

**A CONCEPTUAL FRAMEWORK FOR
AREA-WIDE ENVIRONMENTAL ASSESSMENTS
with Special Reference to Irrigated Agriculture in Egypt**

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Preface

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Disclaimer

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Acronyms

EA	Environmental Assessment
EEAA	Egyptian Environmental Affairs Agency
EEPP	Egypt Environmental Policy Project of USAID
EIA	Environmental Impact Assessment
EPIQ	USAID Environmental Policy & Institutional Development Indefinite Quantity Contract
GoE	Government of Egypt
PEA	Programmatic (or Sectoral) Environmental Assessment
REA	Regional Environmental Assessment
SEA	Strategic Environmental Assessment
USAID	United States Agency for International Development

A CONCEPTUAL FRAMEWORK FOR AREA-WIDE ENVIRONMENTAL ASSESSMENTS with Special Reference to Irrigated Agriculture in Egypt

1. Introduction

The terms of reference for this short-term consultation were *"to develop a conceptual outline for preparation of wide-area environmental impact assessments (EIAs) for the irrigation and agriculture sectors"* in Egypt. This task is in support of the Egypt Environment Policy Program's objective number two, "integrate the environmental dimension in national planning and development programs."

It is understood that while the Environmental Law of Egypt (Law 4/1994) and its Executive Regulations established a requirement for EIAs and their review, to date this has been applied mainly to individual projects, in the private sector. For instance, the Egyptian Environmental Affairs Agency (EEAA) has developed guidelines for EIAs for individual projects in particular sectors, namely Industrial Estates Development, Municipal Wastewater Treatment Works and Ports, Harbours and Marinas. We understand that guidelines for Land Reclamation and Agriculture projects are currently in the process of being published.

Law 4's EIA requirement has apparently not been applied as much to major land and water use projects, policies, or programs of the Government of Egypt (GoE), or to areas with multiple development projects going on simultaneously. However, the GoE often sponsors major development activities, particularly in the irrigation sector (almost all agriculture in Egypt is irrigated), and an EIA prepared at the individual project level may not accurately reflect the potential cumulative environmental effects of a series of projects in a specific region. Hence this task was undertaken to provide a conceptual framework of "approaches that can be used to assess the environmental impact of development projects that cover a wide area, with a special emphasis on the irrigation and agriculture sector."

It is worth noting that several terms of art have emerged in the field of Environmental Assessment (EA) over the past decade to describe a variety of types of assessments that are intended to go beyond individual projects, including:

- *"Strategic"* EA has been broadly defined as any "EA applied above the project level," or "EA in strategic planning and policy-making." According to one author (Buckley, 1998), there are at least seven different types of SEA, but the major ones are geographical/regional EA, sectoral EA, technological EA, and policy EA (assessments of existing policies or proposed changes).
- *"Regional"* EA compares alternative development strategies and their cumulative impacts, looking at multiple projects across multiple sectors (e.g. agriculture, tourism, industry, housing, water supply and sanitation), within a particular regional/spatial area (e.g., North Sinai, Red Sea Coast or a subset thereof, New Valley, Fayoum, or the city of

Suez and its surroundings). The cross-sectoral comparison of options, within a defined spatial area is the key distinction.

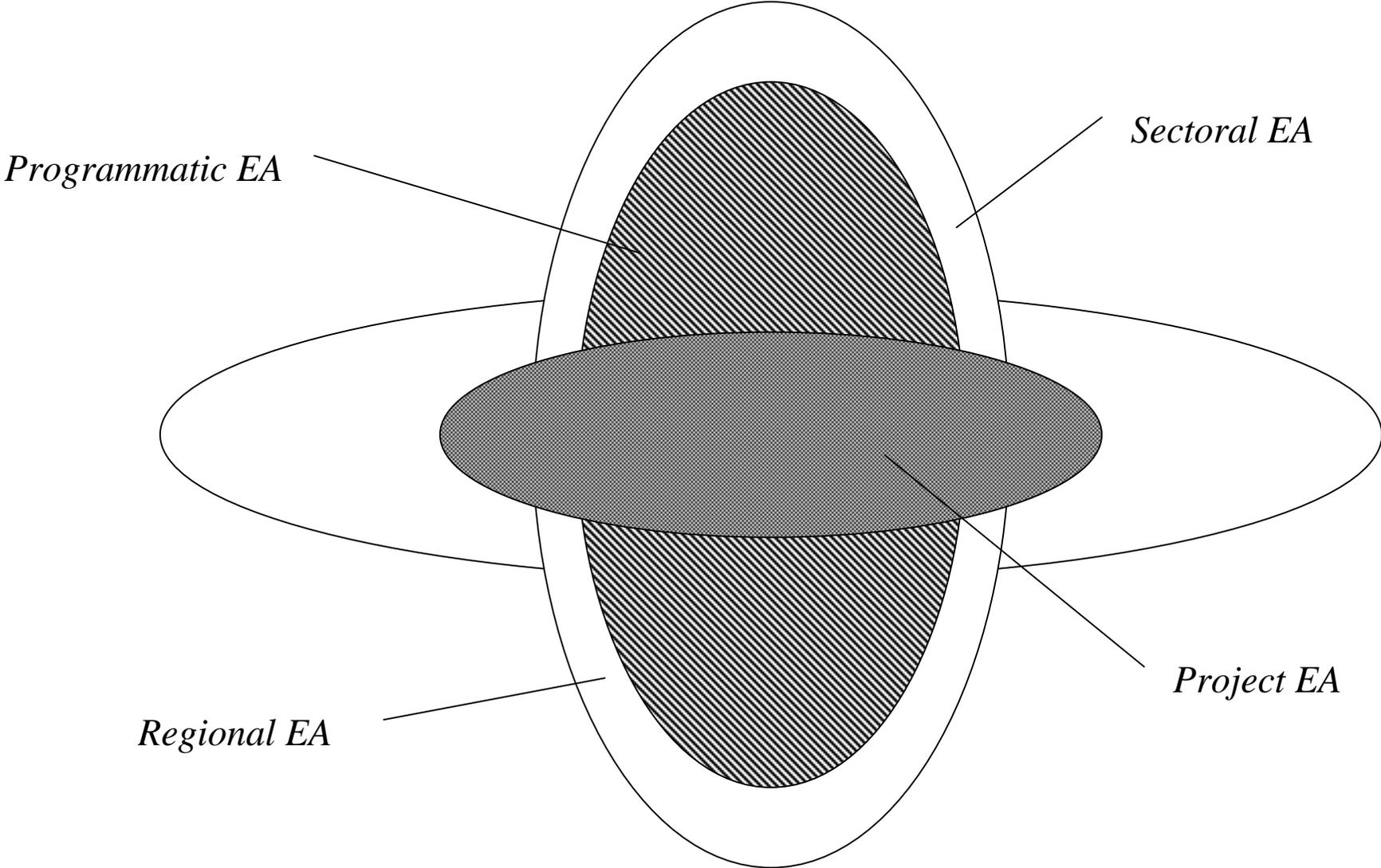
- "*Sectoral*" or "*Programmatic*" EA typically evaluates competing approaches to development across a single industrial sector (e.g., irrigation, power, wastewater) within a country or large region, and/or corresponding sectoral investment programs (and policies) of multiple projects with similar objectives, sponsored in many cases by a variety of agencies or donors. The comparison of strategic options within a single sector (e.g., large scale vs. small scale, public vs. private, choice of technologies or crops, policies and subsidies) is the defining purpose.

A diagram might be useful to help visualize the differences between Project-specific, Regional and Sectoral, and Programmatic EAs (see **Figure 1**). The Programmatic Environmental Assessment of Small-Scale Irrigation in Ethiopia, by Catholic Relief Services for USAID (1999) is an example of a "programmatic" EA that focused on programs covering a sub-sector in a large region rather than an entire sector (agriculture) in an entire country. This and a recent sectoral EA on power generation in Thailand will be provided as samples of this type of strategic EA.

The scale covered by such assessments will vary, depending on needs. Both regional and sectoral environmental assessment are used during the early stages of development planning, before decisions about specific projects have been made, for the purpose of influencing such decisions. Because they are earlier in the planning process and focus less on individual projects, the depth of precision about impacts, particularly for sectoral EAs, will be less, but their breadth will likely be greater, and the methods of review may be different. They both allow for comprehensive assessment of environmental issues, to establish environmentally sound development policies and strategies, though in different ways.

Thus, the terms of reference for this task suggest a crossing of the "regional" ("area-wide") and "sectoral/programmatic" (irrigated agriculture) approaches to strategic environmental assessment. As a result, this report will provide generic outlines for each of these -- first, for a regional environmental assessment, and then, the differences in the outline for programmatic environmental assessments, with special reference to irrigation. Which general approach should dominate in a particular assessment would likely depend on a combination of the features and potential development activities being considered for the actual area being assessed, and the preferences of the decision makers involved. It may be that a particular strategic EA does both.

Figure 1 Spatial and Sectoral Scale of EAs



2. Regional Environmental Assessment

As described in an update to the *World Bank Environmental Assessment Sourcebook* (1996), regional environmental assessment (hereafter, "REA") is primarily a *pre-feasibility* tool to help development planners evaluate options and design investment strategies, programs, and projects that are environmentally sustainable across a particular region as a whole. REAs take into account the opportunities and limitations represented by the environment of a given region, and assesses on-going and planned development activities from a regional perspective.

Whereas sectoral EA generally takes a national or semi-national-scale but single-sector approach, REA takes a *multi-sector* approach to assessing environmental issues and impacts in a more targeted *spatial* setting. Ongoing activities, [master] development plans, and a variety of potential projects across different sectors are assessed by how they may cumulatively affect the ecology and human living conditions within a given area that is larger than the boundaries of any single project. The particular spatial area to be investigated can be delimited in a variety of ways, depending on what is deemed most appropriate or feasible for a particular setting, based on ecological, socio-economic, administrative, or other boundaries. A geographic area may be a river basin/watershed, a coastal zone, a highland area, an airshed, etc. Or it may focus on a province or governorate, one or more local government units, or even a single municipality (with or without the hinterlands that might be the source of most of its food or water supplies). "Region" in this context is not to be confused with the seven regions into which the GoE has subdivided the nation of Egypt. One definition of a region might be "any subnational area that a country chooses to call a region for purposes of planning or development." Another might be "any area in which more than one development project, or multiple sub-projects, is being considered."

It is important to note that REAs do not substitute for project-specific EAs of individual investments. However, they can reduce the scope required of such EAs further downstream in the project development cycle, by virtue of having already conducted certain baseline studies and comparisons of alternatives, to steer development plans toward types of projects that are more environmentally benign and socially beneficial.

Thus, some REAs are used in a proactive manner as a development planning tool for a region. They will examine a given region's natural resources, ecological, and socioeconomic characteristics, and identify development options and investment projects that are more environmentally sustainable for the region as a whole, as an input for the preparation of a comprehensive regional development plan. Often, REAs strive to provide a cumulative impact assessment of multiple projects and activities that may be ongoing, planned, or simply expected. The emphasis is on influencing an evolving strategy or plan (including projects), to help in narrowing down the options to be considered to the most sustainable ones.

REAs can assess the cumulative and interactive environmental impacts of several projects where a project-specific EA would only look at site-specific impacts. Or they can be used to design two or more projects in such a way that they are better integrated and more cost-effective from the start, rather than having to adapt to each other, or add an additional project to mitigate their synergistic effects.

A hypothetical example might be useful. Suppose different agencies of the government were promoting three new development projects in an area: a major irrigation scheme, a new highway, and a health project. The irrigation project alone might be expected to have health consequences such as increases in malaria, schistosomiasis, agro-chemical poisoning, and/or transmittable water-borne disease (if unaccompanied by drinking water or sewage treatment facilities). A new highway through the area might dramatically increase the rate of HIV/AIDS transmission, as well as potentially interrupting drainage patterns (again affecting malaria) or increasing erosion/siltation. It might also result in higher in-migration of people, increasing the number of people requiring irrigated farm plots, clean water and sanitation, and other health care services. If these impacts were not adequately integrated into the designs of all three projects simultaneously, the road itself might disrupt part of the irrigation scheme, leading to increased friction over allocation/access to water, and the health project might misdirect its resources toward an existing set of health priorities that could be obsolete by the time the road and irrigation projects were completed. A regional environmental assessment would evaluate such scenarios and facilitate their realistic integration into a regional development plan, with appropriately adjusted designs to all three projects - or even result in a decision that it would be more cost-effective to cancel one of them in favor of some other emergent priority.

One factor which can enhance the long-term value of an REA is whether the economic and social conditions in the region are relatively stable and predictable, to allow for a medium to long-term planning horizon. Hence, the importance of interpreting socio-economic aspects in the REA.

An REA Outline

It can be useful to distinguish between the *design* and *execution* stages of an REA. The *design* phase generally consists of:

- A. Determining the scope of the REA ("scoping")
- B. Preparation of terms of reference (TOR)
- C. Plan for public consultation (including in the scoping and TOR preparation processes)
- D. Plan for review processes
- E. Selection of the REA team
- F. Description of methodologies used in the study

The *execution* phase generally includes (but should be flexible):

- G. An investigation of the policy, legal, and administrative frameworks - at the national and regional levels
- H. Surveys of baseline conditions of the physical, biological, socio-economic, and cultural environments
- I. Description of the development plan (to the extent that one already exists) and associated projects, including alternatives or variation, and an inventory of other plans and projects in the area

- J. A cumulative impact assessment of planned activities and alternatives on the region's environment, natural resource base, and socio-economic conditions, taking into account the above baselines, inventory of plans, and reasonably expected spontaneous developments.
- K. Recommendations toward an optimal regional investment plan
- L. Environmental management plan/strategy

Further details on most of these steps will be described in the outline below.

Scoping

As in any environmental assessment, scoping is particularly important, as it determines what will be investigated. For an REA, the scoping process should encompass the following activities:

1. Developing an understanding of the regional planning framework, to link the REA functionally to the existing institutional setting.
2. Defining the spatial context:
 - a. Identify the major ecosystems of the region;
 - b. Determine the boundaries of economic and market systems;
 - c. Define the primary, secondary, and tertiary urban centers of the region; and
 - d. Assess demographic patterns and migration trends to understand the population dynamics likely to influence the region's development.
3. Determining the optimal multi-sectoral focus:
 - a. Determine which sectors have the potential to cause environmental problems in the region, so the study can be designed to include all relevant aspects;
 - b. Analyze sectoral cause-and-effect relationships, so the REA can be directed toward addressing main causes rather than symptoms;
 - c. Encourage sectoral institutions to supply information, feedback, and political support. (Involving sectoral interests early may diffuse potential conflicts and reveal false assumptions that could misdirect the study.)
4. Identifying the major stakeholders, beneficiaries, users, and future owners of the work, and establishing a preliminary dialogue with them.
5. Limiting the study goals while retaining an integral focus. Ways to balance these concerns may include:
 - a. Limiting the overall size of the study area, perhaps even focusing the study on a particular target population within a designated geographical area
 - b. Studying the region at different levels of detail, phasing the investigation from the general to the specific
 - c. Limiting the time horizon of the proposed development plan and projects

- d. Narrowing the sectoral focus after a rapid integrated overview of the various sectors
6. Setting up appropriate institutional arrangements. Options include working with:
 - a. A task force of agencies to execute the study
 - b. A particular sectoral agency under the aegis of a national or provincial planning agency
 - c. A natural resource or environmental agency
 - d. A regional development corporation or similar agency
 - e. An independently-funded study team that can evolve into a regional development institution.

Developing a Detailed Terms of Reference (TOR)

1. Define the objectives of the study and tasks to be performed
2. Provide a clear allocation of responsibilities
3. Identify specific technical products to be delivered (reports, maps, training, development project proposals, etc.)
4. Define available information resources
5. Allocate available human and financial resources to the various tasks
6. Establish a time frame for delivery of products
7. Design a system for continually integrating specialists and information generated
8. Provide for appropriate levels of public consultation/review

Public Consultation

A well-planned and implemented public consultation (or even more deeply, participation) process will increase overall public awareness of major environmental issues, elucidate useful local and expert knowledge about impacts, interactions, and user needs, and help ensure public support for the final regional development plan or program -- thereby, increasing its prospects for success). It is advisable to plan appropriate public participation, to discuss options at the level of strategic choices for regional development, with all identified stakeholders. Included among these are likely to be the following groups (not necessarily an exhaustive list):

1. NGOs that are active in the region
2. Scientific experts
3. Relevant agencies from all levels of government
4. Labor representatives
5. Industrial and commercial interests
6. If water, irrigation, health, and/or sanitation projects are to be contemplated, it may be particularly appropriate to make a special effort to consult with women's organizations, as they may be the principle users of such services.

If general public meetings are not socially appropriate or productive, the EA practitioner should consider using focus groups of randomly selected people, or seminars with groups carefully chosen to represent all stakeholder groups and types of relevant expertise. Such meetings can go into greater depth than a general public hearing.

Define a Review Process

In advance, including the needs for public review:

1. Scope and process for report distribution
2. Allocation of review responsibilities
3. Definition of review stages.

Selection of Study Team

As with any EA, the composition of the study team will be multi-disciplinary, however even more-so in the case of an REA, since the purpose is to comprehensively assess alternative development strategies for a whole region, not just one project or one sector. As a result, a greater than normal level of expertise on planning for economic, health, and other social sciences is needed, in addition to the usual array of engineering and environmental sciences.

Description of Methods

Used in the study (self-explanatory).

Policy, Legal, and Administrative Framework

1. The relevant national level environmental policies, laws, and regulations should be assessed for completeness and appropriateness in light of the particular conditions and problems of the sector in question.
2. Gaps and weaknesses should be noted.
3. Non-environmental laws and policies that have significance for the utilization of resources, production processes, or pollution emissions should also be identified.
4. The institutional framework for regional planning and decision making should be explained.
5. The institutional capacity of the main national and regional environmental ministry or agencies should be reviewed for their effectiveness and capacity for providing guidelines, setting and enforcing standards, and reviewing environmental assessments.
6. How environmental responsibilities are distributed among public and private sector institutions should be reviewed, with an assessment of their capacity to administer these tasks.
7. The PEA should assess whether environmental and social issues are adequately covered by the above [current] procedures, and make recommendations for adjustments if/ where they are not.

Baseline Data.

1. Conduct surveys of baseline conditions of the physical, biological, socio-economic, and cultural environments to describe and evaluate the current environmental situation in the *region*.
2. As with a conventional project EA, pay particular attention to ecosystems of special concern, such as wetlands, waterbodies, mountainous areas, coral reefs, mangroves, other fragile (e.g. subject to desertification) areas, protected areas, and even unprotected habitats of threatened and endangered species. Consideration of downstream/tail end water uses and users is often particularly important.
3. Note major data gaps.

Description of the Development Plan

To the extent that one already exists, describe the development plan and associated projects, including alternatives or variations. This should also include an inventory of other plans and projects in the area.

Cumulative Impact Assessment and Analysis of Alternatives

These are the main objectives of the REA, to compare the potential cumulative impacts of anticipated activities against other options, before the opportunity for realistic evaluation of alternatives is closed. The following steps are suggested:

1. Cumulative Impact Assessment

A useful 130-page primer on the topic of cumulative impact assessment was prepared by the U.S. Council on Environmental Quality (CEQ) in 1997, "*Considering Cumulative Effects Under the National Environmental Policy Act.*" This document will be left as a reference. CEQ defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (CEQ, 1997, p. v). Some of the basic principles are that cumulative effects:

- are caused by the aggregate of past, present, and reasonably foreseeable future actions;
- are the *total* effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (public, government, or private) has taken the actions;
- need to be analyzed in terms of the specific resources, ecosystem, and human community being affected, rarely aligned with political or administrative boundaries;
- may result from the accumulation of similar effects or the synergistic interaction of different effects;
- may last for many years beyond the life of the action that caused the effects.
- each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.

In summary, the cumulative impacts assessment stage should:

- a. Undertake limited, preliminary impact assessments of the major individual investments under consideration, including potential direct and indirect (induced) positive and negative impacts. This cannot be as rigorous as for project-specific EAs, due to the pre-feasibility stage of the process at which an REA is conducted. But if significant impacts are expected from a particular sub-project, the REA can recommend carrying out a project-specific EA.
- b. Look at the sum total of the individual activities and estimate their cumulative effects, including (i) any effects of the individual activities on the ability of the other activities to achieve their objectives, and (ii) cumulative effects on environmental values such as: air, water, and soil quality; public health; fisheries; wildlife and biodiversity.
- c. Consider economic policies in the cumulative impact assessment process, to determine whether changes in resource use fees, tax rates, or subsidy rates have any major influences on resource consumption/extraction patterns.

2. Analysis of Alternatives

- a. The other main objective of an REA is to compare the cumulative impact assessment results between the expected plan and any realistic alternative plans or broad strategic options/scenarios, including the "no plan" (business as usual) option.
- b. Options should be carefully evaluated for extent of any irreversible impacts on long-term productivity of the region's natural resources.
- c. It is often useful to prepare a matrix summarizing the project-specific and cumulative impacts of the various options under consideration.

Recommendations toward an Optimal Regional Investment Plan

The results of the cumulative impact assessment and alternatives analysis should be used to recommend a course of action that will best promote economically, environmentally, and socially sustainable development.

Environmental Management Strategy

Based on its findings, the REA should then propose a strategy for strengthening environmental management within the region, including:

1. Measures to ensure adequate mitigation of impacts of the projects implemented
2. General guidelines for long-term environmental monitoring
3. A plan for institutional strengthening.

In terms of agriculture, a regional EA would likely focus on:

- the implications of irrigation for water allocation and quality among the other sectors (industry, households, fish and wildlife), as well as net flows for downstream users;

- interactions with other sectors such as health, tourism, industry, housing, protected areas, and transportation.
- Land use zoning is likely to come into play as a result.

For example, a field trip to Suez revealed that an area on the inland side of the coastal highway (across the road from an area under heavy development for tourism) that had previously been allocated to agricultural development was changed to heavy industrial development. An REA would have considered the compatibility of these zoning decisions, and probably recommended adjustments.

3. Programmatic Environmental Assessment

As indicated in the introduction, "*Sectoral*" or "*Programmatic*" EA (hereafter, "PEA") typically evaluates the environmental impacts of competing approaches to development across a single economic sector within a country or large region thereof, and/or corresponding sectoral investment programs of multiple sub-projects with similar objectives, sponsored in many cases by a variety of agencies or donors. Depending on the sector being reviewed, a PEA's cumulative impact assessment may or may not be somewhat more general than that of an REA, as the sectoral investment plans may not yet have determined exact locations of projects.

PEAs are intended to prevent serious environmental impacts by analyzing sector policies and investment strategies upstream in the planning process, before major decisions are made. They are useful for analysis of the institutional, legal, and regulatory aspects related to the particular sector in question, and for making comprehensive and realistic recommendations regarding environmental standards, guidelines, law enforcement, and training. They provide a means of considering the environmental and social costs of competing strategies that are often ignored in least-cost project planning. They also assist with comprehensive planning of general sector-wide mitigation, management, and monitoring strategies, and identifying broad institutional, training, resource, and technological needs.

A PEA Outline

As with REAs, PEAs will vary in scope and content according to the types and significance of issues and the operational context. The general outline for the *design* phase of a PEA is the same as for an REA, though there are of course some differences in the details of the *execution* phase. In particular, the "Policy, Legal, and Administrative Framework" (part G) is likely to be narrower but deeper, in the context of the particular sector being reviewed. Section K, "Recommendations Toward an Optimal *Regional* Investment Plan" obviously would focus on the *sector-specific* investment plan rather than the *regional* plan. The outline below will focus on the differences the execution sections (G-L) in the outline presented above for an REA. As with an REA, public participation throughout the process of the PEA will both improve its accuracy and its usefulness, though it may be necessary to concentrate on consultations with national NGOs, scientific experts, relevant government agencies, and industrial and commercial interests.

Policy, Legal, and Administrative Framework

1. National level:
 - a. The relevant national level environmental policies, laws, and regulations should be assessed for completeness and appropriateness in light of the particular conditions and problems of the sector in question.
 - b. Gaps and weaknesses should be noted.

- c. Non-environmental laws and policies that have significance for the sector's utilization of resources, production processes, or pollution emissions should also be identified.
 - d. The institutional capacity of the main environmental ministry or agency should be reviewed for its effectiveness and capacity for providing guidelines, setting and enforcing standards, and reviewing environmental assessments.
2. Sector framework:
- a. The PEA should analyze sector-specific policies, laws, and regulations that have environmental implications.
 - b. It should identify how environmental responsibilities are distributed among public and private sector institutions, and assess their capacity to administer these tasks.
 - c. The sectoral investment planning process should be carefully reviewed, in terms of objectives, methodologies, and procedures for review and approval of plans and projects.
 - d. The relationship between timing of project review, issuance of licenses and permits, and the sectoral planning process should be clearly identified.
 - e. The PEA should assess whether environmental and social issues are adequately covered by the above [current] procedures, and make recommendations for adjustments if/ where they are not.

Baseline Data

1. Describe and evaluate the current environmental situation in the *sector*. Concentrate on the issues and problems that are typical of the sector as a whole, rather than the ambient environmental conditions around a proposed project site.
2. Note major data gaps.

Program/Project(s) Description

1. The nature and objectives of the program, plan, or series of projects to which the PEA applies should be described.
2. The major alternative approaches should be reviewed. For instance, in irrigated agriculture, the options are likely to include different options for water supply (small and large reservoirs, groundwater, etc.), variations in physical scale of irrigation perimeters (large, medium, small), different distribution system options (cascades of lined or unlined canals, pipes, pumps, etc), different technologies for water efficiency (drip and sprinkler systems), and even different crop, intensity, and timing choices. All of these may have different environmental implications.
3. The major environmental issues associated with each of the sector/programs or strategic options should be identified.

Cumulative Environmental Impacts and Analysis of Alternatives

1. Cumulative Impacts Analysis

The most difficult challenge in PEAs is to produce a sufficiently precise cumulative impact analysis if specific investments have not yet been identified. Quantitative modeling, forecasting, and various qualitative analyses may be useful. Again, the reader is referred to the volume *Considering Cumulative Effects Under the National Environmental Policy Act* by the U.S. Council on Environmental Quality (1997) for a review of the strengths and weaknesses of each of these techniques.

In the irrigation sector writ large, environmental issues are likely to include most of the following topics:

- a. soil fertility, salinization, and waterlogging
- b. groundwater pollution by nutrients and/or pesticides
- c. drainage water quality
- d. soil erosion and siltation
- e. sectoral water allocation, including ecological water needs (e.g., for fisheries, wildlife, prevention of coastal saltwater intrusion)
- f. integrated pest management, etc.

Irrigation-related public health issues to consider might include:

- a. vector-borne diseases (malaria, schistosomiasis, and others)
- b. interactions with drinking water quality, sanitation, and transmittable water-borne diseases
- c. agro-chemical poisoning.

2. Alternatives Analysis

The major purpose of a PEA is to do a thorough analysis/comparison of alternative investment options and strategies within the sector, in terms of environmental costs and benefits. In irrigation, the alternatives include (but are not limited to):

- a. different sources of water,
- b. different physical scales of land irrigated or water use,
- c. a variety of technological and water efficiency options,
- d. different crops and intensity/timing options,
- e. policy alternatives such as water prices, tax and subsidy rates, and even
- f. public versus private sector-led investment strategies.

A comparative analysis of such alternative approaches should apply indicators of environmental and social impacts such as those listed above to evaluate the options. Where several agencies or donors are involved in the sector, the PEA should review their existing and/or planned activities, and if necessary, suggest ways to coordinate efforts.

Recommendations toward an Optimal Sector Investment Plan

The analysis should conclude with a list of *sector* proposals, ranked according to environmental preference, resulting in a recommendation for an optimal *sector* investment strategy, in terms of environmental and social costs and benefits.

Environmental Management Strategy

1. Mitigation Plans.

Mitigation measures are usually rather detailed, technical, and project-specific in nature. However, if planned or existing production and process technologies in a sector are relatively uniform, the PEA could recommend broad options for eliminating, reducing to acceptable levels, or mitigating environmental impacts. Such solutions could include a complete production system design (e.g., industrial ecology), or end-of-pipe clean-up technologies.

2. Institutional development.

The PEA should include an institutional plan for improving environmental management in the sector, based on the findings of the previous sections. It can include training, hiring, reorganization of units, redefinition of roles and responsibilities, etc.

It might also include recommendations on policy and regulatory instruments to environmental management and enforcement in the sector. A screening process to determine which sub-projects need project-specific EIAs are needed should also be included.

3. Monitoring.

The PEA should include general guidelines for long-term sector-wide monitoring systems to ensure adequate implementation. The monitoring plan should use the findings of the baseline data collection phase as a basis for measuring progress, as well as recommending measures needed to fill data gaps.

A Simpler Approach

If a full-blown PEA seems to complicated or expensive to undertake in a particular context, a simpler approach may be to just identify major investment options within the sector of choice, rank them by environmental and social criteria and impacts, and provide a general overview of mitigation requirements for each option. This would allow for gathering some essential data, and can serve as a "preamble" to project-specific EIAs where needed.

4. Some Observations about the Egyptian Context

Article 19 of Law 4, in section 1, chapter 1, states that an assessment of the environmental impact of establishments requiring licenses shall be undertaken by the competent administrative authority or the licensing authority. The Guidelines for Egyptian Environmental Impact Assessment define the EIA as the systematic examination of unintended consequences of a development project or program, with the view to reduce or mitigate negative consequences and capitalize on positive ones. The Law and the Guidelines refer adequately, and provide the general framework to carry out Regional Environmental Assessments, however there is neither explicit reference to the definition of regional programs nor to the conditions and procedures accompanying the screening of these programs.

There is also very little reference in the Law to the principle of cumulative effects analysis. We believe that these principles should apply to any attempt to do REAs and should be considered in the planning stage of large-scale projects.

Most of the Annexes and Tables in the Law 4 and its Executive Regulations refer to maximum limits or permissible limits of emissions which are point-source rather than overall levels present in the ambient environment. By definition an REA should look at cumulative emissions or ambient levels, rather than individual establishment-based (end-of-pipe) emissions. The present law 4 does not discuss this approach.

There have been some EIAs carried out in the past 10 years in Egypt that might be considered "regional." Most of these were attached to large projects or programs such as the Irrigation Management Systems Project (1987), the Northern Sinai Agriculture Development Project (1992), the East Delta New Lands Agricultural Services Project (1996), and the Second National Drainage Project II (NDP-II) (2000). Most of these EIAs were requested by the World Bank, and follow the requirements of the Bank. In all cases these projects have explicitly involved Egyptian counterparts, but it appears that in many cases the Egyptian implementers adopted the reports without internalizing and institutionalizing many of the recommended measures.

It is evident that many of these large projects and their assessments began with a sectoral focus, typically evaluating competing approaches to development across a single sector (e.g. irrigation and drainage) within the specified area. Because the projects actually had multiple sub-projects, as would be expected in a regional development program, the EIAs evolved into regional assessments, looking across multiple sectors, including land planning, rural/urban development, migration of populations, and new settlements.

Some of the large EIAs carried out by government agencies have been initiated due to an objection to an activity generated by another government agency requesting an environmental permit. This permit would not be granted unless accompanied by an Environmental Impact Assessment. This assessment would be completed after the project has been designed and perhaps even after it was constructed. The permit in question is then a permit to pollute rather than a permit to mitigate an action taken or a plan to prevent pollution.

It appears that many officials in the agriculture and land reclamation agencies do not know that guidelines for their projects will soon exist, or even that they are subject to EIA requirements.

5. Conclusions and Next Steps

At this stage, there are indications that area-wide, or strategic environmental assessments such as regional, sectoral, or programmatic EAs would be useful in Egypt, as the GoE often sponsors large regional and sectoral development programs --for land reclamation and irrigated agriculture, population resettlement, tourism, industrial development, new cities, etc.

EEAA personnel interviewed during this assignment expressed considerable interest in the concept of zoning for industrial uses. The brief field trip taken in the course of this study confirmed that land use zoning would be an important issue for regional development planning, and thus, for incorporation into regional environmental assessments.

Meanwhile, other GoE agencies are not even aware that they might be required to do project, let alone area-wide environmental assessments in the future.

Of course, one of the most basic principles for environmental impact assessment is public participation - not just provision of information by project proponents to the public, or one-time "consultation", but real participation by stakeholders in the process of comparing options and winnowing out strategies. When done well, it can enhance a project or program's design, efficiency, and prospects for success, which is the ultimate goal. While this may be difficult in Egypt, there are options, and different approaches for the involvement of stakeholders, in specific projects versus regional or sectoral EAs, to make the process more efficient and productive.

In the future, if EEAA decides that it wishes to pursue the use of area-wide (strategic) environmental assessment as a tool for helping to integrate sound environmental management into development planning and programs in Egypt, it might consider the following steps:

- A determination may be needed as to whether Law 4's implementing regulations would need to be amended in order to provide for such assessments, including of cumulative impacts.
- If desired, one or both of the outlines presented in this report could be used as the basis for fleshing out guidelines for area-wide/strategic EAs.
- General guidelines for regional development, land reclamation, and urban planning that go beyond environmental assessment, to include economic and social assessment, and land use planning, may be useful.
- Another potentially useful step could be to design a common check list as an entry point that would define the roles and responsibilities, the significant environmental issues, the priorities, the alternatives, the stakeholders, and possible mitigation measures. For example, the establishment of a new industrial city in a coastal area could touch upon tourism, land reclamation, agriculture, human settlements, utilities, industries, trade, and commercial developments, roads, ports etc. Such a common checklist would serve the purpose of identifying the players and the environmental issues at the early stage of planning and would help integrate smoothly the concerns of the different parties.
- Further guidelines on best practices for public participation, including different methods for different types of assessments, may also be useful.
- Training in the differences between project and area-wide environmental assessment would probably be necessary (e.g., scoping processes, public participation, cumulative impact assessment, review processes).

- An interagency discussion and dissemination strategy to inform other GoE agencies of EEAA's desire to make use of these tools in the future would facilitate their introduction.

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