

Environmental Impact Assessment in Sri Lanka

Introduction

Environmental Impact Assessment, often referred to simply as EIA, is a household concept of environmental management in today's world. EIA is being practised in well over 100 countries as one of the most effective tools of achieving sustainable development. The phenomenal appeal of EIA and its subsequent success can be largely attributed to the simplicity of its underlying philosophy – that human interventions, no matter how well intentioned, could have negative and unanticipated impacts on the environment thus negating the full benefit to the society. Thus the objective of EIA is simply to study and analyse potential impacts (both positive and negative) on the environment to propose measures to minimize the negative impacts and to maximize the positive impacts of development interventions. Properly executed, EIA entails the potential to balance development and environment in a way that the society will benefit from the expanding development activities while maintaining them as environmentally friendly endeavors. EIA could produce much needed win-win scenario for both development and environment – the essential basis of sustainable development.

More than ever in the history of human civilization, the pressure on the limited natural resources of the planet has increased today due first to the exponential growth of the human population which has now reached beyond six billion and second to the increased demand for a better standard of living by those societies which were traditionally categorized as poor or underdeveloped. As a result, a paradigm shift in the thinking of human-environmental relationship has taken place rejecting the purely utilitarian (raw material) perspective of nature and embracing a more symbiotic perspective in which the future survival of humankind is intimately linked to the health of the environment at all levels from the local to global. On the philosophical and intellectual realm new concepts such as sustainable development, natural capital, and recycle economy have been added to the discourse. On the policy and political realm, new national and global institutions have been established to deal with the growing environmental problems. On the legal and strategic realm, new laws and regulations have been introduced both at national

and international level. Environmental Impact Assessment, widely introduced in many parts of the globe, has emerged as one of the most effective tools of achieving sustainable development at national level.

History of EIA

The EIA, was first introduced in the United States on the last day of 1969 with the enactment of the National Environmental Policy Act (NEPA). This was a direct result of the growing environmental problems in the United States. The rising public concern over the lack of attention of the US government to address these problems pressurized the US government to adopt innovative and effective rectification measures. Under this law, any developer using the funds from the US Federal government was required to prepare an "environmental impact statement" (EIS) analyzing the impacts of the proposed development project on physical, biotic and human or cultural environment. NEPA also required the development proponents to propose mitigation measures and a monitoring program to ensure the effective implementation of mitigation. The first ever EIA report was prepared for the Trans-Alaska Pipeline.

The early EIA reports were short documents prepared simply to comply with and to satisfy the minimum requirements stipulated by NEPA. However, the environmentally concerned people and organizations soon pressurized, often with the help of the judiciary, that authorities and developers take EIA seriously both in the spirit in which it was enacted. The collective efforts in the 1970s by all stakeholders – the US government and its newly established Council on Environmental Quality (CEQ), Environmental Protection Agency (EPA), the environmentally concerned civil society, the environmental scientists, the judiciary, and the developers themselves led to the refinement of the EIA process to its present level.

Convinced of the potential of EIA as a tool of achieving sustainable development, the world community – both States and international organizations – rapidly adopt it in the 1980s. Although there are changes in the procedures, the fundamental philosophy of EIA and the generic EIA process remain the same around the world.

What is EIA?

The popular acronym EIA stands for the environmental impact assessment which has been

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defined as the "systematic identification and evaluation of the potential impacts (effects) of proposed projects, plans, programs, or legislative actions relative to the physical-chemical, biological, cultural and socio-economic components of the total environment" (Canter, 1996).

The environment is defined very broadly to include physical, biotic and human components. The physical component covers the non-living elements such as land, water and air and the biotic component covers fauna and flora. Human or social component of the environment covers the people, their material and symbolic creations. EIA goes beyond the traditional "objects" or material approach to environment and takes a systemic approach recognizing that the environment is in a state of dynamic equilibrium.

The Impacts are defined as qualitative or quantitative changes occurring on the static components or dynamic processes of the environment. Impacts are subdivided into several categories. Firstly, based on the relationship to the environment, impacts are divided as direct and indirect or primary, secondary and cumulative. Secondly on the basis of the general time horizon the impacts are divided into short, medium and long term. Thirdly impacts are categorized in relation to the different phases of the development activity as planning, constructional, operational, and post-operational phase impacts. Fourthly, based on the degree of change, the impacts are categorized as mitigatable and irreversible or irreparable.

Assessment of impacts goes beyond simple listing and categorizing of impacts into a more comprehensive analysis. The entry point of assessment is to identify all possible impacts of a project on physical, biotic and human environment. The next stage, the most crucial, is to identify the most significant impacts based on magnitude or the spatial spread of an impact and importance or the severity of an impact on the environment. EIA concentrates primarily

on the most significant impacts and EIA is expected to suggest mitigation measures for all significant impacts and to develop a monitoring program to ensure the effective compliance and execution of the mitigation measures. Depending on the type of the significant impact, the assessment may vary from a simple statistical analysis to elaborate mathematical/computer modeling.

Why EIA?

As stated earlier, EIA emerged primarily as a tool to achieve sustainable development¹. EIA, just as sustainable development, underscores the need for development but it cautions against irresponsible development that may lead to negative impacts on the environment which in the end threatens human well-being. The purpose of EIA is to make development projects better in four fundamental ways – searching for the most environmentally - friendly alternatives, minimizing negative impacts, maximizing positive impacts and by integrating environmental costs and benefits into the overall project analysis.

Searching for alternatives that achieve the same development objective by avoiding or minimizing environmental impacts is considered the heart of EIA. While there is no blank cheque to freely choose site alternatives with respect to many development projects, other forms such as design alternatives, scale alternatives, technology alternatives, and input (e.g raw material) alternatives provide viable options in this direction.

Minimizing the negative impacts is perhaps the pivotal task of EIA. All development projects lead to unavoidable negative impacts on physical and biotic environment and, if unmitigated, they will degrade the environment which could curtail opportunities for further development, thus jeopardizing both economic and environmental sustainability. While a few significant impacts (e.g irreversible and irreparable impacts) may remain unmitigated within limited environmental systems, the experience in EIA around the world provide sufficient evidence to suggest that most negative impacts of developments on physical and biotic environment could be mitigated. While all development project are designed to benefit the society, some of the large-scale development projects also create a group of people called "victims of development". In a thickly populated world, these are the people who had to sacrifice their lands, houses, asset bases, livelihoods

and community life to make way for the development. A successful EIA is expected to suggest remedial mitigation measures to move these initial victims of development also into the beneficiary category. This is the main objective of the social impact assessment, which is an integral part of the larger EIA process. Mitigation measures should not only be practical, implementable but also technically sound and cost-effective.

EIA is also expected to identify positive impacts of development and to suggest measures to further enhance them so that the benefits of the project will be both quantitatively and qualitatively outweigh the negative impacts. Often with a little but innovative changes to the project, requiring small or no capital investments, the positive impacts of project can be greatly expanded.

EIA's real strength lies in its ability to integrate financial, economic and environmental costs and benefits into a coherent extended benefit cost analysis (EBCA). Although it is difficult to arrive at a monetary value for some of the environmental impacts as some elements of the environment affected are not traded in the market, a new field of studies – environmental economics – has developed sufficient tools and techniques to integrate non-market environmental resources and impacts. Thus, EIAs with a comprehensive EBCAs make it possible to arrive at a realistic conclusion on the project based on its environmental impacts. EIA is not just an analytical tool to identify and assess impacts but also a planning tool ensuring sustainable development. As stated in NEPA, the primary purpose of EIA is to "encourage the consideration of the environment in planning and decision making and to ultimately arrive at actions which are more environmentally compatible" (Canter 1996).

When EIA?

"When EIA?" is a frequently asked question and the undisputed answer to the question has been "as early as possible in the project cycle". It is important to upstream the EIA process as much as possible within the project cycle to realize its real benefits. If EIA can be carried out concurrently with the feasibility study, then the latter can be benefitted by the findings of the EIA. The traditional financial, engineering, or technical feasibility can be made more meaningful by integrating environmental feasibility. The potential to make costly adjustments and even abandonment of projects due to late discovery of irreversible and irreparable environmental problems can be totally eliminated by incorporating environmental considerations into the overall feasibility study.

However, the legal regimes in different countries trigger EIA process at different points in the project cycle. For example in Sri Lanka, the EIA process starts only when the Project Proponent submits the Preliminary Information of the project to the project approving agency. However, by this time the project proponent, most likely, may have gone through the arduous and costly process of carrying out the pre-feasibility, feasibility and even some engineering designing for the project. Thus, if the EIA is to suggest, at this latter stage, alternatives, be they site or design, the project may run into serious problems of not being able to realistically seek alternative sites or engage in expensive engineering designing.

How EIA is done?

EIA is a scientific and applied research study. Thus, EIA necessary follows all scientific rules and norms of scientific research studies. The EIA studies assume greater importance than academic environmental assessments as the fate of a development project is decided by the EIA study where EIA process is legalized. There is a potential for the rejection of an otherwise a good development simply because of a badly carried out EIA study.

An EIA study involves several stages. These stages, in many ways, reflect the generic EIA process.

1. A thorough understanding of the objectives of the project and potential alternatives that can achieve the same objective with less environmental impacts.
2. A detailed elaboration of the project and all its major components that could have direct and indirect impacts on the environment.
3. Defining the impact area and explicitly marking it on a map (it is important to note that the impact area is a function of the impacts and vice versa and thus conceptually stage 3 and 5 are parallel).
4. Description of the existing environment (it is important to note that this should be limited only to those aspects and process of the environment that are likely to be impacted on by the project).
5. Identification of impacts using standard EIA methods such as matrix, checklists, networks, etc.
6. Defining the significance of impacts (Although all environmental impacts are important, EIA will concentrate only on the

most significant ones. While there are no objective criteria to define significance, it is based on scientific and expert judgment on the magnitude and severity of the impact and the environmental sensitivity of the area to be impacted).

7. Prediction and assessment of the impact. (This is the most important technical activity of an EIA study as this elaborates the nature of the impacts and their effects on the environment. A highly scientific and objective criteria and models are used for this purpose).
8. Identification and Incorporation of mitigation measures (EIA study must propose mitigation measures for every identified significant impact).
9. Monitoring of the impact and/or mitigation (Steps 8 and 9 make the EIA an applied science that help to achieve the overall objective of EIA).

All these components of an EIA study is presented in the form of a Environmental Impacts Statement (EIS) or Environmental Impact Assessment Report (EIAR). Canter (1996) highlights that the preparation of the EIA report as "the most important activity" in the EIA process as this "will be utilized by decision makers in making their final choices relative to the project". EIA report will also be reviewed by the public, civil society organizations, scientists, industrialists, etc during the review process. Thus, Canter (1996) argues that "special attention should be give" to the preparation of documentation that effectively communicates information about the study findings.

Who does EIA?

EIA is the business of experts, and for that matter, a group of experts working as a coherent and integrated team. Although a government agency may provide a Terms of Reference (TOR) for the EIA study, subject experts are necessary to ensure the technical soundness and professionalism of an EIA study. There were occasions where EIAs studies have suffered due to lack of required expertise on the one hand and due to lack of team work on the other. As no single person can be an expert of all components of environment, EIA studies requires a multitude of experts representing all major fields. In general, the following generic specialization are required for all EIA studies, but the specificity of the project may require other expertise as well:

1. An expert on the EIA process (Team leader)
2. Ecologist (fauna and flora)
3. Environmental Engineer
4. Physical scientist (water, soil, air)
5. Social Scientist (society, culture and vulnerabilities)
6. Land use specialists
7. Environmental economist

The role of the team leader is significant in ensuring the quality of the EIA study and the EIA report. In many a occasions, EIA reports have pathetically demonstrated the lack of team leadership. Such EIA reports have degenerated into a disjointed and unrelated amalgam of writings making it extremely difficult to arrive at any sound conclusion on the environmental viability of the project.

History of EIA in Sri Lanka

The ancient hydraulic civilization of the island has been hailed as one of the best evidence of sustainable development as many of its structures – reservoirs and canals are still functioning even after 2 millennia. The landscape in the ancient Rajarata civilization had organically integrated natural environment and agricultural practices to produce a sustainable system. Kandyan home gardens are acclaimed as one of the most sustainable agricultural systems mimicking the ecology of a natural forest.

However, the rapid population growth and the irresponsible exploitation of the natural resources that started during the colonial period and continued into the post-independent era, has led to the emergence of an unsustainable system with significant environment problems.

The decade of 1980s witnessed a rapidly growing concern for environment in Sri Lanka, partly in response to the drastic changes in the natural environment due to the expansion of development activities and partly due to the demonstration effect of the growing global concern for development. The first major piece of legislation enacted within this new paradigm is the National Environmental Act No. 47 of 1980, the objective of which was to protect and manage the environment. The Central Environmental Authority established under the same Act was entrusted with this responsibility. Sri Lanka became an active participant of the RIO Conference and prepared a series of national documents (e.g. State of the Environment-2001)

that reflected the new paradigm change. At the same time, there was both internal and external pressure on Sri Lankan government to adopt various tools and strategies of sustainable development such as EIA which by this time has had an effective and proven record in other parts of the world.

The legal framework for EIA was laid down first by the Coast Conservation Act No. 57 of 1981 but it was limited to a defined strip of coastal zone. National Environmental Act (Amendment) Act no. 56 of 1988, introduced the EIA system to the entire island. However, it is only with the publication of the required orders and regulations in 1993 that EIA process came to be fully operative. The EIA process within the Northwestern Province is implemented under the North-Western Provincial Environmental Statute by the Provincial Environmental Authority. However, the provincial EIA system is a carbon copy of the national EIA system. During the last 15 years, processing over 150 Initial Environmental Examinations (IEEs) and 800 Initial Environmental Examinations, the EIA process in Sri Lanka has matured into a one of the most effective environmental management strategies and Sri Lanka now leads South Asia in the effective implementation of the EIA process.

The EIA Process in Sri Lanka

The EIA Process in Sri Lanka is clearly described in the Part IV C of the NEA Amendment Act of 1988 and the Government Extraordinary Gazette No 772/22 of 1993.

There are two levels of EIA process in Sri Lanka based on the significance of the environmental impacts. The first level defined as Initial Environmental Examination (IEE) which is carried out when the potential environmental impacts are not significant. The second, more comprehensive study - Environmental Impact Assessment (EIA) - is carried out when the project likely to creates several significant impacts.

The EIA process in Sri Lanka is limited only to development projects which are listed as "prescribed projects" in the Gazette No 722/22. Prescribed projects are defined by type of projects and their magnitude. For example, hotels are listed as prescribed projects as follows:

– "Construction of Hotels or holiday resorts or projects which provide recreational 40 hectares". The Gazette similarly identifies 31 different types of prescribed projects. However,

if any one of these projects are located wholly or partly within identified sensitive areas such as "within 100 meters beyond the full supply level of a reservoir" (11 such areas have been defined in the Gazette), then such projects will become a prescribed projects irrespective of their magnitude. The EIA process in Sri Lanka is triggered only when a project falls into any one of the prescribed projects as defined by the gazette.

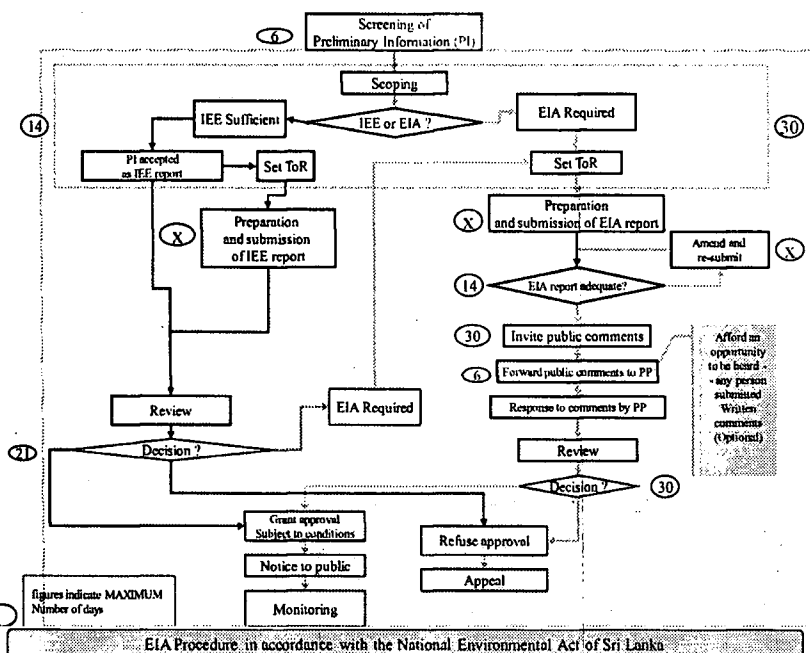
The EIA process in Sri Lanka is implemented with the involvement of several key stakeholders. The overall coordination of the EIA process is the responsibility of the Central Environmental Authority. The approval for

projects is granted by government agencies designated as Project Approving Agencies by the Gazette Extraordinary 859/14 of 1995. Accordingly, Ministries with 14 subject areas (e.g. Irrigation, Energy, Forests) and 8 statutory bodies (e.g. Ceylon Tourist Board) have been identified as Project Approving Agencies.

The developer or project proponent is responsible for the preparation of the EIA report and it is reviewed by both the Project Approving Agency as well as the general public. The final decision is given by the Project Approving Agency with the concurrence of the Central Environmental Authority. The following table summarises the activities of the EIA process and the institutions responsible.

Activity	Responsibility
Preparation of the Preliminary Information for the Project Approving Agency	Project Proponent
Scoping and preparation of the Terms of Reference for EIA/IEE	Project Approving Agency
Preparation of the IEE/EIA and responding to the public comments	Project Proponent with EIA Consultants
Review of the IEE/EIA	General Public Project Proponent Technical Experts appointed by the Project Approving Agency Central Environmental Authority
Decision	Project Approving Agency with the Concurrence of the Central Environmental Authority

The actual EIA process is schematically depicted in the following diagram. Some of the notable features relating to the diagram are as follows:



1. The total official time allocated for the EIA process is 116 working days (the number in a circle against the activity is the number of days allocated for the activity and not time limit is set for the preparation of an EIA report)
2. The Scoping Committee which decides whether the project should be subjected to IEE or EIA, consists of government officials with topical and areal jurisdiction vis-a-vis the project, subject specialists, and representatives of the civil society.
3. The EIA report should strictly adhere to TOR although innovations are possible.
4. EIA report should be submitted in all three languages
5. EIA reports are made available for public reference and comments.
6. Public Hearings may be organized on demand from the society.
7. A Technical Evaluation Committee is appointed to help the Project Approving Agency to make a decision.
8. Decisions are given with conditions and is timebound.
9. While the project proponent can appeal if the project is rejected, the public has no right of appeal against, if the project is recommended.
10. Appeal decision is made by the Secretary to the Ministry of Environment and his/her decision is final.

The Experience of EIA in Sri Lanka

Within a short span of about 15 years the EIA process in Sri Lanka has evolved and matured into one of the most effective environmental assessment processes in the South Asian Region. However, a critical analysis reveals a mixed score card.

The main issues that could be identified in relation to the implementation of the EIA process are as follows :

1. Some of the project approving agencies have found that it is difficult to meet the EIA responsibilities due to lack of trained human resources. Over the past 15 years, training programs such as one offered by the Centre for Environmental Studies, University of Peradeniya in collaboration with the Central Environmental Authority has trained 600 personnel, but it has not fill the vacuum yet.

2. The limitation of EIA process to prescribed projects has prevented many other projects with significant environmental impacts from going through the EIA process.
3. The limitation of EIA process only to prescribed projects defined by the magnitude, has created many loopholes for developers to escape from the EIA process.
4. The actual time taken for final approval for EIA process generally goes beyond the stipulated time period, and in some cases it has exceeded several folds.
5. Compliance monitoring of mitigation is the weakest component of the EIA process and thus violations are common.
6. The access to EIA reports for ordinary public is very unsatisfactory. Some EIAs go unnoticed by the public as the only means of informing the public is a paper notice published only once.
7. The statutory opportunity for public commenting has been abused and often used for advancing vested interests away from serious environmental issues both by public and some civil society organization.
8. Continuing use of non-experts in the preparation of EIA Reports has compromised the quality of the EIA and hampered the smooth evaluation process and affected sound decision making.
9. Undue delays of the EIA process and costly digression have affected some project developers.
10. Some EIAs have been politicized a negative perception to the project.
11. EIA has been unfairly blamed for flagging important environmental and legal issues that the proponents have to adhere to in any case.

In spite of these problems, the EIA process has moved forward with slight changes and modifications. EIA process withstood severe pressure from some interested parties to make it less effective in the late 1990s. The positive outcomes of the EIA process can be listed as follows:

1. EIA process has both directly and indirectly contributed greatly towards the expansion of the environmental awareness among all stakeholders in the country.
2. EIA process has increased the environmental assessment capacity

within the project approving agencies as well as in the Universities and consulting agencies.

3. EIA process has forced the government development agencies and the private sector developers to pay more attention to environment in general and environmental impacts in particular of their own projects.
4. Several unsustainable projects have been rejected by the EIA process (e.g. Kalu Ganga, Mechanized Gem Mining).
5. Significant environmental impacts of development projects have been mitigated through the EIA process (e.g. Southern Transport Development Project, Kukule Hydropower Project, Norochchalai Coal Power Project).
6. Many projects have become environmentally more friendly as a result of the EIA process and it has led some projects to receive accolades internationally (e.g. Kandalama Hotel Project).
7. By taking public comments seriously into the decision making process, EIA has empowered the communities on the one hand and democratized the decision making process.

How to improve the EIA in Sri Lanka

Sri Lanka can't afford be complacent on the fact that our EIA system is the most effective in South Asia and that it has led to many positive impacts. The problems of the EIA need to be rectified soon for us to maintain the edge. Given below are practicable list of activities that can be implemented without much additional costs to improve the EIA system in Sri Lanka:

1. Revitalize the Project Approving Agencies inter Agency Committee chaired by the Ministry of Environment to review the progress, to identify issues, to coordinate and to take effective and immediate measures to rectify the problems identified. When PAAIAC helped develop synergies in the system. The Central Environmental Authority which coordinated this committee while serving as its Secretary must take immediate steps towards this.
2. National level consultative process involving all stakeholders must be initiated to meticulously review the prescribed list.
3. Capacity building in EIA should be enhanced first by expanding the current national level EIA Training Program and second by introducing specialized training programs on

EIA methods, monitoring, EIA report preparation.

4. All PAAS must be supported and encouraged to effectively monitor the mitigation measures.
5. A Central database on EIA should be established at the Central Environmental Authority.
6. The delays at the official level in the EIA system must be minimized.
7. The quality of the EIA reports must be improved requiring that only qualified EIA professionals and credible EIA consulting firms be hired for EIA preparation.
8. National center of Excellence in EIA must be established at a University in collaboration with the Central Environmental Authority.

The Future of EIA in Sri Lanka

Sri Lanka can be proud of the fact that its EIA process is one of the most effectively functioning EIA systems in the Asian region. In Sri Lanka, the EIA process has become firmly established as one of the most effective decision making processes that involves all stakeholders. This has been possible largely due to the democratic governance well established in the country. The objective of the EIA as a tool of achieving sustainable development may have been realized within the limited confines of the prescribed projects. Ground - level EIA experience also shows that some areas such as the definition of prescribed projects, monitoring and preparation of EIA reports requires greater attention. The implementation of EIA in Sri Lanka has also led to some useful unintended outcomes such as the increase in environmental awareness at the national level.

Fifteen years of implementation of the EIA process is a good time for the policy makers to take a long and hard look at the process with a view to enhancing its positive impacts and mitigating its weaknesses.

References

- Canter Larry (1996) *Environmental Impact Assessment*, New York: McGraw Hill
- Hennayake, Shantha K. et al. (1997) *Environmental Impact Assessment: The Sri Lankan Experience*, Peradeniya: Center for Environmental Studies, University of Peradeniya.

Footnotes

- ¹ Note that the word environment does not even appear in the famous definition of sustainable development proposed by Brundtland which reads as "development that meets the need of the present generation without compromising the ability of the future generations to meet their own"