/2000
2	EIA for Nuweiba Water Distribution Wastewater Collection & Conveyance and Wastewater Treatment, South Sinai	09/2000
3	EIA for Wastewater Treatment Plant in Porfoad City	03/2002
4	EIA for Sharam Elsheikh Terminal Airport Extension Project	12/2003
5	EIA for the Extension of Abu Rawash Wastewater Treatment Plant, Giza	02/2004
6	EIA for Hurghada Terminal Airport Extension Project	08/2005
7	EIA for the design of Agriculture Drainage System into the Mediterranean Sea	11/2006
8	EIA for the Developoment of El-Hamrawen Port, Red Sea	06/2007
Agricultural Projects		
1	EIA for Agriculture Land Reclamation of 1200 Fadden for Crops Cultivation, El-Wady El-Gadid	12/2004
2	EIA for Slaughter of Damietta Poultry Processing Plant	03/2007
Landfill		
1	EIA for Borg EL-Arab Landfill Gas Flaring CDM Onyx Project	08/2005
2	EIA for Sanitary Landfill in Sharam Elsheikh City	07/2007