PN-ACF-382
101857

Environmental Impact Assessment

The Sri Lankan Experience

Editors

Shantha K Hennayake
Ariyaratne Hewage
Mervyn S Wijeratne
Shiranee E Yasaratne

CENTRE FOR ENVIRONMENTAL STUDIES, UNIVERSITY OF PERADENIYA
USAID/SRI LANKA NATURAL RESOURCES & ENVIRONMENTAL POLICY PROJECT
INTERNATIONAL RESOURCES GROUP LTD

1997

Environmental Impact Assessment The Sri Lankan Experience

Edited by

Shantha K Hennayake
Ariyaratne Hewage
Mervyn S Wijeratne
Shiranee E Yasaratne

Copyright © 1997 by the Centre for Environmental Studies

Published by the Centre for Environmental Studies University of Peradeniya, Sri Lanka

Technical guidance editing and funding for the preparation and printing of the publication were provided by the Natural Resources and Environmental Policy Project/International Resources Group Ltd (NAREPP/IRG) of the United States Agency for International Development (USAID) and the Government of Sri Lanka

This publication may be reproduced in full or in part and in any form for educational or nonprofit uses within Sri Lanka only without special permission from the copyright holder provided acknowledgement to the source is made This consent to reproduce does not extend to copying for general distribution, for promotion, for creating new works or for resale Specific permission must be obtained in writing from the Centre for Environmental Studies for such reproduction The Centre for Environmental Studies would appreciate receiving a copy of any publication that uses this publication as a source

The views expressed in the document are entirely those of the chapter authors They do not necessarily reflect the views of the editors the publisher or the sponsor of this publication

Printed by Gunaratne Offset Ltd Colombo Sri Lanka

Hennayake Shantha K, A Hewage M S Wijeratne and S E Yasaratne (Eds) 1997 Environmental Impact Assessment The Sri Lankan Experience Centre for Environmental Studies University of Peradeniya Peradeniya, Sri Lanka

ISBN 955 9541 00 5

CONTENTS

Contributors		v
Acknowledgements		vii
Acronyms		viii
Special Message		ix
Foreword		x
Preface		xi
Chapter 1	**DEVELOPMENT AND ENVIRONMENT AN OVERVIEW** C M Madduma Bandara	1
Chapter 2	**LEGAL FRAMEWORK FOR ENVIRONMENTAL IMPACT ASSESSMENT** Sandhya Weerasinghe	7
Chapter 3	**ENVIRONMENTAL IMPACT ASSESSMENT PROCESS** Shiranee E Yasaratne	17
Chapter 4	**REVIEW OF METHODS USED FOR ENVIRONMENTAL IMPACT ASSESSMENT** Nilanthi Bandara	27
Chapter 5	**SOCIAL IMPACT ASSESSMENT** Shantha K Hennayake	41
Chapter 6	**ECONOMIC VALUATION OF ENVIRONMENTAL IMPACTS** H Kotagama, S Ranawana, S Vidanage and U Dahanayake	51

Chapter 7	**ROLE OF CONSULTANTS IN ENVIRONMENTAL IMPACT ASSESSMENT** Shantha K Hennayake	**71**
Chapter 8	**EDUCATION AND TRAINING IN ENVIRONMENTAL IMPACT ASSESSMENT** Ariyaratne Hewage	**83**
Chapter 9	**PUBLIC PARTICIPATION IN ENVIRONMENTAL IMPACT ASSESSMENT** H Withanage	**101**
Chapter 10	**DEVELOPERS' VIEW OF ENVIRONMENTAL IMPACT ASSESSMENT** Sherine S Jayawickrama	**111**
Chapter 11	**ENVIRONMENTAL IMPACT ASSESSMENT PROCESS IN RETROSPECT LESSONS LEARNED AND FUTURE PROSPECTS** V K Nanayakkara	**119**
Epilogue		**131**
Appendices		**135**

CONTRIBUTORS/EDITORS

Nilanthi J G J Bandara, M Sc and M E Des, Senior Lecturer, Open University of Sri Lanka

Upali Dahanayake, M Sc , Deputy Director, National Planning Department

Shantha K Hennayake, Ph D , Senior Lecturer, Department of Geography and Deputy Coordinator, Centre for Environmental Studies, University of Peradeniya

Ariyaratne Hewage, M PA , Director, Policy and Institutional Development, Natural Resources and Environmental Policy Project of USAID/GOSL

Sherine S Jayawickrema, B A , Policy Analyst, Natural Resources and Environmental Policy Project of USAID/GOSL

H Kotagama, Ph D , Senior Lecturer, Department of Agricultural Economics, University of Peradeniya

C M Madduma Bandara, Ph D , Vice-Chancellor, University of Peradeniya, Professor of Geography, Coordinator, Centre for Environmental Studies

V K Nanayakkara, M P I A , Consultant/Institutional Development, Environment Division, Ministry of Transport, Environment and Women's Affairs

Sanath Ranawana, M A , Environmental Economist and Pollution Specialist, Natural Resources and Environmental Policy Project of USAID/GOSL

Shamen P Vidanage, M Sc , Environmental Officer, Central Environmental Authority

Sandhya M J Weerasinghe, Attorney-at-Law, Deputy Director (Legal), Central Environmental Authority

Mervyn S Wijeratne, M Phil, Industrial and Environmental Consultant

Hemantha Withanage, M Sc , Senior Environmental Scientist, Environmental Foundation Ltd

Shiranee E Yasaratne, M Sc , Deputy Director General, Central Environmental Authority

ADVISORY BOARD

Cecil Amerasinghe, Secretary, Ministry of Transport, Environment and Women's Affairs
C M Madduma Bandara, Vice-Chancellor, University of Peradeniya
Avanthi Jayatilake, Project Management Specialist (Environment), USAID
Edward J Scott, Chief-of-Party/Senior Policy Advisor, NAREPP

EDITORIAL BOARD

Shantha K Hennayake
Ariyaratne Hewage
Mervyn S Wijeratne
Shiranee E Yasaratne

ACKNOWLEDGEMENTS

The publication of "Environmental Impact Assessment The Sri Lankan Experience" has been made possible by generous contributions from a large number of people The Centre for Environmental Studies expresses its sincere thanks to all of them Special mention must however be made of -

* Mr Cecil Amerasinghe, Secretary, Ministry of Transport, Environment and Women's Affairs for his encouragement,

* Mr Edward J Scott, Chief of Party, NAREPP/IRG whose vision was responsible for this publication

* The Chairman and management of the Central Environmental Authority for providing data, information, and services of their officers

* Prof C M Madduma Bandara, Co-ordinator, CES and the Vice-Chancellor of the University of Peradeniya who provided direction

* Mr Gary Bayer and Mr Avanthi Jayatilake of USAID for their support

* Chapter writers, who spared no pains to provide well researched contributions

* Ms Manthrie Leanage for secretarial services including typing of drafts, formatting and preparing camera ready copies of the chapters

* Ms Indira Fernando for advising on formatting and preparing of camera ready copies and also for her assistance in printing arrangements

* Mr Asoka Gunaratne, Chairman, Gunaratne Offset Ltd and his staff for printing this publication within the short period available

LIST OF ACRONYMS

ADB	-	Asian Development Bank
APREETA	-	Asia Pacific Region Environmental Economic Technical Assistance
BCA	-	Benefit Cost Analysis
BOI	-	Board of Investment
CBA	-	Cost Benefit Analysis
CBC	-	Conventional Benefit Cost
CCD	-	Coast Conservation Department
CEA	-	Central Environmental Authority
CEB	-	Ceylon Electricity Board
CES	-	Centre for Environmental Studies
EBC	-	Extended Benefit Cost
EBCA	-	Extended Benefit Cost Analysis
EC	-	European Community
ECB	-	Extended Cost Benefits
EEWG	-	Environmental Economics Working Group
EFL	-	Environmental Foundation Limited
EIA	-	Environmental Impact Assessment
EIAR	-	Environmental Impact Assessment Report
EPL	-	Environmental Protection Licence
EVT	-	Environmental Valuation Techniques
GDP	-	Gross Domestic Product
IEE	-	Initial Environmental Examination
IEER	-	Initial Environmental Examination Report
IRG	-	International Resources Group
LDC	-	Less Developed Countries
MI	-	Mihikatha Institute
M/TEWA	-	Ministry of Transport, Environment and Women's Affairs
NAREPP	-	Natural Resources and Environmental Policy Project
NARESA	-	Natural Resources, Energy and Science Authority
NEA	-	National Environmental Act
NEAP	-	National Environmental Action Plan
NGO	-	Non Governmental Organization
NPD	-	National Planning Department
PAA	-	Project Approving Agency
PP	-	Project Proponent
SAARC	-	South Asian Association for Regional Cooperation
SEA	-	Strategic Environmental Assessment
SAM	-	Special Area Management
SIA	-	Social Impact Assessment
TEC	-	Technical Evaluation Committee
TOR	-	Terms Of Reference
UGC	-	University Grants Commission
UKHP	-	Upper Kotmale Hydropower Project
USAID	-	United States Agency for International Development
VOA	-	Voice of America

SPECIAL MESSAGE

It gives me great pleasure to contribute a few thoughts to this review of Sri Lanka's experience with the Environmental Impact Assessment (EIA) process The fact that such a comprehensive document has been prepared within a few years of formalising EIA regulations reflects not only that the EIA process has really taken root in Sri Lanka but also that the process is evolving and maturing in a very rapid manner It also bears testimony to the seriousness and commitment with which the Government of Sri Lanka is pursuing the path of sustainable development

We have learned from the mistakes of other countries that following the "Grow now, clean up later" approach is not only short-sighted but also expensive in the long-run That is why we promote planning tools such as EIA to help us find the optimum balance between the twin goals of economic growth and environmental management It is inevitable, when using this approach, that some conflicts will arise between the proponents of these two goals and that there will be winners and losers The principal lesson of this publication is that an EIA process that is carefully formulated and implemented can reduce these conflicts and facilitate sound decision-making The EIA process helps to ensure that, even though there may be losers on a micro level, the nation as a whole is on a winning wicket

In conclusion, I want to express my thanks to USAID's Natural Resources & Environmental Policy Project (NAREPP) for its invaluable assistance to Sri Lanka over the past six years NAREPP has played a vital role in building the institutional capacity to administer an active EIA process I am glad to note that NAREPP's role of trainer and facilitator can now be passed on to the Centre for Environmental Studies (CES), an institution that it helped to build I commend the CES for the excellent work it has done to date and wish it every success in the future

I sincerely hope that this publication serves to increase peoples' understanding and appreciation of the EIA process in Sri Lanka

Cecil Amerasinghe
Secretary
Ministry of Transport, Environment & Women's Affairs

May 1997

FOREWORD

The Natural Resources and Environmental Policy Project (NAREPP) is a joint effort by the governments of Sri Lanka and the United States of America to help develop Sri Lanka's capacity to formulate and implement policies for the wise use of the country's natural resources and the protection of its environment The basic philosophy behind NAREPP has been that economic development should be made sustainable to meet the needs of the present generation, without compromising the right of future generations to also enjoy the benefits of a healthy environment Central to the theme of sustainable development is the assessment of the environmental impacts of development projects Consequently, NAREPP worked to strengthen the national capacity to conduct Environmental Impact Assessment (EIA) as a tool to facilitate sustainable economic growth Our capacity building efforts in EIA involved the successful introduction and institutionalisation of a variety of formal university programs at the certificate, bachelors, and masters degree levels which have already produced hundreds of qualified graduates Numerous professional level EIA training courses for representatives of government, academia, business and NGOs were created and presented We assisted with the formulation of regulations and procedures But our true objective, and our most significant success, was the creation of an ever expending network of multidisciplinary EIA staff, consultants, course instructors, and university faculty This text is ample testament to the fact that our network building efforts have been successful

The formal EIA process in Sri Lanka is now more than 3 years old and the EIA network considered it opportune to record progress and identify areas of future growth and improvement NAREPP entrusted this task to the Centre for Environmental Studies at the University of Peradeniya Chapters in this publication were written by participants in the EIA network closely associated with each topic The Ministry of Transport, Environment, and Women's Affairs, USAID, and the Central Environmental Authority provided support for this work and their assistance is deeply appreciated

This publication is intended for the EIA practitioner as well as for the general reader who is interested in the conservation of the country's natural resources and the environment Readers' comments will be greatly appreciated and will be used for the further development of the Environmental Impact Assessment process in Sri Lanka

Finally, I wish to record my sincere thanks to the chapter writers and the members of the Editorial Board for their contributions to this publication, and to all of the Sri Lankan professionals who have helped to introduce rational environmental management to Sri Lanka May their good work continue

Edward J Scott
Chief of Party
NAREPP

Colombo
June 1997

PREFACE

Environmental Impact Assessment (EIA) has been used in Sri Lanka since the early 1980s though it was legally mandated for all development projects with significant environmental impact by the National Environmental (Amendment) Act No 56 of 1988 The Coast Conservation Act No 57 of 1981 had earlier empowered the Director of Coast Conservation to call for an EIA for any development project that was to be sited in the Coastal Zone

Some of the early EIAs were the subject of bitter controversy that focussed government and public attention on the EIA process The need to provide a legal framework for EIA and the training of a cadre of professionals in EIA were recognized early Government efforts to satisfy these needs received support from the United States Agency for International Development (USAID) since 1983 This resulted in the launching of the Natural Resources and Environmental Policy Project (NAREPP) in 1991

EIA capacity building was made a major component of this project Since the NAREPP project is scheduled to end in mid-1997, it was felt that the time was opportune to review the progress made in EIA, noting its problems and issues and its prospects

The guidelines for this document were prepared by an Advisory Board comprising representatives of the institutions involved in the EIA process in Sri Lanka The coordination of the tasks involved in the preparation of "Environmental Impact Assessment The Sri Lankan Experience" was entrusted to the Centre for Environmental Studies at the University of Peradeniya Eminent persons familiar with the different aspects of EIA were commissioned to write chapters Their work was reviewed by an Editorial Board The authors have been allowed the freedom to express their views for which they take the full responsibility

It is hoped that this publication will help everyone involved and interested in the EIA process in Sri Lanka

The Editors

Centre for Environmental Studies
University of Peradeniya
Sri Lanka
June 1997

1 DEVELOPMENT AND ENVIRONMENT : THE CHALLENGE FOR BALANCE

C.M. Madduma Bandara

DEVELOPMENT ITS ULTIMATE OBJECTIVE

In essence, development means transformation it means growth it means change (Corea, 1996) In a broad philosophical sense, development should ultimately lead to a change for the better in the overall quality of life on earth When it is narrowly focused it may be confined to economic development or the development of a limited community a region or a country In the modern context of rapid globalization processes however, it is increasingly becoming difficult to define development so narrowly As Dasman (1984) observed some still consider that development refers to things and can be reduced to capital accumulation economic growth and income restructuring But development fundamentally refers to human beings, the whole man, the whole woman It is a human experience synonymous with the fulfillment of individual, mental emotional and physical potentiality The society, its economy and policy ought to be organized in such a manner as to maximize for the individual the opportunities for self fulfillment There is development when people and their communities act as subjects and not acted upon as objects, assert their autonomy self-reliance and self confidence, when they set out and carry out projects To develop is to be or become, not to have

Thus from an anthropocentric viewpoint, the ultimate objective of development may be perceived as the attainment of greater happiness in life individually and collectively However, human happiness is a subjective notion which often defies attempts towards quantification There can be more happiness in a poor home than in a royal palace The dominant thought that economic advancement is the primary source of increasing human happiness has led to the development of more quantifiable parameters such as the gross national product (GNP) as measures of economic growth as well as social contentment and planned efforts towards achieving higher growth In such a context, any discussion on thoughts such as the gross national happiness (GNH) may sound unrealizable and even nonsensical to many development planners Recent attempts at developing other indices of development such as the human development index (HDI), and other methodological advancements may eventually succeed in developing quantifiable measures of collective human happiness in the future Any development process that eventually result in increasing human discontent may find itself not only retrogressive but also form the anti-thesis of development

CONCEPT OF SUSTAINABILITY

It was the World Conservation Strategy (IUCN, 1980) that first brought into focus an alternative development paradigm now widely referred to as Sustainable Development Here the development was defined as the modification of the biosphere and the application of human, financial and non-living resources to satisfy human needs and improve the quality of human life For development to be sustainable, it must take account of social and ecological factors, as well as economic ones, of the living and non-living resource base, and of the long-term as well as short-term advantages and disadvantages of alternative actions Since the launching of the World Conservation Strategy, many international, regional and national fora had adopted and developed the basic tenets of this philosophy

The emergence of the concept of sustainable development also marked the convergence of two streams of thought that at first appeared to be antagonistic to each other, namely the development and environmental discourses The development discourse was primarily centered around the complex processes of industrial transformation and economic growth of developing countries in the post-war period The environmental discourse on the other hand was focused on the ecological consequences of

industrialization in the North The concept of sustainable development evolved from the interface of these environmental and development discourses

The ideological positions taken by concerned interest groups however, display a wide spectrum of views ranging from moralistic and sometimes even 'eco-fundamentalist' stands to those of practical managerialism The conflicting positions of extreme groups can often be seen in intellectual as well as in the decision making fora at national and international levels The reconciliation of these diverse interests often becomes a painful and challenging exercise even for the most enlightened political leadership As Robert Solow (1992) maintained, in a complex world populated by people with diverse interests and tastes and enmeshed in uncertainty about the future, there is a lot to be gained by transforming questions of yes-or-no into questions of more or less Yes-or-no lends itself to stalemate and confrontation more-or less lends itself to tradeoffs '

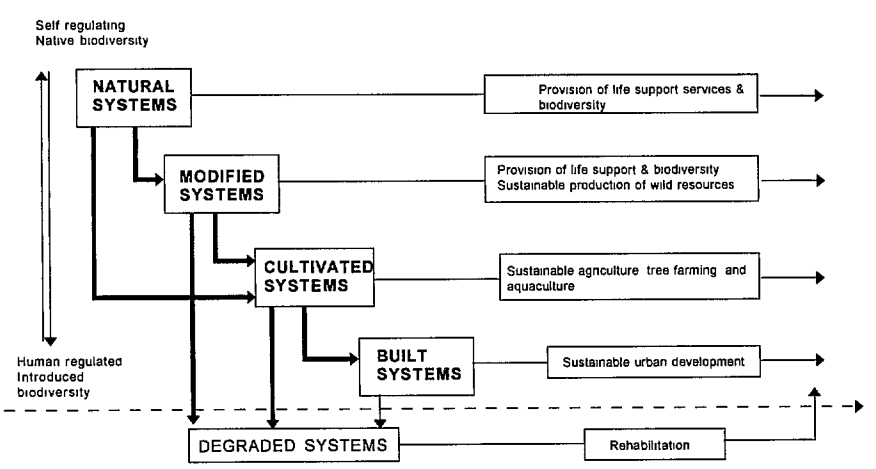
The concept of tradeoffs certainly is the basis of conflict resolution Nevertheless it tends to imply that anything is negotiable and compromisable in economic terms In real life situations this may not be so There are things people value and cling to at any cost even under trying circumstances The Chief Seattle -the great Red Indian leader more than a century ago wondered whether the land they treated with sanctity, the sparkling waters in the streams and the blue skies can be bought or sold like glass beads! The philosophical reverberations of these statements can still be heard in the modem world In practical terms too' the implications of Solow's managenalistic approach can be seen in the justifications for setting lower environmental standards for developing countnes and payment of differential rates of compensation for people affected by environmental disasters as in the case of Bhopal tragedy of India

The World Commission on Environment and Development (Brudntland Report), having absorbed the thinking of the World Conservation Strategy and searching for an appropriate definition of the concept of sustainable development concluded that 'it should be a development process that meets the needs of the present without compromising the ability of future generations to meet their own needs This often quoted statement attempted to encapsulate the need for development to satisfy the present day needs as well as the need for conservation of life supporting ecosystems It emphasized the values such as austerity and inter-generational equity which rest rather uncomfortably in conventional economic thought which tend to discount the future at too high a rate, where the economic value of today is much higher than that of tomorrow It also led to debates on the seemingly contradictory nature of the concepts of growth and sustainable development It is only recently that the Earth Summit in its Agenda 21 urged the nations of the world to 'adopt development strategies that treat development as inseparable from the environment'

Caring for the Earth (IUCN 1990) laboured much to resolve these differences of thought through a characterization of an ideal sustainable economy It observed that, An economy that is developing sustainably adapts and improves in knowledge organization technical efficiency and wisdom, and it does this without consuming co-opting or diverting beyond some point an ever great percentage of matter and energy of the ecosystem stopping at a scale at which the ecosystem can continue to function and renew itself every year Such an economy is therefore one in which the life of the ecosystem, its services and consequently the economy can be maintained for a long time This is illustrated in Figure 1 (IUCN 1990)

Figure 1

Classification of ecosystem conditions



The strategy of caring for the earth (IUCN 1990) went further and enunciated eight principles of SUSTAIN ABILITY

Limit human impact on the biosphere to a level that is within carrying capacity

Maintain the stock of biological wealth

Use non-renewable resources at rates that do not exceed the creation of renewable substitutes

Aim for an equitable distribution of the benefits and costs of resource use and environmental management

Promote technologies that increase the benefits from a given stock of resources

Use economic policy to help maintain natural wealth

Adopt an anticipatory cross-sectoral approach to decision making

Promote and support cultural values compatible with SUSTAIN ABILITY

It was argued that the adoption of the above basic principles can lead to a more sustainable use of ecosystems for purposes of development These are however, broad guidelines that may be adopted at the global level Each country has to determine its own resource use levels in terms its compelling development demands and the natural endowments while being mindful of the likely global impacts of all such policies plans and actions It may be stressed that regardless of all political and administrative demarcations environmental impacts can spread across national frontiers creating much international concern and even conflict

SRI LANKAN CONTEXT

Development Needs

As in most other developing economies, in the Sri Lankan socio-economic system too there are internal compulsions' for expansion (Gunatilleke et al 1991) generated by the past processes of development The first such compulsion stems from the health and demographic transition which resulted in greater life expectancy creating a greater proportion of youthful population in the age pyramid This has led to a rapid increase in the work force and a compelling need to cater to a rapidly rising demand for satisfying jobs The other main compulsion which is related to the first, arises from the continuing persistence of high levels of poverty and under-nutrition which tend to create social stresses that can disrupt the entire fabric of society A third demand stems from the higher levels of literacy and general education that have been attained over the years and rising aspirations among the youth and the need to keep pace with the rest of the world in its advances in communication, science and technology These internal compulsions tend to find expression in political processes in which the demands are often short-term to fit into the life span of governments that come and go

The above socio-economic setting compels the political leadership to seek quick solutions to deep seated problems in society and to obtain a greater degree of political mileage during their terms of office The structural adjustments that are needed in addressing deep rooted issues are socially and politically painful Therefore economic development planners tend to attune themselves to satisfy short-term political realities It was a few years ago (1985) that the medium-term investment programme contended that

For a developing country like Sri Lanka complete eradication of poverty malnutrition and unemployment are more important than pollution abatement, protection of natural resources, or conservation of the ecosystem

The type of thinking prevalent at the higher economic development planning circles as reflected above, despite some recent changes tends to discount the future at too high a rate It continues to be present-oriented, short-term and heavily biased in favour of rapid economic growth The medium-term investment programmes however appeared with the launching of the open economic policies in the early eighties In the preceding three decades the economic development planning efforts were much centralized and based on a series of ten-year, five year and three year plans There were hardly any attempts at incorporating environmental concerns in planning exercises In Sri Lanka as in many other developing countries at that time environment was not a serious major concern

Environmental Concerns

The impact of the Stockholm Conference on Human Environment (1972) was beginning to be felt in Sri Lanka in the 1970s Thus the Prime Minister in a directive issued on 2nd November 1972 urged that many countries have already taken steps to set up the necessary machinery to improve and

protect the quality of their environment by controlling air and water pollution, regulating the use of pesticides, fungicides, insecticides and toxic substances and improving their open spaces, parks and places of scenic beauty Although we do not have in our country the problems of highly industnalized nations, it would be prudent to act now and adopt such measures as are necessary to protect and improve the quality of our environment' However, four years later when a UNEP advisor visited Sri Lanka, the situation had not improved much warranting the observation that 'planning circles seldom take account of the likely effects of development on the natural environment, on man himself and man made environments There is no full understanding of the total environment and of the relationship between its components (Beale,1976) Similarly the Citizen's Task Force on Environment (1977) commented that 'the Government has to be informed of the environmental problems of Sri Lanka at present There is a total lack of understanding of them'

Environmental Legislation And Planning

Despite the unsatisfactory track record of planning efforts in matching the development needs with environmental concerns, Sri Lanka has developed an impressive array of environmental laws, rules and regulations although most of them have proved ineffective in comparison to their number It has been recorded that there are over one hundred such pieces of legislation and some of them date back to the colonial period Legislation and its enforcement had been the primary approach to environmental management dunng the colonial era which continued even after national independence through a similar bureaucracy Some of the earliest attempts at environmental legislation dating back to the last century dealt with subjects such as forestry and wild life and the conservation of high elevations, stream reservations and the coastal zone These were areas in which significant environmental problems arose due to deforestation, poaching and encroachment

The most devastating piece of legislation related to land acquisition which subsequently led to large scale deforestation, destruction of wild life and land degradation dunng the colonial era was the Crown Lands Encroachments Ordinance of 1840 This declared 'all forest, waste, unoccupied or uncultivated land shall be presumed to be the property of the Crown until the contrary there of be proved' This formed the prelude to the development of a massive plantation industry in the hill country and in the South It was in order to offset the adverse impacts of this development that several subsequent legislative measures were necessary both before and after national independence The Crown Lands Ordinance (1947), and the Soil Conservation Act (1951) and their regulations provide some examples of such efforts

At present the need for environmental safeguards is enshrined in the Constitution of the Republic (1979)- the supreme law of the land Its Article 27 declares that 'the State shall protect, preserve and improve the environment for the benefit of the community' Further, Article 28f states that 'the exercise and enjoyment of rights and freedoms is inseparable from the performance of duties and obligations and accordingly it is the duty of every person in Sri Lanka to protect nature and conserve its nches'

The above constitutional aspirations are further elaborated in the National Environmental Act and its regulations and a host of other pieces of legislation in force such as the Coast Conservation Act Urban Development Authority Act and the Nuisance Ordinance The National Environmental Act in particular makes provisions for the protection and management and enhancement of the environment and for the prevention, abatement and control of pollution' The legal requirement for Environmental Impact Assessment (EIA) is provided under the regulations of the National Environmental Act as well as under other legislation such as the Coast Conservation Act Compared with most other developing countries Sri Lanka has no dearth of environmental laws what is lacking is their effective enforcement Thus the encroachment of stream reservations and many forest reserves go on unabated Any administrative efforts to contain them meets with resistance both from the people as well as politicians On the other hand this reflects the deep rooted problems in society such as land hunger, poverty and lack of employment It had therefore argued that, 'economic development is the most powerful environmental answer to poverty This of course is a double-edged sword On one hand poverty alleviation programmes in whatever form they appear can ultimately result in further environmental degradation On the other hand it had been argued that the larger share of responsibility for environmental damage lies with organized commercial interests than with the poor people living in marginal environments As in many other areas of national life, there had also been a liberalization of attitudes towards enforcement environmental laws and regulations after national independence as reflected in the encroachment regularization policies

As in the case of environmental legislation, Sri Lanka has also made much progress in environmental planning in recent years This is reflected in an impressive array of planning documents which have been presented to public debate Some well known examples are the Forestry Master Plan, Coastal Zone Management Plan, Water Master Plan and the proposed National Land Use Plan In addition, The National Conservation Strategy and the Sri Lanka National Report for the United Nations Conference on Environment and Development have contributed much to environmental planning and drawn attention to the gravity of environmental problems in Sri Lanka today It may be stated that the greatest achievement in environmental planning is the National Environmental Action Plan (NEAP) prepared by the Ministry of Environment This is now in the implementation stage under the programme titled EA1P supported by the World Bank and other donor agencies It is anticipated that these efforts will contribute significantly towards addressing emerging environmental issues

Environmental Impact Assessment (EIA) is one of the most powerful tools in operationalizing the concept of sustainable development EIA has been made mandatory for all projects and undertakings coming under the Order gazetted by the Minister of Environment in 1993 This has resulted in screening many development projects in recent years for possible impacts on the environment and some of them even being abandoned Despite the frequent complaints about undue delays and the dearth of expertise the EIA process has contributed much towards minimizing environmentally adverse project impacts However there is still no well developed methodology to assess the environmental impacts of public policies or to apply it on a regional basis It is anticipated that such tools will be developed in the future

REFERENCES

Beale J G (1976) *Report of the UNEP Advisor*

Corea G (1996) Speech Delivered at the World *Conference on Green Productivity* Manila, 4-6 December 1996

Dasman R F (1984) An Introduction to World Conservation" In *Sustaining Tomorrow* F R Thibodena and H H Field (eds) pp 16-24

Gunatillake G N Sandaratne and R Wickremasinghe (1991) *Economic Policies for Sustainable Development* Country Study Sri Lanka

Solow R (1992) *An Almost Practical Step Toward Sustainability* Resources for the Future Washington D C

2 EXISTING LEGAL FRAMEWORK FOR ENVIRONMENTAL IMPACT ASSESSMENT

Sandhya Weerasinghe

EIA IN THE NATIONAL ENVIRONMENTAL ACT

The legal framework for the EIA process in Sri Lanka was laid down by the National Environmental (Amendment) Act No 56 of 1988 which revised the National Environmental Act No 47 of 1980 The procedure stipulated in the Act for the approval of projects provides for the submission of two types of reports -initial environmental examination (IEE) report and environmental impact assessment (EIA) report (NEA, 1988) Such reports are required in respect of "prescribed projects included in a Schedule in an Order published by the Minister of Environment in terms of the Act (Minister of Environment 1993) Once an IEE or EIA report is submitted the NEA provides for a public inspection and comment on the report during a mandatory period of 30 days A public hearing may be held to provide an opportunity to any member of the public (who has submitted his comments) to be heard in support of his comments if the PAA considers it to be in the public interest to do so A decision whether to approve the project has to be arrived at thereafter

The EIA process is mandated only for prescribed projects which need to be cleared by designated project approving agencies (PAAs) before they can be implemented The Minister for Environment decides on the list of prescribed projects and designates appropriate state agencies as PAAs

The procedures laid down in the NEA are supplemented by Orders and Regulations published by the Minister of Environment in the Government Gazette The first two Orders and 18 Regulations were published on June 23 1993 One Order designated 14 state agencies as project approving agencies (PAAs) The other Order specified the prescribed projects The Regulations provide the guidelines which the PAAs are required to follow in approving prescribed projects

A ministerial Order published on February 23, 1995 revised the list of PAAs, presenting them in two groups The first group comprises the Ministries to which the following subjects are assigned National Planning, Irrigation Energy, Agriculture Lands, Forests Industries, Housing Construction, Transport, Highways Fisheries Aquatic Resources and Plantation Industries The other group includes government departments (Coast Conservation Department [CCD] and Department of Wildlife Conservation [DWLC]) Statutory Authorities (Urban Development Authority [UDA] the Central Environmental Authority [CEA] and the Mahaweli Authority), Statutory Boards (Ceylon Tourist Board and the Board of Investment [BOI]) and the Geological Survey and Mines Bureau Members of the second group invariably come under the jurisdiction of a Ministry

The prescribed projects are listed in two groups in a Schedule included in the first ministerial Order of June 24,1993 Part I of the Schedule includes 31 projects and undertakings if located wholly or partly outside the Coastal Zone The projects in this group irrespective of size if located wholly or partly within the Coastal Zone must undergo the approval process that is laid down in the Coast Conservation Act In other words only those projects located totally outside the Coastal Zone will be subject to the approval process laid down in the NEA

Item 19 in this list of 31 projects and undertakings is described as the 'Development of Industrial Estates and Parks exceeding an area of 10 hectares" Once an industrial estate or industrial park is approved under Part IVC of the NEA any individual project or undertaking located in it, even though prescribed will be exempted from the approval process Projects and undertakings which are listed as Items 20 to 30 belong to the category of high polluting industries

Previous Page Blank

They will be required to go through the EIA process only if they are located outside an approved industrial estate or industrial park Siting of projects in environmentally sensitive areas that are listed in Part III of the Schedule is not prohibited, but regardless of their magnitude such projects and undertakings must go through the approval process This itself acts as a disincentive to project proponents Similarly even though Part I of the Order exempts projects and undertakings proposed to be established within the Coastal Zone from the approval process set out in Part IVC of the NEA, the law requires that such projects must be subject to the (NEA) approval process if they are located in environmentally sensitive areas of the Coastal Zone In short the EIA process set out in the Coast Conservation Act applies to projects prescribed under the NEA only when they are located wholly within the Coastal Zone but not in any environmentally sensitive area therein

Part II of the Schedule of prescribed projects includes Item 32 and 20 industries (Items 33 to 52) Item 32 is described as "All projects and undertakings listed in Part I irrespective of their magnitudes and irrespective of whether they are located in the coastal zone or not, if located wholly or partly within the areas specified in Part III of the Schedule' The industries included as Items 33 to 52 are not described by magnitude and are subject to the approval process only if located within the environmental sensitive areas mentioned in Part III of the Schedule

The National Environmental Act stipulates that all "prescribed" projects must receive approval from the appropriate project approving agencies (PAAs), which must be those that are concerned with or connected with such prescribed projects A PAA which is also the project proponent is disqualified from acting as the PAA for the project by NEA-EIA Regulation 2(1) of June 1993 When the PAA is also the project proponent, the CEA is required to designate an appropriate PAA Again in cases where there more than one PAA is involved, the CEA must determine the appropriate PAA In the event of doubt or difficulty in identifying the appropriate PAA, it has been the practice for the CEA to take on the role of PAA

EIA IN THE COAST CONSERVATION ACT

The Coast Conservation Act No 57 of 1981 together with the Coast Conservation (Amendment) Act No 64 of 1988 govern the Coastal Zone This Zone comprises mainly "the area lying within a limit of three hundred meters landwards of the Mean High Water line and a limit of two kilometers seawards of the Mean Low Water line The EIA process is part of the permit procedure mandated in Part II of the Coast Conservation Act (CCA) for the approval of prescribed development projects and undertakings within the Coastal Zone The Act states that the Minister in charge of the subject of Coast Conservation "may having regard to the effect of those development activities on the long term stability, productivity and environmental quality of the Coastal Zone, prescribe the categories of development activity, which may be engaged in within the Coastal Zone without a permit" Such activity should not however include any development activity already prescribed under the NEA

Section 16 of the Coast Conservation Act (CCA) confers on the Director of Coast Conservation the discretion to request a developer applying for a permit (to engage in a development activity within the Coastal Zone) to furnish an Environmental Impact Assessment relating to the proposed development activity The CCA does not however specify how and when this discretion should be exercised The Coast Conservation Department (CCD) interprets this provision as requiring an EIA when the impacts of the project are likely to be significant The application form for a permit includes several questions, the answers to which would help determine whether the development activity is likely to have significant impacts on the environment

The Act requires the Director of Coast Conservation, on receiving an EIA Report, to make it available for public inspection and to entertain public comments on it The Act also requires the Director of Coast Conservation to refer the EIA report to the Coast Conservation Advisory Council for comment The Council is an inter-departmental inter-disciplinary advisory body The Director of Coast Conservation may decide to

(1) grant approval for the implementation of the proposed project subject to specified conditions, or
(2) refuse approval for the implementation of the project, giving reasons for doing so

Part I of the Schedule containing the list of projects prescribed under the NEA states that the CCA applies in the case of those projects which lie wholly within the Coastal Zone (Minister of Environment, 1993) This indicates that the NEA expects the Coast Conservation Department to consider these projects as prescribed and that an environmental impact assessment is required albeit under the provisions of the CCA

In practice however the Coast Conservation Department is guided by their own rules and regulations in determining whether any of the prescribed projects under the NEA require an environmental impact assessment Certain parts of the Coastal Zone which are considered environmentally sensitive and declared as "no-build ' areas automatically rule out the need to consider development projects in such areas Similarly, development projects proposed for location in environmentally sensitive areas (as specified in Part III of the Schedule of prescribed projects) within the Coastal Zone are required to be submitted to the approval process specified in the NEA Many of these environmentally sensitive areas have already been identified and listed by the Coast Conservation Department as "set-back" areas comprising reservation areas and restricted areas in which development activities are prohibited or significantly restricted CCD Planning Division officers submit their recommendations regarding proposed development projects to the Planning Committee of the Coast Conservation Department The three technical divisions of the Coast Conservation Department recommend the issue of a permit with or without an EIA Where an EIA is recommended, scoping sessions are convened with representatives of concerned state agencies to determine the Terms of Reference for the EIA

The long title of the Coast Conservation Act states that the Act is established to regulate and control development activities within the Coastal Zone Therefore the Coast Conservation Department is the final authority in determining whether to permit a development activity in terms of the CCA, even though such activity may be required go through the approval process laid down in the NEA

EIA IN THE FAUNA AND FLORA (PROTECTION) ORDINANCE

The Fauna and Flora (Protection) Ordinance No 2 of 1937, as amended by the Fauna and Flora (Amendment) Act No 49 of 1993, requires that <u>any</u> development activity of any description whatsoever proposed to be established within one mile of the boundary of any National Reserve, should receive the prior written approval of the Director of Wildlife Conservation The Ordinance as amended mandates that the project proponent should furnish an IEE or EIA report in terms of the National Environmental Act The information that a project proponent applying for permission to establish a development project within one mile of any National Reserve has to submit is much more comprehensive than the information required for the approval process stipulated under the NEA This is because every development project or activity to be established within one mile of any National Reserve is subject to the approval process of the Department of Wildlife Conservation regardless of its magnitude or category Success in the implementation of this requirement will be tested to the extent that the term "development activity" is not defined in the Act This procedure could also discourage any development activity however environmentally compatible it is, proposed to be established within any environmentally sensitive area

DETERMINATION OF WHETHER AN IEE OR EIA SHOULD BE REQUIRED

The approval procedure under the NEA requires the PAA to call for an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) The interpretation of the terms IEE and EIA allows the PAA to call for an IEE first and thereafter, on the basis of the IEE, to decide whether an EIA should be carried out This process is however cumbersome and expensive for the project proponent In fairness to all parties, every attempt should be made during scoping to decide once and for all whether an IEE or an EIA is required The Regulations permit the Preliminary Information (PI) statement on the project, if well compiled, to be treated as an IEE If the PI is not adequate, an evaluation is required to determine whether an IEE alone would suffice

EIAs, rather than IEEs should be required for projects that are likely to have significant impacts on the environment PAAs should develop their own criteria for determining significant impacts

APPROVAL PROCEDURE ONLY FOR PROJECTS

A project means any undertaking, scheme or plan where commitment of resources, time and funds is envisaged It comes into existence at the stage when the project proponent has a goal and is actively preparing to make decisions towards achieving that goal So far the major focus has been on the techniques and tools used in EIA at project level Policy and programme EIAs remain largely untried Decisions to change policies, establish new regulations or make sectoral plans can have immense environmental and economic impacts Examples include policy decisions regarding management of public lands economic policies affecting agriculture forestry or industry and master plans for tourism, forestry and coastal resource conservation

Programs differ from projects in that they are on-going and not time-specific This makes the application of EIA to them more cumbersome Also EIAs of programs will differ from project level application of EIA for which site-specific data and contextual considerations are basic Such application will require new techniques and considerable research before impact assessments of programs become meaningful The important point is that decision makers and the public will benefit from environmental analyses of development actions that provide information on the environmental costs and benefits of the proposed action and any reasonable alternatives to it (National Task Force on Environmental Law 1996)

APPROVAL BY A MINISTRY ACTING AS A PAA

The question as to whether a Ministry is disqualified as a PAA where the project proponent is a department or agency under it was considered in a recent appeal under Section 23DD of the NEA (CEB 1995?)

If a Ministry has an interest in a project logically it should not function as the PAA - "Nemo Judex In Re Sua (No man shall judge his own case) The EIA regulations debar Ministries from functioning as project proponents although Ministries at times do become involved in project formulation proposal writing and seeking donor assistance for projects The NEA - EIA Regulations however permit a Ministry to function as the PAA even when a Department under it is the project proponent On the other hand the BOI cannot be the PAA when it (the BOI) is proposing to establish an export processing zone (EPZ) since an EPZ falls into the category of an industrial estate

CEA AS A PAA

Part IV C of the NEA and the NEA-EIA Regulations identify the CEA as the focal agency in the implementation of project approval procedures The role of the CEA is however neither clearly defined nor adequately developed A focal EIA agency would be expected to organize and supervise the administration of the EIA procedures to ensure that it is fair and effective

The published list of PAAs includes the CEA CEA acts as the PAA in cases where a PAA has become the project proponent and where an appropriate project approving agency is not available

The EIA Regulations require PAAs to obtain the concurrence of the CEA in granting approval to prescribed projects (Minister of Environment, 1993) The PAA is required by Regulation 13 upon receipt of the public s responses to the EIA document, to either grant or refuse approval for the proposed project with the concurrence of the CEA The regulations also require the Project Approving Agency to provide CEA with 'a report which contains a plan to monitor the implantation of every approved project" The monitoring of the environmental impacts of the implementation of the project would invariably be a major component of such monitoring The PAA is also required to determine in consultation with the CEA the scope and format of any supplemental reports that must be submitted in case fresh approval is necessary for making alterations to a project that has already been approved All these responsibilities assign to the CEA a role of referee and watchdog

ENFORCEMENT

Sole reliance on government agencies to carry out effective compliance with the conditions laid down by the PAA has not been successful in Sri Lanka especially in cases where one government agency has had to take action against another government agency Penalties have often been found to amount to a very small fraction of the total project expenditure (National Task Force on Environmental Law 199?) Project proponents are advised not to make costly commitments to a project (such as signing a contract or cleaning land) before the project is approved This is because the PAA may decide that elements of the project proposal should be modified or even that the entire proposal should be rejected

Laws alone are found to be inadequate Even well drafted environmental laws have proved difficult to enforce A lack of clear regulatory and performance standards weak inspection and monitoring to identify violations, and inadequate funding of enforcement activities, all frustrate efforts at enforcement

Several measures have been proposed to encourage self-enforced (voluntary) monitoring as an alternative to burdening PAAs with the task of designing a plan to monitor the implementation of the approved project The general consensus is that many of the needed changes can be made within the existing legislation Administrative regulations can be revised or supplemented and inter-agency operations re-organized to ensure greater compliance with the PAA s requirements

APPEALS

The NEA contains an administrative option for a project proponent whose project is refused approval Section 23DD grants persons aggrieved by such refusal the right of appeal to the Secretary to the Ministry " It also stipulates that The decision of the Secretary to the Ministry on such appeal shall be final ' Other parties aggrieved by the approval granted to a project are left to seek redress in the law courts This process is however time-consuming and expensive

The PAA is expected when refusing approval for the implementation of a proposed project to state clearly in writing the reasons for doing so The regulations require that copies of the documents containing the decision should be made available for public inspection especially for members of affected community groups in cases where approval is granted The NEA requires publication of the order of approval of a project by a PAA in the Gazette and in a national daily newspaper published daily in the Sinhala Tamil and English languages The NEA-EIA Regulations stipulate that the PAA should specify the time within which an approved project must be completed An extension of the time limit may be granted upon an application made to the PAA to that effect A statutory procedure for appeals which is now not available is badly needed It has been proposed that a panel of persons competent to hear appeals against decisions made in the approval of project be constituted, and that three members of this be chosen for hearing each appeal This arrangement can be expected to provide effective and fair hearing to aggrieved parties Such an arrangement should enable appeals to be instituted by not only the project proponent, but also by members of the public and even by the PAA and the CEA

INTEGRATING THE EIA AND EPL PROCEDURES IN THE APPROVAL PROCESS UNDER THE NEA

The objective of environmental impact assessment (EIA) is to ensure that development options under consideration are environmentally sound and sustainable and that environmental consequences are recognized and taken into account early in the project design (CEA 1995) EIA serves as a tool for predicting and addressing the potential impacts of development policies plans projects and activities In Sri Lanka it is a legally mandated requirement used in project decision-making (NEA 1988) An Environmental Protection Licence (EPL) issued by CEA is required for the discharge, emission or deposit of waste into the environment (NEA, 1988) Enterprises discharging, emitting or depositing into the environment waste which causes pollution are required by law to obtain an EPL and to conform to standards prescribed under the NEA Whilst the EIA process takes place during project planning, the EPL process technically commences with a formal application one month prior to the commencement of operations

The judgement in a recent appeal against the decision of a Pradeshiya Sabha not to grant an EPL held that the site clearance process (which is a pre-EPL process) is in fact part and parcel of the EPL process (Kamal Fernando 1995) The refusal of site clearance was held to be tantamount to a refusal of an EPL Industrialists often wish to know whether they can invest in and construct an industrial unit of a particular design at a 'particular place even before they apply for an EPL There would be a tremendous waste of resources if an EPL application is refused after an industrial plant has been established Such a decision would virtually render illegal the operation of such an industrial unit and the discharge of waste from it

To overcome this problem the CEA together with the local authorities and other concerned agencies like the Board of Investment (BOI) have designed a pre - EPL procedure called site clearance A site clearance allows the industrialist to obtain building approvals and other authorizations needed, in order to invest the resources to establish the industrial venture, with a reasonable degree of certainty that the formal EPL application would be approved after site clearance conditions are complied with The site clearance (pre - EPL) procedure in a sense pre-judges the issuance of an EPL For an industry which has received site clearance, an EPL application is only a formality Site clearance triggers the process of obtaining an EPL

The site clearance (pre - EPL) procedure is also applicable in the case of industries/activities which are not prescribed under the NEA Prescribed projects will go through environmental impact assessment and then apply for an EPL

Many of the large scale projects are invariably subjected to the EIA process from a very early stage of their lives Many prescribed industries without magnitudes located within environmentally sensitive areas have however by-passed the EIA process and applied directly for an EPL The CEA has been informed only after the venture was set up, thereby effectively shutting out the assessment process

The local authorities have been delegated with power to issue the EPLs for nineteen (19) types of activities The two Orders of delegation made by the CEA came into effect on January 1, 1994 and July 1,1996 Any activity which does not fall among the 19 activities listed is referred to the CEA These 19 listed activities contain magnitudes and are referred to as "low polluting industries' If these activities are sited in environmentally sensitive areas, then the approval process under Part IVC becomes obligatory for them If any of the 19 activities referred to above are sited wholly within the coastal zone, they will be subject to the jurisdiction of the Coast Conservation Department's permit (approval) process In such a case it may be desirable that CEA delegate authority to the Coast Conservation Department to issue EPLs after conducting a study Likewise, if any of the activities referred to above are sited within one mile of the boundary of a reservation declared under the Fauna and Flora (Protection) Ordinance, the Department of Wildlife Conservation (DWLC) will be required to follow the approval process specified in the NEA Where the Department of Wildlife Conservation has approved any activity they may be delegated the authority to issue EPLs for this activity

There is a need for CEA to delegate power to agencies approving activities in order to integrate the EIA and EPL procedures into the approval process This will ensure that the two procedures complement each other, one following the other, and giving effect to the intent of the process

Before such authority is delegated it is important to ascertain whether the agencies likely to assume these responsibilities have an adequate administrative and technical capability to implement the EIA process and the permit procedures Not all agencies eligible to receive delegated powers will have the required capability In cases where such capability is not available, selective delegation, tailored to suit each such agency can be considered

EIA AT PROVINCIAL LEVEL

The Thirteenth Amendment to the Constitution certified in November 1987 specifies three legislative lists - The Reserved List, the Provincial Council List and the Concurrent List Provincial Councils have been established in all provinces with the exception of the North and East, where a single Council functions Provincial Councils have the exclusive right to legislate through statutes on matters specified in the Provincial Council List The subject of environmental protection is placed on the Concurrent List as well as on the provincial list

Provincial Councils and Parliament can both legislate on matters on the Concurrent List provided it is done in consultation with each other In the event of a conflict between a Provincial Council's statute and an Act of Parliament covered by the Concurrent List the Provincial Council's statute takes precedence within the province The listing on the Provincial Council List confines the Provincial Councils to the area of environmental protection "to the extent permitted by law", meaning an Act of Parliament, and as the NEA does not mention Provincial Councils and does not provide for the making of statutes, these Councils have not been able to utilize their exclusive right to legislate on the subject of environment

The North Western Provincial Council (NWPC) has however enacted legislation on environmental protection by Statute No 12 of 1990 It is presumed that the NWPC consulted Parliament prior to giving assent to the Statute Where a Statute made by a Provincial Council with respect to a matter under List III (Concurrent List) is 'inconsistent" with a law with respect to the same matter, the provisions of that law remain suspended and inoperative within that province with effect from the date on which that statute received the Govemor's assent The National Environmental Act No 47 of 1980 (as amended by Act No 56 of 1988) therefore remains suspended and inoperative within the North Western Province with effect from the date of assent unless Parliament by resolution decides to the contrary The NWP Environmental Statute received assent on the January 10 1991

The Environmental Protection Licence (EPL) Procedure came into operation on July 1, 1990 On January 1, 1994 all local authorities were delegated power to implement the EPL procedure and to take legal action under the National Environmental Act The NWP responded to this delegation by informing the CEA that the NWP Environmental Statute was in force and that the NEA was therefore inoperative within the province Nevertheless CEA continued to receive applications for the EPL from industrial and other units located within the NWP for which CEA continued to issue EPLs for some time

The EIA procedure (under the NEA) came into operation on June 24, 1993 Applications for approval under Part IVC of the NEA were also received by the CEA and by the appropriate project approving agencies This situation prevailed as the representatives of the NWP Environmental Authority were having discussions with the CEA to identify sections in the NWP Environmental Statute which needed to be amended

In the meantime CEA filed legal action against a saw mill operating at Marawila in the NWP for violating conditions of the EPL issued by the CEA The Marawila Magistrate ruled that the matter should be decided under the NWP Environmental Statute A problem arose at about the same time in the approval of a prawn culture project proposed for location within the NWP CEA referred the matter to the Attorney General and was advised that the issue should be settled under the provisions of the NWP Environmental Statute Thereafter CEA examined the provisions of the NEA vis-a-vis the provisions of the NWP Environmental Statute pertaining to the EPL and EIA procedures which were published by the NWPC on November 20, 1992

Although these regulations have been published the Provincial Environmental Authonty has been unable to implement them fully The issue of EPLs for a limited number of industries has commenced recently It is presumed that the "EIA procedures" laid down in the regulations published under the North Western Province Environmental Statute have been followed in the issuance of every EPL

There is a basic difference in the provisions of the NEA and the NWP Environmental Statute with regard to the EPL and the EIA procedures The NEA contains separate provisions for the EPL process and the EIA process EPL provisions control the discharge of waste into the environment while the EIA process is applicable to prescnbed projects

The NWP Environmental Statute has prescribed the projects and undertakings which are required to obtain the EPL subsequent to a procedure containing certain elements of the EIA process In other words, the EIA process and the EPL process have been amalgamated under the NWP Environmental Statute one following the other

A comparison of the list of projects prescribed under the NEA with the list of projects prescribed under the NWP Environmental Statute indicate the type of activities/projects envisaged within the Province Except for a few, these activities/ projects can be classified as small scale (low and medium polluting) development activities

The projects listed under the NWP Environmental Statute do not include large development projects such as those of power generation and transmission, transportation and major irrigation works They include only small scale development projects This could lead to a situation where large scale projects which are not prescnbed by the NWP Environmental Statute would be exempted from the EIA requirement, by virtue of the fact that they are located within the North Western Province For example, a coal fired power plant project located to be in Puttalam would be exempted from EIA as it is not prescribed by the NWP Environmental Statute Such a plant if sited elsewhere in the country would be required to undergo the EIA process in accordance with the NEA

The impacts of large scale projects such as the effects of emissions from a coal fired power plant on common resources such as water and air can be felt in other provinces and cannot therefore be considered to be restricted to the North Western Province Although national issues should continue to be dealt with by the central government even after certain powers are devolved, the term "national" has not been defined The extent to which the center could intervene is therefore not clearly understood

ISSUES OF CONCERN

i While CEA accepts that the North Western Province Environment Authority (NWPEA) can act on its own in cases involving small scale industries with a low pollution potential, there is a problem in relation to industnes with a higher pollution potential

At a discussion held between CEA and NWP officials on this matter it was agreed that the NWPEA would deal with industries with a low pollution potential while CEA would deal with high polluting industnes This arrangement was considered to be acceptable because control of pollution caused by large scale high polluting industries requires technical knowledge and skills which are presently not available at the provincial level

ii National Air and water quality standards relating to ambient conditions and pollution caused by emissions into the atmosphere are set by the CEA in terms of the NEA The North Western Provincial Council (NWPC) will therefore be required to stringently enforce the air and water quality standards within the province in order to maintain standards at national level If however the air and water quality standards set by the NWP are less stringent or if they are not strictly enforced there will be a problem at the national level as the effects of air and water pollution are not localized and can be significant elsewhere in the country

iii The implementation of the Provincial Environmental Statute in relation to industries with BOI status has also not been clarified A situation may arise where foreign investment projects which have been rejected by CEA would be approved under

the NWP Environmental Statute Such projects could include waste recycling industries which may have far reaching effects on the environment of the whole country

The subject of the national environment is included in the Reserved List and therefore remains the responsibility of the central government The extent of the central government s responsibility is however not clearly stated On the other hand protection of the environment is clearly the responsibility of the region and if the Central Government fails to define the extent of national jurisdiction regional authorities will exercise exclusive authority over their regions to the detnment of the country

iv Past experience has revealed that the successful use of EIA as a management tool depends to a great extent on analyses carried out by skilled and trained personnel After three years of experience in implementing the EIA regulations and the training in EIA provided by CEA NAREPP and CES during the past five years a pool of trained analysts is being built up but only very slowly It is therefore doubtful whether provincial level institutions with limited staff can handle these responsibilities effectively

v Some large scale development projects which have far reaching impacts on the whole country could be approved without any assessment of environmental impacts by virtue of their not being included in the list of projects prescribed by the provincial authorities

vi Development activities located in one province can have significant impacts on common resources stretching across provincial boundaries

vii CEA authority for monitoring development projects located within the NWP or any other province and its authority for enforcing the NEA regulations in respect of such projects need to be clarified

At discussions between officials of the NWPC and the CEA, it was decided that the North Western Province Environmental Statute would be so amended to allow projects prescribed under the NEA to be controlled by the CEA, while the present prescribed list under the NEA would be amended so that certain identified types of projects will be controlled by the North Western Province Environmental Authority

There is no doubt that building up capabilities in environmental assessment within the provinces will benefit environmental management in general The course of action outlined above is considered to be the most appropnate

PROPOSED AMENDMENTS TO THE CONSTITUTION

The amendments now being proposed to the Constitution contain two lists, instead of the existing three lists The two new lists are referred to as

List - Reserved List
and List II - Regional List

The term 'Regions' is proposed as a replacement for Provinces The subject of environment occurs in both lists as follows

List (Reserved List)
(48) National Environment and National Policy on Tourism
List II (Regional List)
(7) Forestry and Protection of the environment within a region

The subject of Environment is grouped with Tourism in the Reserved List In the Regional List environment is grouped with Forestry

It has been recommended that a meeting be organized between senior representatives from concerned agencies including the North Western Provincial Council the Attorney General's Department the Ministry of Public Administration, Provincial Councils and Plantations, the Ministry of Transport Environment and Women's Affairs and the CEA in order to clarify government policy on this issue of the approval of projects and to prepare a policy paper detailing out the role and functions of CEA vis-a-vis the North Western Provincial Environmental Authority and any other Provincial Environmental Authorities set up in the future

REFERENCES

Central Environmental Authority *Guidance for Implementing the Environmental Impact Assessment (EIA) Process 1995*

No 1 A General Guide for Project Approving Agencies (PAAs)
No 2 A General Guide for Conducting Environmental Scoping

Central Environmental Authority Case No 18566 Marawila Magistrate s Court *CEA vs Sapumal Saw Mill Marawila*

Ceylon Electricity Board Appeal No 2/95 to Secretary M/TEWA under Section 23DD of the NEA

Coast Conservation Act No 57 of 1981 [Government Publications Bureau]
Coast Conservation (Amendment) Act No 64 of 1988

Fauna and Flora (Protection) Ordinance No 2 of 1937
Fauna and Flora (Amendment) Act No 49 of 1993

Fernando G L M Kamal Fernando, Appeal under Section 23E of the NEA
The South Asian Environmental Law Reports Vol 2(1) March 1995

National Environmental Act (NEA) No 47 of 1980
National Environmental (Amendment) Act No 56 of 1988

National Environmental Act Orders made by Minister of Environment under Section 23 Z specifying prescribed projects
1 and 2 ibid 1

National Environmental (Procedure for Approval of Projects) Regulations No 1 of 1993

National Task Force on Environmental Law 1995
Report and Recommendations of Subcommittee A

Orders made under Section 23Y of NEA specifying Project Approving Agencies
1 Government Gazette June 24 1993
2 Government Gazette February 23 1995

Thirteenth Amendment to the Constitution [Certified on 14th November 1987] Government Publications Bureau Colombo

3 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Shiranee E Yasaratne

INTRODUCTION

Environmental Impact Assessment (EIA), a procedure for assessing the environmental implications of a decision to implement policies and plans, or to initiate development projects has become a widely accepted tool in environmental management since its inception over two decades ago EIA has been adopted in many countries with different degrees of enthusiasm where it has evolved to varying levels of sophistication Since the United States of America made EIA a requirement under the National Environmental Policy Act of 1969, several other industrialized countries have also implemented EIA procedures Canada, Australia, the Netherlands and Japan for example, have adopted EIA legislation The European Community (EC) finally adopted a directive in July 1985 making environmental assessment mandatory for certain categories of projects after nearly half a decade of deliberation Countries in the developed world have not been alone in realizing the potential of EIA Many less developed countries (LDCs) have been quick to appreciate that the EIA procedures offer a means of introducing some degree of environmental planning, often in the absence of any formal land-use planning systems Thailand and the Philippines now have long established procedures for EIA while in the South Asian countries application exists at varying levels

HISTORY OF THE APPLICATION OF ENVIRONMENTAL ASSESSMENT IN SRI LANKA

The accelerated development effort launched by the Government of Sri Lanka in the late 1970s had a significant impact on the island's environment With continuing rapid progress in development activities the protection and management of the environment became a major concern The earliest environmental assessment studies in Sri Lanka were carried out for large scale projects such as the Accelerated Mahaweli Development Project and the Katunayake Free Trade Zone Project In 1978, the Government of Sri Lanka decided to accelerate a major portion of the overall Mahaweli Development Program consisting of the installation of 470 megawatts of hydropower and the irrigation and agricultural development of 102,000 ha of land in the Dry Zone Throughout the planning and implementation of this program, it was recognized that potentially significant environmental problems would arise Initial assessments of environmental impacts were made as part of individual feasibility studies on individual project components An environmental study of the entire Mahaweli program was conducted by Tippetts - Abbett - McCarthy - Stratton (TAMS) of USA Completed in 1980, the environmental assessment presented a number of recommendations for minimizing detrimental impacts and enhancing beneficial aspects of the project and for effective management of natural resources The Government subsequently incorporated these recommendations into an Environmental Plan of Action for the Accelerated Mahaweli Development Program

Realizing the need for integrating environmental, economic and social considerations with the planning and decision making process in a more formal manner, the Government of Sri Lanka decided to introduce Environmental Impact Assessment of development projects In November 1982, the Cabinet of Ministers decided to make EIA mandatory for all state and private sector development projects with effect from 1st January 1984 It was also decided that the year 1983 would be devoted to the preparation of comprehensive guidelines and procedures and for the training of officials of the relevant agencies in EIA

In 1983, the Central Environmental Authority (CEA) with USAID assistance initiated an Environmental Assessment Procedures Development Program This program included the

Previous Page Blank

preparation of Guidelines on Environmental Assessment and the training of officials from the relevant agencies These guidelines were reviewed at a high level policy development seminar and accepted in principle In November 1983, the Cabinet of Ministers considered the inclusion of provision, in the amendments to the National Environmental Act (NEA) for Environmental Assessment of development projects The cabinet also decided that until the Act was amended Environmental Assessment should be mandatory from 1st January 1984 for projects identified by the CEA

Legal provision for EIA in Sri Lanka was first included in the Coast Conservation Act No 57 of 1981 These provisions were restricted to the Coastal Zone as defined by this Act which leaves the identification of projects for EIA to the discretion of the Director, Coast Conservation Thus Sri Lanka's first EIAs were prepared under this law One of the earliest EIAs prepared under this Act, was that of the Trincomalee Coal Power Plant This EIA was prepared by the Ceylon Electricity Board (CEB) and submitted to the Director, Coast Conservation on 14th September 1987, in terms of the Coast Conservation Act The EIA was forwarded to the Coast Conservation Advisory Council for comments and made available for public scrutiny for 30 days as required by the Act Over 1000 comments nearly all opposing the project were received from the public Several NGOs formed a Joint Campaign Committee to oppose the project, presented useful comments The CCD Advisory Council also made an adverse recommendation The Director ruled against the project, explaining that the EIA contained certain inaccuracies and that issues of relevance had not been given due consideration In April 1988 the CEB submitted an appeal under section 21 of the Coast Conservation Act against the Director s decision The Secretary Ministry of Fisheries as the appellate authority rejected the CEB appeal

EIA was mandated island wide by the 1988 amendments to the National Environmental Act and CEA was assigned regulatory functions Part IV C of the Amendment Act of 1988 mandated that CEA require prescribed development project proposals to be subjected to Environmental Impact Assessment where adverse and beneficial impacts of the proposed projects on the environment would be identified together with measures to minimize such adverse impacts

EIA AND THE NATIONAL ENVIRONMENTAL ACT

The provisions relating to EIA in the National Environmental Act are dealt with in another chapter The provisions relating to EIA given in sections 23Y, 23Z, 23AA - 23FF had to be supplemented by supporting regulations These provisions came into effect on 24th June 1993 when 2 Orders under sections 23 Y and Z were made by the Minister in charge of the subject of Environment in Government Gazette Extra - Ordinary No 772/22 One of these Orders specified the projects and undertakings required to go through the EIA process The other order lists the Project Approving Agencies The Minister also published regulations under section 23 CC of the NEA to be applied in the implementation of the EIA process In the same Gazette these regulations are known as the National Environmental (Procedure for Approval of Projects) Regulations, No 1 of 1993

The NEA has identified two levels in the EIA process At first level - i e the Initial Environmental Examination (IEE) possible impacts of a prescribed project are assessed with a view to determining whether they are significant or not An IEE must identify the possible impacts and assess their intensity The second level - the Environmental Impact Assessment Report (EIAR) is a more comprehensive document where alternatives to the proposed project are considered and the option with the least impact on the environment is identified and assessed Mitigation measures for the impacts identified as significant are part of an EIAR An environmental cost benefit analysis is also undertaken wherever possible

Role of Government Agencies in the Application of the EIA Process

The NEA stipulates that approval for all prescribed projects must be granted by a Project Approving Agency (PAA) At present 17 state agencies have been appointed as PAAs by the Minister (Appendix 1) The list includes 9 Ministries (prescribed by subject area) and 8 state agencies A single PAA is established as responsible for guiding the preparation of an IEE or EIA When there is more than one PAA involved the appropriate lead agency is decided by the CEA However, it is important to note that a state agency which is a project proponent cannot also function as the PAA for that project[1]

Each PAA has established its own operating procedures that match its organization and its own particular needs An EIA cell has been established within each PAA and is responsible for administering the EIA process within the PAA It usually has a small permanent staff A member of the cell has been designated to interact with CEA, other PAAs and members of the public on all matters connected with the EIA process Where Ministries have been designated as PAAs, the formal decision on an EIA is taken by the Secretary or another specially authorized officer of that Ministry acting for and on behalf of the Secretary The routine activities including calling for additional information, reviewing and conducting environmental scoping are carried out by the environmental cell Where the PAA designated is a government department the formal decision is made by the head of that department as in the case of the Urban Development Authority or the Department of Wild life Conservation

A problem encountered in implementing this scheme has been whether a Ministry is disqualified as a PAA where the project proponent is a department under it In the case of the Upper Kotmale Hydro Power Project where it is intended to harness the waters of seven rivers and tributaries to generate 530 Gwh of power annually the Ministry of Irrigation Power and Energy functioned as the Project Approving Agency while the CEB an agency under the PAA was the project proponent However this Ministry was closely involved in project formulation proposal writing and in seeking donor assistance for the project In the wider sense the Ministry could be considered to be a project proponent" Under these circumstances it becomes difficult for the PAA to exercise an independent and unbiased judgement over the application Taking such experiences into consideration the CEA now uses pre-determined criteria to designate a PAA

Prescribed Projects

The EIA process in Sri Lanka applies only to prescribed projects which have been published in the Government Gazette under section 23 Z of the NEA This order lists two groups of projects that require an IEE/EIA before they can be implemented The list first relates to 17 different types of projects (excluding industries) that are considered as generally having significant impacts The second list sets out very high polluting industries which need an IEE/EIA wherever they are located A list of environmentally sensitive areas is set out in the regulations separately Any project would be caught up in the EIA process if located in any of the environmentally sensitive areas listed

The description of projects in the Orders is loose The schedules are more descriptive than definitive In Schedule I the extraction of timber covering land area exceeding 5 ha has been prescribed as an activity requiring IEE or EIA Even if only a small number of trees are being felled in a land area exceeding 5 ha, carrying out an IEE or EIA is mandatory by virtue of its prescription, even though it may not be always required

MAJOR STEPS IN THE CURRENT EIA PROCEDURES

The sequential steps of carrying out IEE/EIA are schematically depicted in Appendix II)

Preliminary Information

A project proponent is required to provide the PAA with Preliminary Information (PI) on the proposed prescribed project as early as possible It should include a description of the nature, scope and location of the proposed project accompanied by location maps and any other details as may be required by the PAA The PI submitted should be comprehensive so that it may even suffice to be considered as an IEE The PAA may request additional information from the project proponent It is for the PAA to decide whether adequate information has been given by the project proponent This is very important because if the PI does not contain enough information the management of scoping could become difficult and the decision flawed For this reason the PAA must be satisfied that the required information is given before scoping commences The decision as to whether an EIA or IEE should be called for lies entirely at the discretion of the PAA

Environmental Scoping

Environmental scoping is the process of identifying the important issues which must be addressed in detail in the IEE/EIA Environmental issues involve national regional and local government agencies and cover a broad range of responsibilities (wild life health water land use tourism etc) Co-ordination among government agencies is therefore crucial

Scoping determines whether the project proponent should be asked to prepare an IEE or EIA and generates basic terms of reference for conducting the IEE/EIA Basic Terms of Reference for an IEE and an EIA have been issued as guidance by CEA

The process seeks to create a forum at which parties with interests at stake should be brought together to help the PAA decide on the issues that should be addressed in an EIA The involvement of affected groups and NGOO too is crucial to IEE/EIA preparation Therefore the Project Proponent is expected to take the views of affected groups and local NGOO fully into account in project design and implementation and in the preparation of the required report The EIA regulations state that the PAA may take into consideration the views of state agencies and the public during scoping Although the PAA has discretion, experience has shown that obtaining public views at this stage is not always practically possible One of the functions of scoping is to enable the PAA to decide whether an IEE will suffice or whether an EIA should be called for To avoid unnecessary expense every effort should be made at scoping to decide whether an IEE or an EIA should be carried out

EIA Preparation

The IEE/EIA report is prepared by the project proponent usually by the hiring of consultants A number of consultants have informally registered with CEA for the preparation of EIAs It is expected that a consultant who undertakes the preparation of an EIA avoids actions and situations that are inconsistent with his professional obligations or that are likely to raise doubts about his integrity If a consultant finds that his professional or personal interests conflict so as to risk a breach of the principle of rectitude and integrity he is expected to withdraw from such a situation All reports are generally authenticated by the Consultants The project proponent is required to submit three originals duly signed by the preparers to the PAA

The PAA will then check its adequacy against the TOR If the PAA is not satisfied with the EIA report the project proponent is then required to make the necessary amendments and re-submit it

Analysis of Alternatives in EIA

At the heart of the EIA process is the requirement that alternatives to the proposed activity which might be less harmful to the environment should be considered An EIA must contain a description of any reasonable alternatives together with the reasons why these alternatives were rejected Unfortunately neither the NEA nor the EIA regulations provide guidance as to what an alternative is and how far the exercise should be carried out This very important aspect is rarely addressed adequately in the EIAs prepared so far Since the range of alternatives that a proponent might consider can be considerable, an expansive view of alternatives should be adopted in preference to a narrow and limiting one The failure of the project proponent to adequately evaluate alternatives which may be more environmentally friendly was a factor that led to the rejection of the Upper Kotmale Hydro Power project by the CEA and the Secretary to the Ministry in charge of the subject Environment as the appellate authority [2] In most cases the alternatives to the project are left out altogether in an EIA In terms of the NEA this is a serious defect Therefore more attention must be paid to build in consideration of alternatives into the TOR The alternatives considered should be feasible and reasonable and not remote and speculative The concept of alternatives is therefore an evolving one requiring developers to address this aspect with greater consideration as it becomes better understood

Extended Cost Benefit Analysis

The definition of EIA as contained in the National Environmental Act states that an environmental cost benefit analysis[3] should be included in the EIA if such an analysis has been prepared The techniques of environmental economic analysis as applied to the design and appraisal of development projects are advancing However, Although a range of improved economic valuation methods used in environmental benefit cost analysis have been developed it has had a slow start in relation to EIA Therefore despite the legal requirement, this aspect is rarely addressed meaningfully in an EIA Environmental economists trained in valuation techniques and other methods are needed so that they can contribute more effectively to both EIA and project appraisals

Public Participation

The involvement of the public is an important aspect of the EIA process The provision for public participation is contained in the NEA The PAA must publish notices in the Government Gazette and in the daily newspapers in all three languages inviting the public to inspect and make comments on the IEE/EIA within 30 days The notice specifies where and when the EIA/IEE can be inspected Usually these reports are made available in Divisional Secretariats and Pradeshiya Sabhas where the project is proposed to be located The public have a right to obtain copies of the documents from the PAA on payment of copying charges

Once the public commenting period is over the PAA must decide whether the case warrants a public hearing The NEA states that a public hearing may be held at the discretion of the PAA when it is thought that it would be in the public interest to do so A variety of situations may fall within the meaning of "public interest and these cannot be exhaustively defined Factors usually considered are whether a proposed prescribed project is highly controversial, whether the project might cause unusual national or regional impacts, whether it might threaten a nationally important environmentally sensitive area or whether a formal request for a public hearing has been requested by an interested party Guidelines have been issued by CEA to PAAs on how to conduct public hearings If it is decided to hold a public hearing, it should be held immediately after the expiry of the 30 day period for public comments and before the PP is asked formally to comment on public and agency comments Four public hearings have been held since the EIA regulations came into force

The public comments received during the 30 day period must be sent to the project proponent for review and response The project proponent must respond to comments by making every effort to modify alternatives including the proposed action He must develop and evaluate alternatives not provided in the original report and where necessary provide supplementary information and make corrections in the document All substantive comments received on the draft should be attached to the final statement

Public commenting has not been very successful so far due to various reasons The number of copies of reports made available to the public are inadequate for easy reference Some outstation offices do not make the copies readily available for public scrutiny Newspaper notices and the gazette notification are usually not available to the affected public Sometimes the time available is not adequate to prepare comments as the documents cannot be easily understood by non-technical persons Translations especially of maps and tables into the national languages are problematic and often the Sinhala and Tamil translations do not contain all such data However, in certain instances public comments have led to major changes being made to proposals such as in the case of the Upper Kotmale Hydro Power Project and the Colombo-katunayake Expressway project where the public suggested feasible and cost effective alternatives

Decision Making

According to the regulations the PAA should grant approval for the project subject to specified conditions or refuse approval for the implementation of the project with reasons for doing so Usually a PAA appoints a panel of technically competent persons to study an EIA and make its recommendations to the PAA concerned This panel is selected from a directory of experts published by CEA The experts selected usually possess considerable expertise in the chosen field and in the implementation of EIA procedures This technical evaluation report forms the base of the EIA decision The decision made at a meeting of the EIA Oversight Committee which is chaired by the head of the PAA is conveyed to the CEA for concurrence before a final decision is made Before concurrence is granted, the CEA appoints its own technical consultants for evaluation of the decision and associated conditions There have been instances where the CEA has refused to grant concurrence for EIA decisions made by PAAs

Appeal Procedure

A project proponent who is aggrieved by a refusal can appeal to the Secretary of the Minister in charge of the subject of Environment There is no time limit fixed for the appeal and therefore it may be lodged within a reasonable period of time Three appeals have been heard by the Secretary in charge of Environment since the effective date The Secretary usually appoints a panel of experts to hear the appeal and make a report A member of the public aggrieved by a decision to grant approval for a project would have to seek recourse in courts

Monitoring

The success of the EIA process would be totally negated if the conditions imposed by the PAA are not effectively monitored The regulations require that the PAA forward to the CEA a report which contains a plan to monitor the implementation of every approved project within 30 days of granting such approval Monitoring would indicate the extent of compliance with the conditions set by the project proponent and the effectiveness of the mitigatory measures A system of self monitoring would be most appropriate The project proponent would submit monthly reports to the PAA regarding compliance with the specified conditions Spot checks could be done by the PAA to verify accuracy Usually monitoring is ensured by the application of the legally mandated Environmental Protection Licensing (EPL) procedure where any activity discharging waste into the environment is regulated under the provisions of the National Environmental Act

REVIEW OF APPLICATION OF THE EIA PROCESS AND CONSTRAINTS

The EIA process has developed rapidly in Sri Lanka over the past four years but several institutional and legal barriers must be overcome to allow the process to fulfill its intended goals The process offers the government an invaluable management tool for integrating environmental and economic development goals At the same time, this provision also offers citizens the best, in some respects the only opportunity they have to participate in major economic development decisions which affect them However these two goals have only been partly realized

Institutional Constraints in Implementation of the EIA Process

The most significant issue arising under Part IV C of the NEA concerns the inability of PAAs to carry out their primary EIA management function as described in the law PAAs have had difficulty meeting their EIA responsibilities which include management of scoping procedures development of Terms of Reference oversight of EIA preparation, EIA review, and supervision of project monitoring CEA has steadily improved its staff and organizational response to the NEA requirements but it too cannot provide all the skills and resources necessary to help PAAs with EIA management At present CEA's small EIA management group is insufficient to provide all the PAAs with EIA guidance on Terms of Reference scoping EIA preparation review, and monitoring

Legal Constraints

A number of NEA provisions inhibit application of environmental impact assessment to Sri Lanka's economic development programs This issue is dealt with in the chapter on Legal Framework

Limitation of IEEs / EIAs to Prescribed Projects

The stipulation of a list of prescribed projects in the NEA has created a rigid situation that contradicts needs for flexible EIA responses based on the environmental context, magnitude or timing of a project The listing of projects provides practical guidance and certainty about when an IEE or EIA may be required, but it however focuses attention and argument over which projects should be included in the list Therefore provisions should be made to include other projects not included in the current list of prescribed projects but are likely to cause significant environmental impacts are also required to be subjected to the IEE/EIA process

Also by limiting IEE/EIAs to the prescribed projects the NEA focuses undue attention on project decisions and precludes the application of environmental assessments to important **government policy or planning actions** that are likely to have significant impacts on the environment Decisions to change policies, establish new regulations or make sector plans can have severe environmental and related economic impacts A format and procedure for an environmental assessment report for such actions should be devised to accommodate the needs of government agencies and policy makers Project level IEEs or EIAs cannot and should not be used to assess these policy and sectoral program impacts or alternatives

In general although nominal environmental cells have been established in most PAAs, none of these internal environmental cells can implement their basic IEE and EIA responsibilities and provide policy makers with sound environmental information and advice Part of the problem is that enough experienced experts are not available to staff all the PAAs on a permanent basis The establishment of an Environmental Cell within each designated PAA is however not a requirement of the present NEA

Use of Expertise

The skills and resources within universities, government, and the private sector have not been adequately mobilized to help PAAs PAAs need ready access to the available expertise In order to maximize their impartial environmental oversight capabilities PAAs need to seek and use the services of independent experts

Establishment of Advisory Panel

The experience of EIA in Sri Lanka shows the need for a legally mandated Advisory Panel for EIA The Panel would comprise of independent experts who must ascertain for each EIA whether its contents meet the statutory requirements and whether the recommendations and comments of preparers and the public are valid The result of this review will be a recommendation to the PAAs The legal framework should allow the Panel to assist and advise PAAs and the CEA on technical matters concerned with EIA review, implementation and

monitoring The Panel could also submit advice to the PAA during the scoping public review of the EIA Its combination of expertise and independence will allow the Panel to observe and review all environmental information without bias

Requirement for IEE Gazetting and Public Comment

It is now widely agreed that the current requirements for gazetting and public comment on IEEs are impractical and undesirable These requirements prevent IEEs from becoming routine administrative documents Freed from these encumbrances IEEs can be tailored to address the impacts of different kinds of projects of varying degrees of complexity and environmental impacts CEA is in the process of assisting PAAs design IEEs that meet these practical requirements, from simple questionnaires to more elaborate formats If IEEs are on public record and readily available, the public will be assured that their views will be considered in arriving at project decisions

Prescription of Projects with Quantified Magnitudes

There appears to be no significant advantage in including quantified magnitudes of prescribed projects Such measurements as length of road tons of output and hectares of land are very rough measures of the significance of impacts but they can also be highly misleading Projects just beneath the specified threshold may have substantial impacts and projects well over this value may be environmentally insignificant Experience in Sri Lanka and Thailand illustrates how these threshold figures can be misused A common example is a hotel with 99 rooms when the threshold is 100 rooms In contrast, criteria for significance focuses on determinations of "context and intensity' of impacts This approach offers far more reasonable bases for judging EIA needs This is the approach being taken by international development banks

Timing of EIAs and Integration with the National Planning Process

The present approach to prescribed projects usually means that EIAs develop too late in the project planning cycle to have beneficial effects The planning cycle of projects proposed by public agencies is very different from that of private sector projects Hence it is important to ensure that EIAs for public projects are submitted to the PAA as early as possible in the government project appraisal process This has proved difficult to implement because the project proponents (agencies) prefer to start EIAs after their proposals have been clearly defined These EIAs are then too late for the objective analysis of alternatives It is therefore essential that EIAs of public sector projects be more carefully integrated with the appraisal process carried out for the Public Investment Program (PIP) The National Planning Department has now amended the project development format to include preliminary environmental information at a very early stage Further integration with the national planning process is now under consideration

Constraints in Enforcement

Substantially improved enforcement is necessary on several fronts Revisions to the NEA have been designed to encourage self enforcement of sound environmental practices by the proponent One such requirement is that EIAs include monitoring provisions which the proponent can design and carry out in ways that are most efficient for the project while meeting public needs More effective penalties have also been proposed to ensure that proponents do not make costly commitments to a project (such as signing a contract or clearing land) before an EIA is approved

Sole reliance on government agencies to carry out effective compliance has not proven to be reliable in Sri Lanka and elsewhere More authority has been proposed in the new Environmental Act for CEA to obtain injunctive relief On the other hand, because of the practical and political constraints to one government agency taking action against another the provision of citizen suits to enforce Part IV C as well as the Environmental Pollution Licensing provisions of the NEA need to be considered

Constraints Affecting the Public

Although the NEA allows for public participation in the EIA process public commenting has not been as extensive and participatory as expected This has been chiefly due to the inadequate knowledge and awareness of the role and responsibility devolved to the public in this process

Access to IEE/EIA Reports

The law requires that the notifications should indicate the places where the EIA reports are available for public scrutiny Usually copies of the reports are made available in Sinhala, Tamil and English at the offices of the PAA, office of CEA and at the relevant divisional secretariats to the public on request Several administrative difficulties hamper the smooth implementation of this process For example the copies are often not available at the divisional secretariats on the specified dates and facilities for making additional copies are also not available at these places The public may miss the newspaper notices and thus be unaware of the availability of the document for public comments

Writing of the IEE/EIAs and Public Commenting

Administrative guidelines issued by the CEA have indicated that IEE/EIAs should be written in plain language and may use appropriate graphics so that decision makers and the public can readily understand them However, in most cases the documents are written in highly technical language which the public find it difficult to understand In addition the public lack the knowledge and/or ability to meaningfully comment on these reports although the will to do so may be evident

The initial Sri Lanka experience with EIA reports has been quite similar to that of other countries and entities including the World Bank and other multilateral donor organizations The first generation of EIS reports are un focused narrative reports descriptive rather than analytical which present in an uncritical manner justifications of projects for which virtually all of the important planning and design stages have already been completed These reports frequently lack any site-specific environmental baseline data contain no detailed analysis of project impacts or of alternatives that might have less substantial environmental impacts and do not include any ongoing monitoring plan to establish whether the actual project impacts will turn out to be more or less severe than projected in the EIA

A list of IEE/EIAs undertaken so far is as at Appendix III

DEVELOPMENT OF THE EIA PROCESS

CEA has been striving to develop and streamline the EIA process since the gazetting of the regulations in 1993 Several training and awareness programs targeted at various sectors have been undertaken and are in the process of being further developed Several guidance documents have been prepared and published while some others are in the publication process (Appendix IV) The EIA process is administered through an Inter Agency Co-ordinating committee This committee chaired by the Secretary, Ministry of Environment consists of representatives of all PAAs and a number of observers Major decisions with regard to the implementation of the EIA process in the country are co-ordinated through this committee

CONCLUSION

It is apparent that EIA is now fully embodied in the decision making process in Sri Lanka Experience of EIA applications has expanded rapidly through a carefully organized program of training, technical assistance and outreach, led by the Central Environmental Authority Most Project Approving Agencies have gained both an appreciation of the value of the process as well as the capacity to coordinate and administer it through a continuous process of refinement It is intended that the EIA process will achieve its objective of integrating environment with the sustainable economic development programme of the country

END NOTES

[1] The Secretary Ministry of Transport Environment & Women s Affairs making his decision in an appeal made under section 23 DD of the National Environmental Act stated as follows the NEA requires the PAA to act in a *quasi judicial* capacity A PAA is subject to the principle of Natural Justice *Nemo Judex In Re Sua* (No man shall judge his own case) If the PAA in this case found it difficult because of commitments it should have indicated its interest and withdrawn from acting as the PAA

[2] The appellate decision held that the EIA is seriously flawed in law in that it has failed to adequately address itself to alternatives to the project Also that the project proponent has also failed to adduce adequate reasons for rejecting environmentally friendly alternatives

[3] An EIA Report is defined in the NEA as a written analysis of the predicted environmental consequences of a proposed prescribed project and containing an environmental cost benefit analysis if such an analysis has been prepared including a description of the project and include a description of the avoidable and unavoidable adverse environmental effects of the proposed prescribed project a description of alternatives to the activity which might be less harmful to the environment together with the reasons why such alternatives were rejected and a description of any irreversible or irretrievable commitments of resources required by the prescribed project

4 REVIEW OF METHODS USED FOR ENVIRONMENTAL IMPACT ASSESSMENT

Nilanthi Bandara

HISTORICAL DEVELOPMENT

Environmental Impact Assessment (EIA) was first introduced in the United States of America in 1969 through the National Environmental Protection Act (NEPA) Since then several methodologies have been designed to conduct such assessments In the early years most of the assessments were done on an adhoc basis They have evolved into more methodical scientific technologies with time These methods were devised on a project by project basis mostly in developed countries

Environmental Impact Assessment process consists of several steps that range from scoping to comparison of project alternatives The accomplishment of these individual steps requires a specific method This chapter discusses briefly -

- methods used in the key steps of the EIA process
- methods employed for EIAs conducted and published in Sri Lanka and
- an analysis of the methods used in three selected EIAs in Sri Lanka

METHODS APPLICABLE

The EIA methods used vary widely depending on the type, scale and location of the project The resources available including time, information funds and trained personnel also play a role in the selection of a suitable methodology A systematic approach must be adopted since the process involves a number of steps Methods available to accomplish the tasks involved are briefly discussed below

Scoping

Scoping the first step in Environmental Impact Assessment involves the identification of significant impacts that require detailed study Though scoping is usually focused on the preparation of the Terms of Reference of the EIA, it should ideally be continued throughout the assessment process Scoping requires examination of EIA reports of former projects of a similar nature, study of similar projects carried out earlier and records of discussions among experts Expert knowledge is collected by holding two to three seminars when several specialists are participating and many meetings if the number involved is small A main concern in using this method is the lack of participation of all members in discussions Delphi Technique can be used to overcome this constraint

As the first step of the Delphi Technique, preliminary discussion is held amongst all members Then individual members are allowed to work independently or in small groups to prepare separate lists of impacts prioritized in order of significance These lists are then sent to the coordinator who evaluates them and prepares a common list by re-arranging the impacts according to the frequencies of individual responses This list is sent back to members for re-evaluation The process can be reiterated till a consensus is arrived The use of the Delphi Technique will ensure that all the experts can participate freely in the assessment

Identification of the primary impacts can be done effectively through the checklist approach Checklists are of two types simple and descriptive The former provides only a list of environmental indicators, while the latter supplies information on methodologies of impact measurement impact prediction and assessment of each environmental factor These are generally prepared for specific project categories

Previous Page Blank

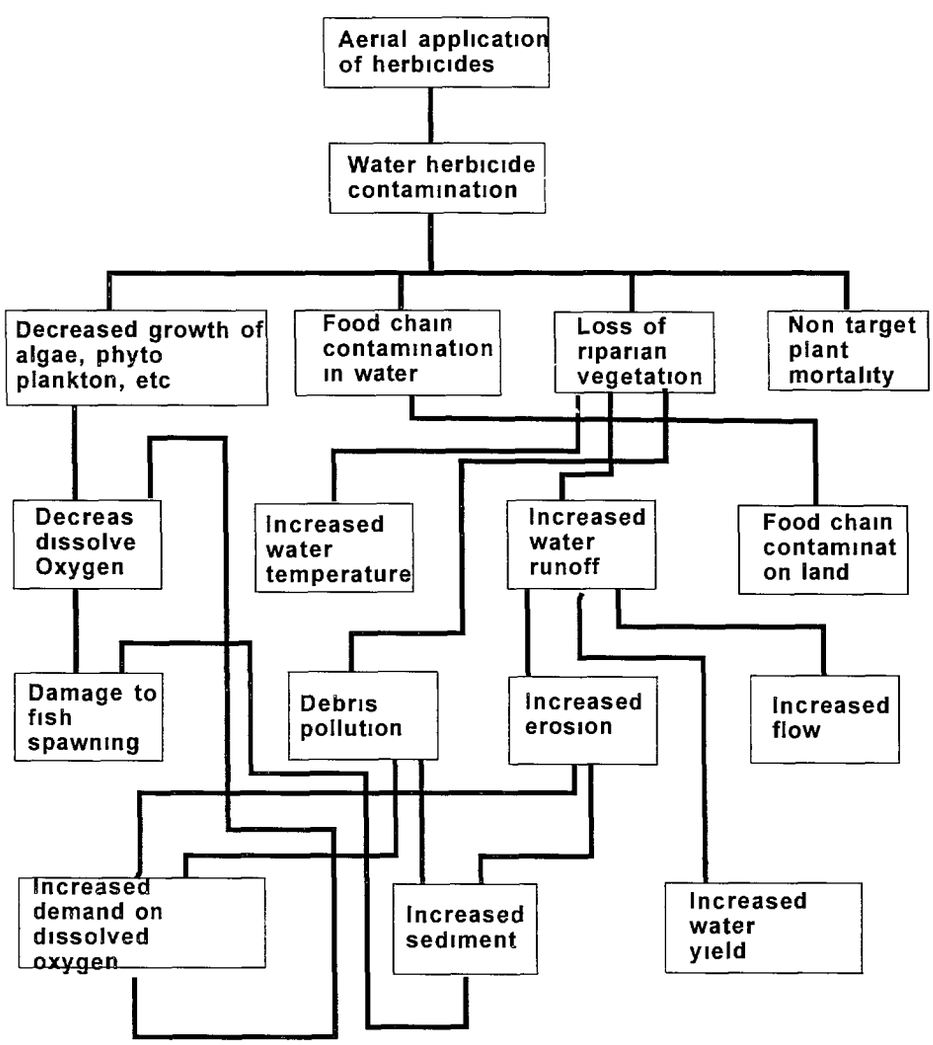
Several checklists are available for various development projects The 'ADB Checklist for water resources development projects', developed by the ADB Bank is a good example of this (ADB 1987) Questionnaire type checklists which are generally used to assess impacts are also widely available Although a convenient method to use checklists have limited application The evaluators might stick only to the issues shown in the checklist Another major drawback of the checklist method is that it identifies only the direct impacts Secondary impacts or indirect effects of the project may easily be omitted

The Network approach provides a very effective and scientific method to impact identification Networks are ecosystem flow charts showing the inter-relations between various environmental parameters and their functions This method easily identifies the manner in which the impact on one environmental component results in affecting several other environmental components or functions A cross section of a sample network is given in Figure 1

Simple matrices can be drawn between project activities and environmental parameters to illustrate how individual activities affect various components of the environment Matrices are essentially two dimensional charts incorporating a list of project activities on one axis and a checklist of environmental characteristics affected on the other Such matrices allow the identification of cause-effect relationships in the cells of the matrix Identification of impacts would require the use of only a simple interaction matrix

Activities are assessed individually for their impacts on specific environmental parameters Impacts on any component of the environment are noted by placing crosses in the corresponding intersecting cells This procedure is based essentially on expert judgement It is also a very effective way of identifying both impacts and the project activities likely to cause adverse impacts which require mitigation

Figure 1 - Section of an Impact Network



Source Thor et al (1978)

Impact Prediction

The use of simulation models that are merely simplified representations of the actual scenario is the most effective way of impact prediction Simple models that can be used to predict changes of specific environmental resources have been developed Three categories of models are available, namely physical models, analogue models and mathematical or computational models Physical models are a scaled down version of the actual system Analogue models are different to the actual system but the behavior is analogous to the actual system Mathematical models are computational models representing the important physical, chemical and biological behavior of the actual system These are based on the principles of conservation of mass and momentum Mathematical models are the most suitable for the Sri Lankan context because of their relatively low cost and greater flexibility of use A wide range of mathematical models to assess the type and extent of impacts of any project is widely available

Comparison of Alternatives

Comparison of alternatives for the proposed project is a crucial step in an EIA Project approval often depends on how the proposed project compares with its alternatives This comparison must however be done systematically

Completion of impact matrices is the best method presently available to compare alternatives To compare impacts arising from various activities and to judge the impacts requiring mitigation, quantitative estimates are combined into a weighted scheme leading to a total impact score Numerical values are assigned to denote the magnitude and significance of an impact

The Leopold matrix developed in 1971 is a quantified and graded matrix that is popularly used The table consists of 88 different environmental parameters and 100 different project activities These lists are given in an annex at the end of this chapter The project activities given in the original list can be modified according to the project under study The project activities are listed on the vertical axis of the matrix while the environmental parameters are listed on the horizontal axis A small section of the Leopold Matrix is given in Figure 2

For identified individual project actions environmental parameters that might be affected are noted by bisecting the interaction cell with a slash

The magnitude of the impact is indicated on the top half of the cell on a scale of one to ten The significance is given in the bottom half also on a scale of one to ten The scale also can be modified or altered Multiplication of magnitude by significance gives the impact value on a specific environmental parameter resulting from a particular project action Aggregation of these individual impact values provides an indication of the total impact of all the activities comprising a particular alternative

The main advantage of the Leopold Matrix method is that it can be used to identify the project activities with detrimental impacts which must be mitigated or totally avoided It also enables the comparison of project alternatives quantitatively This very fact is identified as the main limitation of the Leopold Matrix approach The assignment of a numerical rating to project impacts removes the discretionary power of the designated decision maker in this case the Project Approving Agency Therefore the EIA report, must be carefully evaluated before a decision is taken on whether or not the project should be approved

A successful Impact Assessment requires accomplishment of all the above mentioned steps in the EIA Therefore understanding and application of the appropriate method at the required time is important if the study is to be comprehensive

METHODS APPLIED IN SRI LANKA

Until recently, most of the EIAs conducted in Sri Lanka had been done in an adhoc manner The earlier EIAs were mainly of the descriptive type and were done by a single individual rather than by a team of experts representing different disciplines However, since the EIA process was made legally mandatory in 1993, most of the EIA preparers have adopted a more methodical approach because of the strict evaluation procedures followed since then

A selected list of EIAs conducted in Sri Lanka during recent years and the methodologies used in evaluating environmental impacts is given in Table 1 In some instances the techniques applied to impacts are not apparent Hence the methods applied cannot be stated with certainty

The review shows that most of the Environmental Impact Assessments so far carried out in Sri Lanka has been of the descriptive type Most of the authors of these reports have failed to employ a methodical approach to the process The reports do not indicate the basis for selection of the parameters used Even the use of checklists has

Figure 2
Leopold Matrix

Instructions

1. Identify all actions (located across the top of the matrix) that are part of the proposed project
2. Under each of the proposed actions place a slash at the intersectin with each item of the side of the matrix if an impact is possible
3. Having completed the matrix in the upper left hand corner of each box iwth a slash place a number from 1 to 10 which indicates the MAGNITUDE of the possible impact 10 represents the greatest magnitude of impact and 1 the least (no zeros) Before each number place + (if the impact would be benefitical) In the lower right hand corner of the box place a number from 1 to 10 which indicates the IMPORTANCE of the possible impact (e g regional vs local) 10 represents the greatest importance and 1 the least (no zeros)
4. The text which accompanies the matrix should be a discussion of the significant impacts those columns and rows with large nubmers of boxes marked and individual boxes with the larger numbers

	a	b	c	d	e
a		2/1			8/5
b		7/2	5/3	5/1	7/7

			A Modification of regime													B Land Transformation and construction															C Resource Extraction						
			a Exotic flora or fauna introduction	b Biological controls	c Modification of habitat	d Alteration of ground cover	e Alteration of ground water hydrology	f Alteration of drainage	g River control and flow modification	h Canalization	i Irrigation	j Weather modification	k Burning	l Surface or paving	m Noise and vibration	a Urbanization	b Industrial sites and buildings	c Airports	d Highways and bridges	e Roads and trails	f Railroads	g Cables and lifts	h Transmission lines pipelines and corridors	i Canals	m Dams and impoundments	n Piers seawalls marines and sea terminals	o Offshore structures	p Recreational Structures	q Blasting and drilling	r Cut and fill	s Tunnels and underground structures	a Blasting and drilling	b Surface excavation	c Subsurface excavation and retorting	d Well drilling and fluid removal	e Dredging	f Clear cutting and other lumbering	g Commercial fishing and hunting
		Proposed Actions																																			
CHEMICAL CHARACTERISTICS	1 Earth	a Mineral resources																																			
		b Construction material																																			
		c Soils																																			
		d Land form																																			
		e Force fields and background radiation																																			
		f Unique physical features																																			
	2 Water	a Surface																																			
		b Ocean																																			
		c Underground																																			
		d Quality																																			
		e Temperature																																			
		f Recharge																																			
		g Snow ice and permafrost																																			

Table 1 Methodologies Used in Selected EIAs in Sri Lanka

Environmental Impact Assessments	Methods Applied					
	Checklists			Matrices		Networks
	Simple	Questionnaire	Scaling	Simple	Graded	
1 Rajawella Golf & Hotel Project - Sept 1993	+	–	–	–	–	–
2 Kukule Hydro Power Project - Mar 1993	+	–	+	+	+	–
3 Colombo- Katunayake Expressway Project - March 1992	+	–	–	+	–	–
4 Sapugaskande BOO Power Station Project - Dec 1993	*	–	–	+	–	–
5 Kerawalapitiya Reclamation project - Dec 1993	+	–	–	+	–	+
6 200 bed room Hotel Project at Seeduwa - April 1994	+	–	–	–	–	–
7 Aqua Pearl Villa - Hotel Project at Bolgoda - 1996	+	–	–	–	–	–
8 Clay Extraction and Blanketing of Samanalawewa Reservoir for leakage mitigation - July 1994	+	–	–	+	+	–

9 Upper Kotmale Hydro Power Project - Sept 1994	+	_	+	_	_	_
10 Sanitary Landfill at Mahara & Transfer Station at Madampitiya -	+	_	_	_	_	_
11 Wirawila Walk Inn -	+	_	_	_	_	_
12 250 roomed Hotel at Pothupitiya/Kuda - Waskaduwa - August 1995	*	_	_	+	+	_
13 Integrated Petroleum Refinery & Power Plant at Hambantota - Jan 1996	*	_	_	+	+	_
14 Sapugaskanda Power Station - Extension II - April 1996	+	_	_	_	_	_
15 LPG Import Terminal at Kerawalapitiya - July 1996	+	_	_	*	_	_
16 Relocation and Modernization of Tanneries industrial estate Bataatta - June 1996	+	_	_	+	+	_

+ method applied

_ method not applied

* not distinct

Source Published Environmental Impact Assessment Reports, Central Environmental Authority, Sri Lanka

not been done properly except in such cases such as the EIA of the Upper Kotmale Hydro Power Project

Encouragingly however, some reports contain matrices showing the impacts of selected project activities on specific components of the environment But, even these can hardly be called comprehensive Only a few authors have attempted to compare project alternatives based on total impact scores given to individual alternatives The Network approach for impact identification has been used only in the assessment of the Kerawalapitiya Reclamation project

The lack of a methodical approach in most of these assessments has made project evaluation difficult The systematic conduct of EIA allows justifiable recommendations on the mitigatory measures and on the selection of a suitable alternative The manner of their presentation makes it almost impossible to arrive at a judgement on the significance of the impacts described in the assessment reports

APPLICATION OF METHODS IN SELECTED EIAs

This section analyses the methods used in environmental impact assessments of three selected development projects in Sri Lanka

Upper-Kotmale Hydro Power Project

The Upper-Kotmale Hydro Power Project aims at generating sufficient power to meet the growing demand for the early 2000 s The site is located on the western slope of the Nuwara Eliya mountain range The area extends over an altitude of 700-1200 m on the upstream of the Kotmale oya one of the largest tributanes of the Mahaweli Ganga The project comprises of a 34m dam a regulation pond of 0 8 MCM capacity 12 8 km long Headrace tunnel 796 m long underground type penstock an underground type power house with 2 units of 77MW turbine/ generator and 6 tributary diversion facilities

Significant impacts that can arise from the project are identified at the initial stages of the study The method used was originally developed by the US Corps of Engineers/ Batelle in 1972 for the large scale Colombia River Water Resources Development Project This method has been recommended by the Asia Development Bank (ADB)

An Initial Environmental Assessment (or Screening) had been conducted to identify the significant impacts For this purpose hydro power projects in Sri Lanka and elsewhere in the past had been studied and significant impacts from these identified Then, a significance level was assigned for each impact with relevance to the present project The levels were ranked as, not significant minor, moderate, possibly moderate, major, possibly major, and critical A detailed study and description of the identified impacts then follows

The initial identification of impacts is done comprehensively However the checklist used is not provided as part of the EIA report, this makes it difficult to judge how extensive the screening process was Modification of an available checklist (such as the ADB checklist prepared specifically for water resource development projects), to suit local conditions allows identification of the impacts of diverse issues

Comparison of alternatives is not done quantitatively A graded matrix would have shown the effects of different alternatives explicitly and allowed identification of project activities that cause significant impacts This would have made it easier to design measures to mitigate the negative impacts

Though the assessment starts off systematically, it fails to compare the alternatives and present the results of assessment in a useful manner since it is not done methodically

Clay Extraction and Blanketing of Samanalawewa Reservoir for Leakage Mitigation

Samanalawewa Hydro Electric Project is located on the south of the Central massif of Sri Lanka 105 km east of Colombo and 35 km south of Nuwara Eliya Construction of the dam and related structures commenced in 1987 and impounding commenced in March 1992 A major leakage occurred in October 1992 and since November 1992 it has remained constant between 2 and 3 cumecs However due to economic reasons and to negate the local populations fear that the dam and reservoir are unsafe leakage mitigation was identified as a requirement The EIA looks at alternative leakage mitigation measures and their impacts

The significant issues of the project were identified from data gathered from documented information site visits and meetings with individuals A checklist of environmental characteristics of the project area was prepared by reviewing the information

so collected A list of potential impacts from water resources development projects is also presented

Once the data was collected and the lists prepared the magnitudes of the impacts of the different project activities on these selected parameters were quantified through matrix analysis Four main project activities had been selected for this analysis Matrix analysis is also done to show the potential impacts of the project on various aspects of aquatic life in the reservoir and down stream However in this report the impacts have only been identified but no attempt has been made to quantify them

The analysis of socio- economic aspects has been done fairly comprehensively to show the impacts that arise from clay extraction from borrow areas Eight different activities of this process which are likely to cause impacts are listed The other axis lists seven socio- economic aspects Matrix analysis is done to identify and grade the impacts of these different activities on each of the selected parameters Impacts are classified as beneficial or detrimental (+ or -) and are graded on a scale ranging from one to four indicating mild considerable high or very high impacts Temporary impacts are denoted by a t while permanent ones are marked with a p

Even in this EIA the identification of impacts and issues is done rather haphazardly Even though a matrix analysis has been conducted it is not very effective since it is restricted to certain issues namely socio economic issues and effects on aquatic life

Although the study has identified seven alternatives their comparison is done in a rather descriptive manner which makes it difficult to compare the specific impacts of each of the alternatives The environmental consequences of each alternative are not demonstrated in the report in an effective manner making it difficult for the reviewers to select the best alternative

Matrix analysis has been utilized in this assessment to a certain extent It could however have been done in a more comprehensive manner What has been done does not provide much assistance in deciding which alternative to approve

Integrated Petroleum Refinery and Power Plant at Hambantota

This project aims at establishing a modern petroleum refinery to process crude oil and a power plant to supplement internal electricity demand The project is to be located on 1000 acres of land in the Hambantota distrct Southern Province

The initial screening conducted in the previous two EIAs is missing in this one The report provides an extensive description of impacts on several environmental parameters The impacts are categorized as those occurring during the construction phase and the operational phase of the project Under each environmental parameter, a description of activities that cause adverse impacts and the extent of the damage anticipated is provided

The report also discusses impacts arising from seven different project activities It includes a table that provides an inventory of project activities with their impacts along with corresponding mitigatory measures prescribed in two columns Though not an actual matrix this is a very useful format for the evaluators in making decisions It could be further improved by including the project activities and impacts in two separate columns Such an arrangement would ensure addressing all impacts from a particular project activity

The basis of the selection of the best alternative site is explained in the EIA report The functional needs of the project and the environmental factors with respect to each of the alternative sites were displayed to select the most suitable field site The site alternative with the most number of positive attributes has been selected over the others It is however difficult to ascertain the basis for these estimations from the details presented in the report Matrix analysis indicating significance of impacts would have been a better way to present the selection criteria

CONCLUDING REMARKS

Several extensive environmental impact studies have been done in Sri Lanka over the past two to three years However most of them appear to be only lengthy descriptions of the impacts caused on selected environmental aspects It is not clearly indicated as to why only these aspects were chosen for detailed study The use of sample checklists such as the ADB checklist is cost effective and simple Even if such lists are widely available they do not appear to be much used Some EIA reports nevertheless contained sytematic and comprehensive initial scoping exercises

Even in cases where a systemic approach is used for impact identification, follow up assessment process does not appear to be methodical Comparison of alternatives, a crucial

step in EIA can be done effectively with quantitative matrix analysis This methodology however has not been adequately used

The analysis of Environmental Impact reports conducted in Sri Lanka indicates that the quality of assessments suffer from the lack of systematic approach, in spite of the availability of adequate expert knowledge in various individual disciplines Perhaps some of these methods might have been utilized at different stages of the analysis even though it is not apparent in the EIA reports Since the Terms of Reference given by the authorities do not often require the presentation of the methods used they are not included in the report However the poor presentation makes it difficult to judge whether the analysis is methodical or not and the reviewer is doubtful as to the credibility of the assessment

The lack of prior experience may be a primary cause for the negligence to follow a methodical approach Since the preparers often refer to previous reports and tend to follow the same pattern, any new techniques are slow to be adopted Often the tendency is to do the minimum that is required

The authorities involved should perhaps insist that an acceptable approach is followed hereafter in the conduct of Environmental Impact Assessments Even if the techniques used are not comprehensively described in the main report they can be attached in annexures The checklists indicating significant issues and matrices comparing the alternatives can be included in the main report

REFERENCES

Asian Development Bank *Environmental Guidelines for Selected Industrial and Power Development Projects* Manila The Philippines 1987

Canter L W & Hill L G *Handbook of Environmental Impact Assessment* Ann Arbor Science Publishers Ind Ann Arbor Michigan 1979

Leopold L B et al *A procedure for evaluating Environmental Impact* Circular 645 U S Geological Survey Washington D C 1971

Annex

Actions and Environmental Parameters in the Leopold Matrix

Actions	Environmental Items
A Modification of Habitat	A Physical - Chemical Characteristics
a Exotic plant introduction	1 Earth
b Biological controls	a Mineral resources
c Modification of habitat	b Construction material
d Alteration of ground cover	c Soils
e Alteration of ground water hydrology	d Land form
f Alteration of drainage	e Force fields and back ground radiation
g River control and flow modifications	f Unique physical features
h Canalization	2 Water
I Irrigation	a Surface
j Weather modification	b Ocean
k Burning	c Underground
l Surface or paving	d Quality
m Noise and vibration	e Temperature
B Land transformation and construction	f Recharge
a Urbanization	g Snow and ice
b Industrial sites and buildings	3 Atmosphere
c Airports	a Quality
d Highways and Bridges	b Climate
e Roads and Trails	c Temperature
f Railroads	4 Processes
g Cables and lifts	a Floods
h Transmission lines, pipe lines and corridors	b Erosion
I Barriers	c Deposition
j Channel dredging and Straightening	d Solution
k Channel revetments	e Sorption
l Canals	f Compaction and Settling
m Dams & impoundments	g Stability
	h Stress strain

Actions	Environmental Parameters
n Pears, sea walls and sea terminals	B Biological Conditions
o Off shore structure	1 Flora
p Recreational structures	a Trees
q Blasting and drilling	b Shrubs
r Cut and fill	c Grass
s Tunnels and under ground structure	d Crops
	e Micro flora
	f Aquatic plants
	g Endangered species
C Resource Extraction	h Barriers
a Blasting and drilling	I Corridors
b Surface excavation	
c Subsurface excavation	2 Fauna
d Well dredging and fluid removal	a Birds
	b Land animals
e Dredging	c Fish and Shellfish
f Clear cutting and other lumbering	d Benthic organisms
	e Insects
g Commercial fishing and hunting	f Micro fauna
	g Endangered species
	h Barriers
D Processing	I Corridors
a Farming	
b Ranching and grazing	C Cultural Factors
c Feed lots	1 Land Uses
d Dairying	a Wilderness and open spaces
e Energy generation	
f Mineral processing	b Wetlands
g Metallurgical industry	c Forestry
h Chemical industry	d Grazing
I Textile industry	e Agriculture
j Automobile and Aircraft	f Residential
k Oil refining	g Commercial
l Food	h Industry
m Lumbering	I Mining and quarrying
n Pulp and paper	
o Product Storage	

Actions	Environmental Items
E Land Altering	2 Recreation
a Erosion control and terracing	a Hunting
b Mine sealing and waste control	b Fishing
c Strip mining rehabilitation	c Boating
d Landscaping	d Swimming
e Harbor dredging	e Camping & Hiking
f Marsh fill and drainage	f Picnicking
	3 Aesthetic and human interest
F Resource Renewal	a Scenic views
a Reforestation	b Wilderness qualities
b Wildlife stocking and management	c Open-space qualities
c Ground water recharge	d Landscape design
d Fertilization application	e Unique physical features
e Waste recycling	f Parks and reserves
	g Monuments
G Changes in Traffic	h Rare and unique features or ecosystems
a Railway	I Historical or archeological sites
b Automobile	j Presence of misfits
c Trucking	
d Shipping	4 Cultural Status
e Aircraft	a Cultural patterns
f River and canal traffic	b Health and safety
g Pleasure boating	c Employment
h Trails	d Population density
I Cables and lifts	
j Communication	5 Manufactured facilities
k Pipeline	a Structures
	b Transportation work
H Waste Replacement and treatment	c Utility networks
a Ocean dumping	d Waste disposal
b Landfill	e Barriers
c Emplacement of tailings spoils & overburden	f Corridors
d Underground Storage	D Ecological Relationships
e Junk disposal	a Salinization of water resources
f Oil well flooding	b Eutrophication
g Deep well emplacement	c Disease- insect Vectors
h Cooling water discharge	d Food chains
i Municipal waste discharge	

Actions	Environmental Items
j Liquid effluent discharge	e Salinisation of surficial material
k Stabilization and oxidation of ponds	f Brush encroachment
l Septic tanks	g Other
m Stack and exhaust emission	E Others
n Spent lubricants	
I Chemical Treatment	
a Fertilization	
b Chemical stabilization of soil	
c Chemical deicing of highways etc	
d Weed control	
e Insect control	
J Accidents	
a Explosions	
b Spills and leaks	
c Operational failure	
K Others	

Source : Leopold, L.B. et al: 1971

5 SOCIAL IMPACT ASSESSMENT

Shantha Hennayake

INTRODUCTION

Social Impact Assessment (SIA) is one of the least developed areas in EIA in Sri Lanka The SIA component in most of the EIA reports is inadequate and of little use in arriving at good decisions The pnmary purpose of an EIA is helping to arrive at a fair decision on project approval Yet the EIAs conducted on a number of development projects such as those of Kandalama Hotel Rajawella Golf and Hotel Project and the Colombo-Katunayake Expressway resulted in heightened controversies In fact Colombo-Katunayake Expressway had to be abandoned because of opposition by the affected public

SIA AN INTRINSIC COMPONENT OF EIA

The environment can be defined, for EIA purposes as consisting of physical, biological and social components SIA is the assessment of the social impacts of a development project on society Society consists of people and their economic social, cultural, religious and political activities

Development is essentially an attempt to improve the quality of the life of people However development activities have their obvious beneficianes and also their victims Both positive and negative social impacts of development can be identified SIA is therefore a scientific assessment of the negative and positive impacts of development projects on people and their activities

SIA is an integral part of EIA and must form the subject of part of the EIA report Social impacts should be assessed along with other physical and biological impacts SIA should therefore be reflected throughout all the sections of the EIA report i e description of existing environment, identification of impacts, assessing the significance of impacts, proposing mitigation measures and developing a monitoring plan A separate chapter on SIA may be required for projects which are likely to have high significant social impacts [1]

The ultimate purpose of SIA is to minimize the negative impacts and to maximize the positive impacts of development projects on the society The immediate objective of a project proponent is profit making Therefore high priority to social costs and benefits may not be given by some project proponents It is the SIA that incorporates these elements into development projects

SIA is not a mere academic exercise The SIA process involves an aspect of social engineenng which helps the people to develop a factual balanced and positive attitude towards the project In this respect SIA differs significantly from the assessment of physical and biological impacts

By improving on the original design of a development project, SIA helps to enhance the social benefits of the project while maintaining the economic objectives of the project The project proponent will benefit from the goodwill generated in the community as people begin to perceive the benefits of the project

SIA IN SRI LANKA

Since the EIA procedures in Sri Lanka has been applicable only during the past 4 years, SIA in EIA still faces several senous problems Such problems exist even in the US where EIA has been practiced for over a quarter of a century

The SIA component in early EIA reports such as in that of Rajawella Golf and Hotel Project

Previous Page Blank

are much weaker than in more recent ones There has generally been an improvement in SIA as incorporated in EIA reports over the years Yet even recent EIA reports such as that of Bata Atha Tannery Relocation Project contains a very poor SIA

In general the following major weaknesses are noticed in EIA reports published so far

1 Explicit bias towards the project
2 Definitional problems
3 Weak analysis
4 Lack of attention to cultural and community impacts
5 Inadequate public consultation
6 Employment of unqualified consultants

Explicit Bias Towards the Project

EIA consultants are expected to be objective A bias towards the project is however unavoidable since the EIA reports are paid for by the project proponent Unfortunately this trend is quite explicit in Sri Lanka Some EIA consultants simply underestimate or even overlook some of the controversial aspects of development projects The bias which was explicit in the early days of EIA has now become more subtle The bias is seen in some controversial issues not being addressed and in the highlighting of only the beneficial social impacts The EIA report of the Rajawella Golf and Hotel Project for example simply shrugged off one of the most significant issues with the following statement "Close proximity of the project site to the Victoria dam, necessitate an examination of security aspects, in the context of the country s current security scenario For obvious reasons security issues are not addressed in detail[2]" This statement is unacceptable in an EIA report If the security situation is very sensitive, the obvious recommendation should have been to ask the developer to obtain security clearance This EIA report also contains many general statements without specific information on which a sound decision could be made on the granting of approval for the project Such statements include "Land use in the operation phase will be much more conservation-oriented than at present" and The number of beneficial environmental effects outweigh those that require mitigation'[3]

The bias shown by consultants towards the projects can be traced to two reasons Where the developer has spent a substantial amount of money to acquire land, carry out feasibility studies etc the proponent influence his consultants in favour of the project Consultants are under similar pressures to report favourably on state projects which are politically advantageous to the government

Bias in any form is unacceptable in an EIA report unless supported by facts The EIA report should favour the alternative with the least negative impacts on the environment Special care should be taken in the presentation of social impacts

It must however be pointed out several EIA reports have made objective presentations Such EIA reports have been made in the case of the Kerawalapitiya Reclamation Project, the Kalu Ganga Gem Mining Project and the Liquid Petroleum Gas Terminal at Kerawalapitiya Bias, explicit or implicit when identified by the Technical Evaluation Committee (TEC) undermine the credibility of the EIA reports Such bias should be avoided since it is the project itself not the consultants, that suffer as a result

Conceptual Problems What is Environment? What is Society?

One of the major problems of SIA in Sri Lanka is the lack of clarity of and agreement on the definitions of the terms environment and society Most EIA consultants, being trained in physical sciences conceptualize environment primarily as the physical and biological components of nature Thus greater prominence is given to ecological impacts over others Society is perceived as being external to the environment Social impacts are studied only because they are specified in the TOR and receive only cursory attention For example, a TOR given for a hotel project states, at the end of the chapter on "Description of Environmental Impacts" that "an overview or synthesis should be attempted to show how the proposal will interact with the total eco-system and its elements[4] Such an overview or synthesis is not requested for the social system

The second conceptual problem involves the constitution of society As presently practiced, SIA is limited to analyzing information obtained from individuals or households The implied assumption behind this simplification could be that society is simply the aggregate of individuals or households Environment is not simply the sum of its constituent parts but a whole system So is society

Society constituted as a system should receive the same attention as individual impacts Social impacts have however been limited to mostly impacts on individuals and households The TORs also ask for details of individual impacts but are more

often silent on the impacts on society as a whole For example the TOR for Rajawella Golf and Hotel Project simply limited its SIA to details on Human Settlements and Land Use" This TOR is fairly representative Impacts on culture, community organizations, social cohesion stability and security of the community are often either lightly treated or overlooked in SIA

A good SIA depends largely on the TOR Rarely are professional social scientists employed by the PAAs to prepare TORs on SIA This situation needs to be remedied

Information Without Analysis

A serious problem of SIA in Sri Lanka is that it is long on information but short on analysis The section on SIA in some EIA reports comprises a mere compilation of disconnected information on households Very often the evaluators cannot understand why some information is included at all Nor can they decipher the information provided to reach decision on the project Sometimes data on people and their livelihood are provided in lengthy appendices instead of the essential information extracted from such data Data without analysis is very common in SIAs in Sri Lanka

For example, the questionnaire annexed to the Rajawella Golf and Hotel EIA report suggests that a massive amount of irrelevant data has been collected The questionnaire does not contain a single question to elicit the views of the people on the project and, their relocation The reader is left wondering how the consultants arrived at such sweeping conclusions as that people did not object to being relocated The EIA report of the Menik Ganga Diversion Scheme had a similar lengthy questionnaire annexed

TORs should seek only information that is useful for PAA decision making They should require an analysis of the social impacts Otherwise the SIAs will be largely confined to the presentation of raw data The analytical component of the SIA needs special attention

Group Impacts on Community and Culture

Identifying the affected population is the first step in any SIA Assuming that the population is homogeneous is a common mistake in assessing the impacts on population The reality is that great diversity exists in terms of wealth, ethnicity gender education, employment power and influence The way these different groups are affected by a development project also vary significantly The conflicting reactions to development projects often arise from this diversity Identifying these various groups and responding to their grievances is very important

Vulnerable groups in the population require special attention in SIA Children, elderly women and the poor usually form the most vulnerable segment of a population Ethnic minority groups can at times also be vulnerable Vulnerable groups do not yet figure in TORs

Social impacts of development affect individuals as well as groups Impacts on individuals include changes in personal/household income and of employment Group impacts affect culture, religion, and local organizations Identification of social impacts on individuals and groups is easy The assessment of group impacts is however a more difficult task and needs a detailed social investigation Impacts on groups are hardly ever discussed in EIA reports in Sri Lanka

Cultural acceptability of development projects is another important consideration in SIA It is important to assess whether the development project clashes with values customs, beliefs and needs of the local community National aspirations can be at variance with the daily concerns of the local people, the two may even be in conflict with each other Therefore, the views of the people towards the project should be considered very early in the EIA process their support should not be taken for granted However in Sri Lanka there is a tendency not to seek people s views The involvement of people in designing projects is yet a very alien concept in Sri Lanka The tendency has been to withhold full information on the project to the people This creates suspicion in their mind As a result they may object even to a project that benefits them

Interested/Concerned People

The category named "interested people" includes people who even though not directly affected by the project are concerned with its effects on the environment The concerns of this group are rarely included in an EIA report Some of strongest opposition to projects have, however come from interested people, as shown in the cases of Kandalama Hotel, Rajawella Golf and Hotel Project, Colombo Katunayake Expressway Project and the Atomic Energy Research Laboratory Interested people can express their

opposition to a project directly or through mobilization of the affected local community Interested groups are usually well informed more resourceful and better organized than local groups They can launch a more powerful campaign to express views on a project at legal social and even political levels

SIA should consider valid concerns of the interested people and suggest appropriate measures to meet the needs identified by them The PAAs have an even heavier responsibility to provide an opportunity for interested parties to present their concerns during scoping sessions

Involvement of Public

SIA requires that the public should be kept fully informed about the project activities as a part of the EIA exercise This is primarily the responsibility of the social scientist/s in the EIA team The public cannot be expected to respond to the project realistically unless they are kept informed

People tend to perceive development projects, however beneficial as external intrusions into a locality, and at least initially tend to react negatively to them If the true nature of the project including its costs and benefits are explained to them, a more rational reaction can be expected SIA also has an important element of information diffusion Unfortunately SIA in Sri Lanka has a poor record in this When people are consulted, if at all, it is only to canvas their support

SIA attempts to bring the people into the decision making process They must be treated as potentially important contributors to the development of their area They must be made to feel so The people are now concerned about the quality of the local natural environment Their concerns should be extended to cover the sustainability of the local development infrastructure as well This can happen only if the people have a vested interest in the development projects being established in the area SIA needs to find ways of creating such an interest The success of SIA can be measured in terms of continuing public support for the project

Early public involvement at the level of the SIA could stifle public protests at a later stage which can disrupt the smooth operation of a project Public involvement in SIA far from being a nuisance as commonly perceived can be an asset to be harnessed

Lack of Trained Social Scientists in the EIA Team

SIA needs trained social scientists Their services are required both by PAAs to draft TORs and by PPs to prepare good EIA reports which ensure a favourable decision on the approval of the project As stated earlier most TORs have so far been prepared without the services of trained social scientists Similarly, several EIA reports on prominent development projects have been compiled without help from professional social scientists While the PPs and the EIA consultancy firms have included qualified physical scientists in EIA teams, they seem to have assumed that "any intelligent layman can do the SIA" This attitude has cost several project proponents both time and money, in some cases the entire project has had to be abandoned A trained social scientist is a vital member of an EIA team since society is as complex as any ecosystem

CONCEPTUAL FRAMEWORK OF SIA

This section outlines the internationally accepted framework for SIA which can be easily adapted in Sri Lanka The framework proposed here is very similar to that used in the assessment of other environmental impacts The EIA framework has nine generic steps which are used in the analysis of physical and biotic environmental impacts SIA can be easily integrated into the overall EIA report under these same generic steps

1 Define Impact Area
2 Describe existing environment
3 Describe the main activities of the project
4 Identify impacts
5 Define significant impacts
6 Detail study of significant impacts
7 Propose mitigation measures
8 Devise a monitoring plan
9 Suggest alternatives if impacts cannot be mitigated

Defining the Impact Area

There are no objective criteria for defining the social impact areas The impact area need not coincide with the physical and biotic impact area Usually, the social scientist in the EIA team defines the impact area using his best professional judgement on the spread of social impacts As the impact area is a function of the impacts a rule of thumb in defining

the impact area is to base it on the impact with the widest geographical spread Public contributions are valuable in demarcating the social impact area

The social impact area of a development project may not coincide with the exiting administrative divisions However, because the socio economic data are available only at the level of administrative divisions the use of their boundaries is acceptable This is the common practice in Sri Lanka as well If the social impacts appear to spread over even partially into other administrative divisions then they too should be included into the impact area

The TORs may however have already defined the impact area in some cases Some TORs have very arbitranly defined the impact area as for example the "area within half a kilometer radius"[5] If the TOR cannot realistically define the impact area it is better to leave it open In any case the TOR need not specify the exact impact area which can be gauged only after actual field investigations

However, in most EIA reports in Sri Lanka the social impact area is vaguely defined at best (Upper Kotmale Hydro Power Project and left undefined at worst Rajawella Golf and Hotel Project) Leaving the impact area undefined may be convenient to the SIA consultant but makes evaluation very difficult The impact area should be clearly demarcated on a map in the EIA report

Describing the Existing Environment

An overall picture of the social environment of the impact area should be provided as a basic introduction to this section A comprehensive sociological analysis of the area is not necessary but the aspects of life that are likely to be significantly impacted by the project must be covered in detail For example if the project is likely to disturb the existing social life through immigration of outside workers then the existing pattern of social relations requires a detailed investigation Similarly if the project will create new job opportunities for the people in the area then a detailed description of the existing employment pattern is required

The SIA should include only the vital information on social life Most SIAs in Sri Lanka describe present socio-economic environment in detail but hardly ever discusses how it will be affected by the project Material from secondary sources which may include previous EIAs are often used to describe the existing environment Some of the information is often not relevant

Social environment should be described quantitatively as far as possible Some variables such as culture and community cohesiveness cannot however be quantitatively presented Qualitative descriptions supported by personal accounts of the affected people will suffice in such cases Finally an interpretive social survey report should be made by the social scientist

Describing the Main Activities of the Project

Not all components of the project will create impacts on the local community Those components of the project likely to have social impacts should be identified and described in detail It is important to note that some of the activities of the project may have greater ecological impacts but less social impacts and vice versa The project activities that can cause displacement of people and/or loss of existing jobs or the creation of new ones must be described in detail Equal attention must be paid to phasing of project activities as the social impacts can vary both in magnitude and intensity during different phases of a project

Identifying Social Impacts

All social impacts must be identified regardless of their significance The views of experts, government officials and both the affected and interested people should be sought in identifying social impacts Direct and indirect impacts and primary secondary/or cumulative impacts must all be considered at this stage Identifying impacts is a comprehensive exercise but at the same time a very simple one requiring only the listing of likely social impacts

SIA covers a large number of factors relating to people and their activities 6 Although these factors vary according to the project its location and the social context most of these variables can be classified under the following broad categories

1 Demography/population
2 Settlements and land use
3 Economic activities
4 Infrastructure
5 Health and welfare
6 Community character
7 Culture
8 Aesthetics

A large number of sub-categories have been identified within each of these major variables The

impact on one sub category can be positive while it can be negative on another The appropriate variables can be selected only after a careful examination of the affected social groups and the nature of the impacts

Two Step Analysis in SIA

The assessment and the analysis of social impacts involve two main steps The two steps are sequential and closely related

1 Step one involves identifying the variables and assessing the impacts of a development project on them For example the population may increase owing to immigrant labour induced by a development project

2 Step two involves identifying and assessing the impact of the changed situation on the social physical and biological environments For example, the population increase caused by immigrant labour could lead to social conflicts, rise in land values and increased pressure on local land and water resources

SIA in Sri Lanka is often limited to step one Not much can be done at this level in the way of assessing or analyzing the impact other than simply identifying it Step one thus answers the question what is impacted by the project but not how is it impacted? or 'how significant is it? Therefore SIA has to go beyond step one into step two Unlike the parameters in the physical and biotic environment the social world constantly adjusts to new situations created by development projects The assessment of social impacts is largely one of understanding the nature of these adjustments by concentrating on step two of the SIA analysis

A number of methods are used to identify social impacts (see the Chapter on EIA methods) One of the easiest methods is to refer to a published checklist of impacts A more comprehensive method is the preparation of a matrix which would identify social impacts against project activities The preparation of a flow chart or a network is useful in identifying secondary and tertiary social impacts The use of a combination of methods is often found to be more effective than any single method Rarely have these proven methods been used in Sri Lanka While it is still possible to identify the potential impacts without using these methods their use is recommended because they will ensure that no significant impact will be overlooked

Whichever method is used, professional judgement or the expert opinion of the SIA consultant is the crucial factor It is the professional judgement of the SIA consultant that would determine what impacts should be included and more importantly what impacts should be defined as significant

Defining Significance of Impacts

This is a very important and critical stage in SIA because detailed studies are conducted, mitigation measures proposed and a monitoring plan is formulated The significance of impacts depends on the context and intensity of the impacts In considering the context of impacts attention should be paid to the extent of the spread of the impacts The spread must be sufficiently large for it to be considered significant Any impact on an environmentally sensitive area is often considered to be significant There are, however no objective or universal criteria to define the critical point in extent beyond which an impact can be considered significant The intensity of an impact is defined by its severity and the magnitude Impacts is of high magnitude (e g if a large number of people are affected) or severity (e g if the people have to pay a high social and monetary price for the mitigation) can be considered significant The type of impacts also determines its significance For example relocation of people and loss of employment opportunities and/or of resources such as land are always considered significant, irrespective of their context and intensity

Relocation has been treated as one of the most significant social impacts in Sri Lankan SIA as is evident from the EIA reports of Upper Kotmale Hydro Power Project Colombo Katunayake Expressway Project Rajawella Golf and Hotel Project and Bata-Atha Tannery Relocation and Modernization project Most SIAs have, however had serious problems in working out mutually agreeable compensation packages for the people to be relocated The prolonged delay in implementing the Colombo-Katunayake Expressway has been caused by the failure of the consultants to come to agree on a relocation package with the affected parties

Cultural impacts on the other hand have generally not been treated as significant in Sri Lankan SIAs In the case of Kandalama Hotel project, the failure to take into account its potential impacts on a near by sacred Buddhist temple led to a strong protests against it

Detailed Investigation of Impacts

Detailed investigation of social impacts requires a large amount of primary and secondary

data Secondary information is not generally available on social impacts at local level This information therefore has to be collected through local field surveys

The SIA consultants should become familiar with the local community Direct interviews with individuals groups and specially with the social leaders will help in the collection of information This cannot be achieved by short infrequent and limited visits to the affected area Sufficient time must be spent in the field interacting with people obtaining their views and concerns The use of properly formulated questionnaires is a proven method of collecting data on a wide range of social life within a short period of time

The techniques and methods used in the detailed investigation should be clearly stated in the EIA report The questionnaire the sampling plan, the interviewed group discussions and, workshops held should be annexed to the EIA report along with other details The report itself should contain a discussion of the results and conclusions necessary for decision making

The conclusions of the detailed investigation must provide a comprehensive picture of the impact of the development project on the local community

Most Sri Lankan SIAs deal in detail only with relocation Other social impacts are merely identified, they are not studied in any detail

Proposing Mitigatory Measures

Mitigation measures must be proposed for every significant negative impact identified Here, the views of the local people, often referred to as "home grown wisdom" are useful The mitigation measures proposed by people are often more cost-effective than those proposed by experts It is here that the proponent can actually benefit from the knowledge of the affected people

Mitigation of social impacts can be achieved in two main ways First the affected parties can be compensated financially or otherwise The most important issue is how to compute the compensation There are standard methods of valuing the loss of material possessions such as land, houses and, jobs Sentimental and other intangible losses such as interference with historical memories, disruption of communities, cultural pollution etc Some of the techniques developed for valuing the physical and biotic environment in environmental economics can also be used to value social environment The views of affected people is foremost in valuing the social impacts

The second is the mitigation of negative impacts by introducing minor changes to the project itself The components of the project that are likely to cause significant impacts can be redesigned to mitigate or even prevent such impacts Mitigation measures recommended should be realistic and their costs should lie within the capacity of the project

Mitigation is gaining increasing importance in SIAs in Sri Lanka After such controversial projects as Kandalama Hotel, Rajawella Golf and Hotel and Colombo Katunayake Expressway it has been realized that proper mitigation is now recognized as being vital not only for mitigation of social impacts but also for ensuring the long term viability of the project

Monitoring Plan

A monitoring plan must be devised to measure and evaluate the effectiveness of the mitigatory measures Attention must be paid to three important elements what is to be monitored how frequently should it be monitored and who is responsible for monitoring Corrective action needs to be taken if the mitigation measures prove to be inadequate

It is important that the local community have a representative in the monitoring team This sends a clear message to the affected community that the proponent is serious about implementing measures to mitigate adverse social impacts Unfortunately this rarely happens in Sri Lanka

Monitoring is one of weakest areas in Sri Lankan SIAs While elaborate plans are devised to monitor physical and biological impacts monitoring of social impacts has received little attention and very little has been achieved As a result development projects as well as the EIA process have earned a poor image

Suggesting Alternatives

Where cost-effective mitigatory measures are not available, the only option available is to propose an alternative to the initial project The alternative can include changing the site (site alternative) or effecting changes to the project components (project alternative) The term site

alternatives simply means relocation of the project to a different site where the impacts are less significant The project alternative involves changes to the original design of the project This may include reducing the size of a project, phasing of the project and/or leaving out activities which cause significant impacts

The alternatives suggested must however be reasonable This means that they must conform to the original objectives of the project

Consideration of alternatives are becoming increasingly important in Sri Lankan EIAs, especially after the rejection of UKHP One of the reasons given by the Secretary of the Ministry of Transport, Environment and Women's Affairs for rejecting the CEB appeal on UKHP was that the EIA has failed to adequately consider alternatives The EIAs of Colombo-Katunayake Expressway and the Tannery Relocation projects have decided against certain alternatives on the grounds of adverse social impacts

ETHICAL CONSIDERATIONS IN SIA

SIA, like any other social study must be concerned with both professional as well as social ethics SIA is based primarily on information provided by the people Social and professional ethics must to be honoured in both collection of information and its inclusion in the EIA report As SIA findings are very likely to affect the people directly, ethical concerns of the society must be given serious consideration The EIA team must include a trained social scientist who would be sensitive to the ethical concerns of the affected community

The standards of professional ethics that must be maintained in SIA are similar to those that must generally be followed in any scientific investigation Care must be exercised in data gathering, and processing in order to ensure accuracy of results Methods and techniques that support a pre-determined conclusion should be avoided Interpretation or conclusion must be in line with what the data actually warrants Finally methods, analysis and findings should be described in adequate detail to enable easy verification of results where required

The responses obtained from the members of the public should be voluntary and spontaneous The people must be provided with accurate information enabling them to make a balanced judgement on the project Giving wrong information or exaggerating benefits of the project must be scrupulously avoided

SIA deals with many sensitive issues relating to the community If the community is sharply divided over support to the project the respondents wish to remain anonymous or express their views confidentially

The standards of social and professional ethics in SIAs has not always been very high in Sri Lanka The general disregard for social ethics can be traced to the attitude shown by policy makers and developers that the local community and public in general should accept negative social impacts of development in the greater interest of economic growth

EIA reports often contain sweeping statements about the people, their views and concerns But how these conclusions were arrived at are not expressed In addition these reports rarely describe the techniques and methods used in collecting and analyzing data Acceptance of SIA conclusions very often depend more on faith than on any scientific rationale As a result, findings of many SIAs can be contested and refuted

CONCLUSION BENEFITS OF SIA

The objective of SIA is to assess the social impacts of development projects in order to minimize negative impacts and to maximize positive impacts This way SIA benefits both people and the project

SIA influences decision making by providing opportunities for people to make suggestions for identifying and assessing impacts and by proposing mitigation measures and thereby democratizing the decision making process Early expressions of people's concerns allows the project proponent sufficient time to respond positively This way the project becomes both environmentally and socially friendly

SIA also provides project proponents with cost effective mitigation measures, and acceptable alternative project actions As participants in the planning of the project people are more likely to defend it

SIA, also helps to increase the project proponent's understanding of the project area and the community Mutual understanding helps dispel any misgiving the project on the one hand and the affected people on the other Factual information provided on the project will enable the people to make a realistic assessment of its social impacts A properly conducted SIA will facilitate the arrival at an early decision on project approval

SIA is one of the most important components yet least developed areas in the EIA process in Sri Lanka The EIA team and especially its social scientist, carries the responsibility of a good SIA However the blame for poor quality SIA cannot be attributed entirely on such consultants Most EIA consultants in Sri Lanka are known to work strictly within the confines of the TOR They are also known to sometimes avoid the difficult and controversial elements in the TOR7 TORs should be drafted so that the consultants pay due attention to relevant social impacts

It is sometimes believed that any intelligent layman can deal with social impacts This may be the reason behind the absence of professionally trained sociologists or social scientists in most EIA teams in Sri Lanka The need for such trained professionals has not been felt because SIA has been limited mostly to data collection using standard questionnaires The quality of SIA can be seriously compromised unless done by a qualified person

SIA is not merely a scientific investigation of social impacts It is an exercise of good public relations where full information about the project is disseminated It is also a mechanism whereby the people collaborate with authorities and the developers to strengthen a project

Serious problems faced by several development projects leading to their abandonment or long postponements could have been avoided by paying serious attention to SIA SIA can and must be used in a way which benefits both the project proponent and the people Inspite of all these limitations, SIA has a very important achievement to its credit in Sri Lanka social and cultural factors have been made essential considerations in development

ENDNOTES

[1] For Colombo Katunayake Expressway project a separate addendum on the relocation issues was required due to organized protests against the project Even after this was completed the protests continued and it too like in the case of Kandalama Hotel project has taken a political turn The project is still searching for alternatives routes to minimize the displacement of people

[2] Rajawella Golf and Hotel Project EIA Report p 23

[3] Rajawella Golf and Hotel Project EIA Report P xi xii

[4] This was found in the TOR attached to the EIA Report of the Rajawella Golf and Hotel Project p 76

[5] TOR for the Rajawella Golf & Hotel

[6] See Chapter Five of the Central Environmental Authority (Forthcoming) *Handbook on Social Impact Assessment Applicable to Sri Lanka* for a detail discussion on the SIA variables Also see Asian Development Bank (1991) *Guidelines for Social Analysis of Development Projects* Manila Also see the Chapters on Prediction and Assessment of Impacts on the Cultural (Historical/Archaeological) Environment Prediction and Assessment of Visual Impacts and Prediction and Assessment of Impacts on the Socio-Economic Environment in Canter

[7] The EIA report on Bata-Atha Tannery relocation Project is a classic example of neglecting some of the very important but difficult issues raised in the TOR

REFERENCES

Asian Development Bank (1991) *Guidelines for Social Analysis of Development Projects* Manila

Burdge R J (1987) The Social Impact Assessment Model and the Planning Process *Environmental Impact Assessment Review* Vol 7 pp 141-150

Canter L (1994) *Environmental Impact Assessment* New York McGraw-Hill

Central Environmental Authority (Forthcoming) *Handbook on Social Impact Assessments Applicable to Sri Lanka*

Central Environmental Authority (1993) a *Guide for* Implementing the EIA Process No 1

Environmental Impact Assessment Report (1992) Colombo-Katunayake Expressway Construction Project

Environmental Impact Assessment Report (1994) Upper Kotmale Hydro Power Project

Environmental Impact Assessment Report (1996) Relocation and Modernization of Tanneries Industrial Estate Bata Atha Project

Environmental Impact Assessment Report (1993) Rajawella Golf and Hotel Project

Environmental Impact Assessment Report (1993) Kerawalapitiya Reclamation Project

Environmental Impact Assessment Report (1992) Menik Ganga Diversion Project

Voorhees and Associates Inc (1975) *Interim Guide for Environmental Assessment* Washington D C US Department of Housing and Urban Development

6 ROLE OF ECONOMIC VALUATION OF ENVIRONMENTAL IMPACTS

Hemasiri Kotagama; Sanath Ranawana; Shamen Vidanage; Upali Dahanayake

INTRODUCTION

Sustainable development recognizes the existence of trade-offs in development between economic growth in the short term and environmental conservation which has a longer term perspective Judicious decisions therefore need to be made to achieve a socially desirable balance between short term economic growth and environmental conservation Consideration of environmental impacts of development projects before their approval for implementation is a legal imperative in Sri Lanka National Environmental Act No 56 amended in 1988 Environmental Impact Assessment (EIA) has been done for several projects and been found to be useful particularly in the early identification of less environmentally damaging project alternatives and also of measures to mitigate adverse environmental impacts

On the other hand some private sector investors and policy makers complain that EIA is an obstacle to speedy implementation of development projects It is also argued that environmental criteria have an undue legal advantage over poverty reduction (socio economic) criteria in the choice of development projects Theoretically too, a few individuals (as a non-elected Technical Evaluation Committee) deciding on the environmental acceptability of a project could be objected to as being undemocratic and non-representative of society's evaluation of economic and environmental trade-offs

Recently a difficult decision was made on the acceptability of a public sector hydroelectricity generating project The project proponent found the project to be acceptable on economic criteria but it was rejected on environmental grounds In another case a conclusive decision was arrived at only with difficulty on the acceptability of a privately financed petroleum refinery project because the role of the Technical Evaluation Committee (TEC) in assessing the EIA was not clear The TEC objected to the implementation of the project on grounds of economic criteria When the TEC sought clarification on economic criteria used to evaluate the project the project proponent was of the opinion that inquiring into economic criteria was not within the role of the TEC

It is now being realized that these difficulties in decision making on acceptability of development projects could be avoided through institutional and procedural integration of economic and environmental analysis Such integration of environmental and economic analysis can be done by the application of environmental economic methodology The conventional benefit cost analysis could be extended by incorporating the environmental benefit and costs in the total analysis Extended Benefit Cost (EBC) analysis requires the identification, quantification and valuation of environmental impacts Methodology on Economic valuation of environmental impacts is theoretically well developed Its application in Sri Lanka is however constrained by several factors

This chapter first reviews the concept of sustainable development in the light of the Sri Lankan experience Secondly it reviews the strengths and weaknesses of EBC analysis and EIA as decision support methods Next it explains the use of EBC analysis as an improved decision support method Valuation of environmental impacts is essential to apply EBC analysis The environmental valuation techniques are therefore described and the environmental valuation studies done in Sri Lanka are reviewed Finally the existing constraints and the reforms required to apply EBC analysis in Sri Lanka are discussed

Previous Page Blank

SUSTAINABLE DEVELOPMENT TRADE-OFF BETWEEN ECONOMIC GROWTH AND ENVIRONMENTAL CONSERVATION

Conceptually development is a process of increasing the satisfaction of the country s people What attributes satisfy human beings is an unanswered philosophical question Development, as an operational concept has undergone evolution, through the addition of attributes, that are believed to contribute to human satisfaction The evolution of the concept of development is summarized in Table 1

In the decade of the 1950 s development was considered to be a process of growth in national income (i e the monetary value of goods and services produced within country in a given year) The basic presumption was that higher availability of commodities and their consumption increases the satisfaction of a society A measure of the value of commodities produced in a given year in a country is Gross Domestic Product(GDP) The GDP of Sri Lanka has increased 32 fold, from Rs 13,812 million to Rs 453,092 million during 1970 to 1993 (Annual Reports of Central Bank of Sri Lanka)

The experience of the 1960's decade was that increased national income (economic growth) per se does not achieve development Although national income increased the rich were getting richer and 'the poor were getting poorer' resulting in dissatisfaction in the society In Sri Lanka during 1973 to 1991, the income of the top 10% income receivers had increased from 50% to 60% whilst the income of the lowest 10% of income receivers had dropped from 8% to 1% It was therefore thought that development requires not only a growth in national income but also an equitable sharing of the national income among members of the society

During the decades of the 1970's and the 1980's further attributes, such as the necessity to achieve an acceptable quality of life (i e availability of basic facilities of health, sanitation shelter education etc) the necessity to safeguard human rights, empowerment of people in social decision making, safe guarding of culture and heritage of various sectors of the society (women children, social minorities etc,) were added as necessary attributes of development Maternal and infant mortality in Sri Lanka have decreased substantially over the years In the 1930's the maternal and infant mortality rates have been around 20 per 1,000 and 25 per 1,000 respectively In the 1990's the maternal and infant mortality rates are about 2 per 1,000 and 8 per 1,000 respectively The social aspects of safeguarding human rights, empowerment of masses in development decision making and the safeguarding of the country's cultural heritage cannot be quantitatively assessed Nevertheless, the importance of such social considerations in the development of Sri Lanka is vividly apparent The social opposition to development projects such as the Kandalama hotel project and the Iranawila radio station project was based mainly on the alleged adverse impacts of the projects on culture

The concept of sustainable development emerged in the 1980s Sustainable development recognizes the obligation imperative to consider the development needs of not only the present but also of future generations Sustainable development is

Table 1
Evolution of the Concept of Development

Decade [1]	Stages of Development
1950's	Growth in national income
1960's	Growth in national income, Intra-generational equity/fairness in the distribution of national income
1970's	Growth in national income, Intra-generational equity in the distribution of national income, Improvement in the quality of life
1980's	Growth in national income, Intra-generational equity in the distribution of national income, Improvement in the quality of life, Safeguarding human rights, women's rights, children's rights and democracy
1990's	Growth in national income, Intra-generational equity in the distribution of national income, Improvement in the quality of life + Safeguarding human rights, Environmental conservation to achieve inter-generational equity in the distribution of benefits of development, i e sustainable development

commonly defined as a process of development that

> " best satisfies the present generation without compromising the opportunities for future generations to satisfy themselves "

Environment is recognized as an integral resource that contributes to sustainable development This is because the environment is

(1) A source of supply of renewable (e g natural forests, fisheries) and non-renewable (e g land, mineral deposits) resources,

(2) A sink absorbing the wastes resulting from production and consumption of commodities (e g CO2 Sequestration absorption of carbon dioxide by forests),

(3) A source of supply of global support services (e g protection by the ozone layer, biodiversity)

Development activities have led to rapid depletion of renewable and non-renewable resources have harmed the environment s ability to assimilate waste, and damaged global support services Uncertainty looms whether past development trends can be sustained in the future A comprehensive description on natural resource use and trends in Sri Lanka is given in Natural Resources Conditions and Trends' (NARESA 1991) Well known examples of natural resource use trends include the extent of forest cover in Sri Lanka has decreased from about 84% to 20% of the land area from 1881 to 1993 Vehicle registrations (an indication of urban air pollution) has increased 12 fold, from about 8 000 in 1970 to 100,000 vehicles in 1990

Sustainable development has evolved as a comprehensive concept that recognizes the trade-offs between economic social and environmental considerations in development Given the trade-offs between economic, social and environmental aspects in development judicious decisions that are socially desirable need to be made in the use of resources This is particularly important when market based valuation of resources is used to make decisions on development activities The market under-estimates the value of environment and natural resources leading to decisions that cause over - exploitation of these resources

DECISION MAKING FOR SUSTAINABLE DEVELOPMENT ROLE OF ECONOMIC ANALYSIS OF PROJECTS AND EIA

Projects are 'building-blocks' in development A project is an investment with organized set of activities that uses resources to produce socially desired commodities Since resources are scarce and have alternative uses, decisions need to be taken to allocate resources on a priority basis to the socially most desired projects

Decision making on prioritization of projects is based on a comparison of their benefits and costs If the benefits of a project exceed the costs the project should be undertaken Benefit-Cost (BC) analysis is an economic method that facilitates the prioritization of projects

Benefits and Costs of projects vary physically and are spread over time Costs and benefits therefore cannot be directly compared Benefits and costs are identified, quantified and valued using a common measure (such as money), also benefits and costs incurred in the future are discounted to present values to enable comparison at a common point in time [2]

BC analysis attempts to derive appropriate monetary values of benefits and costs, and to derive appropriate discount factors to discount benefits and costs realized over time If the market functions perfectly (see section 3 1), the market price indicates the value society places on resources and commodities, while the market discount factor gives the opportunity cost of capital and time preferences of the society If the market does not function perfectly the market prices and discount factor should be adjusted (shadow priced) to reflect social values

BC analysis could be carried out either to guide private decision making (Financial Analysis) or societal decision making (Economic Analysis) In financial analysis benefits and costs are valued in terms of market prices and the decision is made with the objective of profit maximization In economic analysis benefits are defined as improvements in human welfare (i e national income) Costs are defined as opportunity costs, which is the value of benefits foregone by not using the value of resources in the economically most profitable alternative investment The decision is based on the objective of economic efficiency (maximization of national income)[3]

Conventionally BC analysis considered only those benefits and costs that occur within the project boundaries and could be identified quantified and valued [4] Environmental impacts that could neither be easily identified and quantified nor have identifiable market prices (because they are not traded on the market) were ignored Thus decisions made on development projects based on conventional Benefit-Cost analysis (CBC) did not lead to sustainable development

CBC analysis has been the tool that has most facilitated decision making on public projects in Sri Lanka This does not include environmental impacts of projects, both environmental benefits and costs EIA which identifies environmental impacts of projects was introduced to integrate environmental concerns into project decision making The conduct of EIA is made a legal requirement in Sri Lanka by the National Environmental Act No 47 of 1980 amended in 1988 EIA is a mechanism by which environmental (including social) impacts are identified and project alternatives and measures to mitigate adverse environmental impacts are evaluated Projects which are environmentally unacceptable could be refused permission for implementation

In an ideal situation, the financial viability of a project should be evaluated before a project is subject to an EIA Only projects that are considered to be financially viable should be moved to the next stage of project analysis which involves the EIA The financial analysis of public investment projects is carried out by the National Planning Department (NPD) whereas the Board of Investment (BOI) is responsible for evaluating the financial viability of pnvate sector projects that have a foreign investment component With regard to other private sector projects, the responsibility of financial analysis rests with the project proponent who operates with or without foreign collaboration Responsibility for evaluating EIAs of both public and private sector projects rests with the Central Environmental Authority (CEA) Under the present structure of project evaluation, decisions on acceptability of projects are made after considering EIA and economic (CBC) analysis independently, without formally and methodically recognizing the trade-offs between economic and environmental aspects This has led to difficulties in decision making on the acceptability of development projects such as that of Upper Kotmale Hydro Power A systematic reform of the project appraisal procedure in Sri Lanka is required

ROLE OF ENVIRONMENTAL ECONOMICS IN DECISION MAKING ON DEVELOPMENT PROJECTS

The main role of environmental economics is to integrate the economic CBC analysis with the EIA analysis This is done by valuing the environmental impacts and integrating these values to the economic CBC analysis This analytical process is referred to as Extended Cost-Benefit (ECB) analysis If it can be shown that the sum of economic and environmental benefits exceeds the sum of economic and environmental costs then the development project would be accepted for implementation

ECB analysis will contribute to the improvement of decision making on development projects ECB will not substitute any function of EIA but will complement EIA EIA includes several important mechanisms that ensure correct choice of development projects, that ECB would not be able to achieve These are as follows

1 An EIA requires public participation This provides the mechanism to obtain the views of the public on development projects Decision making thereby becomes socially participatory and transparent

2 Some environmental impacts cannot be quantified These impacts can be identified and addressed in qualitative terms through an EIA

3 The EIA process requires a thorough consideration of alternatives to the proposed projects Ideally, this should include not only alternatives to components of the proposed project (i e , a different production process or different method to dispose of waste), but also a consideration of alternatives to the entire project such as a new location, or even an entirely new project, e g a thermal power plant instead of a hydro-power project This ensures that the cost effective environmentally acceptable project is chosen

The immediate practical application of environmental economics is in improving decision making on development projects through the valuation of their environmental impacts Environmental valuation is a process of monetary quantification of environmental impacts Different types of environmental impacts are converted to a common and comparable denominator (money) so that decision making based on comparisons of project cost and benefits is facilitated Environmental valuation also enables objective decision making that would enhance the welfare of the society This is because environmental valuation derives environmental values based on the value that society places on environmental impacts

THE THEORY OF ENVIRONMENTAL ECONOMICS

The theory of market economics explains how values (preferences) of individuals become aggregated to decide societal values on resource use If property is defined and ownership enforced,

and if perfect competition prevails, then the market would allocate resources efficiently under the prevailing system of income distribution [5] Efficiency is perceived as a situation where resources are allocated to "best" satisfy human desires under the prevailing system of income distribution The market coordinates the "desires and purchasing abilities of individuals" on consumption (demand) and production possibilities (supply) of commodities, by fixing prices (unit values) The relative prices decide the allocation of resources to produce commodities It is therefore an autonomous system that allocates resources to satisfy society Despite the strengths of the market system it has weaknesses internal to the system that lead to failure of the market in allocating resources These failures arise in the following situations

(1) Barriers to perfectly competitive markets (such as the case when economies of scale lead to monopolies)
(2) Deficiencies in property rights, either in defining of rights, or in the enforcement of rights as in the case of environmental resources such as air
(3) Prevalence of public goods, i e commodities whose consumption by one individual does not reduce the amount of the commodity that is available to another individual The enjoyment of scenic beauty is one such example
(4) Externality when production or consumption one person affects another and is not compensated for by a benefit or the cost The upstream pollution of water bodies affecting downstream users is an example
(5) Missing preferences and equity (a) Missing preference Market does not represent the desires of the poor The market works on the wishes and purchasing power (income) of the existing distribution of income Thus the efficiency in resource allocation may not best' satisfy the society on aspirations of equity (fairness) of resource use (b) Inter-generational equity The market does not represents the preferences of the unborn (future) generations Hence the market may not allocate/conserve sufficient resources to meet the needs of future generations

The market fails (for the reasons given above) in valuing the environment Often the value of environmental resources are underestimated by the market economic system leading to overuse of environmental resources Environmental economics offers techniques to value environmental resources, which the market fails to value The application of environmental valuation techniques by valuing the benefits of environmental conservation or cost of environmental degradation in monetary terms, provides an objective, quantitative comparable indicator, that could provide guidance to policy makers in making rational decisions that efficiently allocate environmental resources The most potential application is in valuing environmental impacts of development projects

The value of an environmental resource is not intrinsic to the resource Values that the market derives for resources arise due to basic human desire to consume commodities produced by the resource Hence the economic value of the environment is essentially anthropocentric (based on human values) The economic value of the environment is explained below and summarized in Table 2 Empirical estimates of unit environmental values in Sri Lanka are also given below

Economic value is derived from human utility (satisfaction) generated in the use of commodities produced from scarce resources Many environmental resources fall into this category Human satisfaction can be generated through either personal or non-personal use of the environment In personal use of environment individuals gain satisfaction by meeting individualistic/ selfish desires In non-personal use of the environment individuals derive satisfaction through the feeling that the environmental resources will be available for use by other individuals, particularly of the next generation

EMPIRICAL ESTIMATES OF ECONOMIC VALUE OF THE ENVIRONMENT IN SRI LANKA

Personal use of environment could take three forms, namely direct use, indirect use and optional use Direct and indirect use occur at present while use may occur in future Direct use refers to the direct consumption of commodities derived from the environment either destructively or non-destructively Examples of destructive use of environment include the harvesting of timber and some non-timber forest products such as food, fibre and medicinal products from forests[6] The value of timber harvested in Sri Lanka in 1995 has been Rs 521 million from natural forests and forest plantations (De Silva and Kotagama, 1996) Around 500 plant species are believed to be used medicinally in Sri Lanka (M/THEWA 1993) Villagers in the periphery of the Knuckles Forest use 48 forest plant types for food, medicines, roping material etc, deriving a value of Rs 4095 per ha per year (Gunatillake et al 1993) Similarly, villagers in the periphery of the Sinharaja forest derive a value of Rs 575 per ha per year by harvesting non-timber forest products (Gunatilake et al 1993)

Non-destructive use of environment is exemplified by enjoyment of the natural scenery and the use of environment for education, photography, eco-tourism etc, In 1993, 13,273 Sri Lankans and 963 foreigners visited Sinharaja forest for such purposes Entrance fees would have amounted to be approximately Rs 200,000 i e about Rs 18/ha/year (Steel, 1996) Similarly, the value derived form the Horton Plains and Yala Wild-life sanctuaries are Rs 1150/ha/year and Rs 250/ha/year, respectively (Steel 1996) Kariyawasam (1992) has estimated the recreational value of Sinharaja forest to Sri Lankans as Rs 394 000 and the value per visit as Rs 1 50 based on a travel cost study Given that the extent of Sinharaja forest is $ha the per hectare recreational value is $ Gunawardene, Edirisinghe and Kotagama (1995) have estimated the willingness of Sri Lankans and foreigners to pay for the recreational benefits of Hikkaduwa marine sanctuary as Rs 222/year and Rs 358/year respectively

Indirect uses of environment occurs through the maintenance of ecological functions Examples include the maintenance of food chains, regulation of pests in cultivated crops through natural predators and the maintenance of nature as a primary resilient life support system Habitat conservation could indirectly contribute to preservation of watershed functions and soil conservation Very few economic studies have been done to estimate these values mainly because of the inadequacy of bio-scientific information De Silva and Kotagama (1995) have estimated the watershed values as Rs 1510/ha/yr for agro - hydrological benefits and Rs 224/ha/yr for domestic water purification benefits of forests in Sri Lanka

An important indirect use of the environment is its influence on moral and cultural values of society Traditional Sri Lankan culture has intimate relations with nature Many customs, norms and institutions that guide human behaviour had links to nature Cultural sustenance is considered a necessity for sustainable development Whether the study of the influence of environment on human culture is within the domain of economics is arguable Culture is nevertheless a strong factor that influences human preferences, and thereby economic values

Option use of environment refers to the satisfaction gained through conserving the environment in the hope that it could be used directly or indirectly in the future For example conserved biodiversity could probably be used as a source of genetic matenal in crop or livestock improvement or in extracting chemicals for pharmaceutical purposes Contingent valuation studies have estimated the optional value of Sinharaja (Abeygunawardene, 1992) as Rs 54 70 /ha/year and Rs 204 50/ha/year for peripheral communities in Sinharaja and Urban communities in Sri Lanka, respectively Gunawardene Edirisinghe and Kotagama (1995) also using contingent valuation have estimated the option value of Hikkaduwa Manne sanctuary as Rs 106 62/year to Sri Lankans and Rs 145 00/ year to foreigners Kotagama and Thushantha (1996) have estimated the pharmaceutical prospecting value of Sinharaja as Rs 5900/ha/year

Non-personal use of environment could take two forms namely bequest use and existence use In bequest use people gain satisfaction from the knowledge that the environment would continue to exist to be used by future generations Existence use is where people gain satisfaction from the knowledge that the environment exists in its own right Sri Lankan culture has greatly appreciated existence values Around 300 BC in his sermon to King Devanampiyatissa Arahat Mahinda is reported to have mentioned that

> the birds and beasts have equal right to this land and the king is only their custodian (Mahavamsa 6th century A D)

Using contingent valuation, Abeygunawardene (1992) and Gunawardene (1995) have estimated bequest and existence values of the Sinharaja forest and the Hikkaduwa marine sanctuary respectively The bequest value of Sinharaja has been estimated as Rs 72 30/ ha/yr by peripheral communities, and as Rs 271 20/ha/yr by urban communities The existence value of Sinharaja has been estimated as Rs 41 30/ha/yr by peripheral communities and Rs 171 60/ha/yr by urban communities in Sri Lanka The bequest value of Hikkaduwa marine sanctuary has been estimated as Rs 270 93 per year for Sri Lankans and Rs 496 50 per year for foreigners and the existence value as Rs 83 56 per year for Sri Lankans and Rs 133 00 per year for foreigners

Which of the above values of the environment is important to a society would depend on its stage of development and its cultural association with the environment Generally, developing countries like Sri Lanka in the present economic context would place a higher value on the direct uses that give immediate benefits, while affluent developed countries would pay greater heed to the existence value of environment

INTRODUCTION TO ENVIRONMENTAL VALUATION TECHNIQUES (EVTS)

Environmental Valuation Techniques (EVT's) can be broadly classified as 'objective and 'subjective' methods Objective methods of valuation are conducted by initially estimating the "physical linkage" between the level of environmental change (e g pollution) and the level of damage (damage function) of marketed commodities The level of damage is subsequently valued using market prices of those commodities

Subjective valuation methods can be classified as revealed preference and stated preference methods Revealed preference methods presume that the value of the environment is included in the price paid for an asset that relates to the environment Therefore the price of an asset is desegregated (through econometric techniques) to estimate the value of the environment The stated preference method directly elicits (by survey techniques) the value of the environment from individuals The principle upon which each EVT is based and the method of conducting each EVT is briefly explained in Table 3

CRITERIA FOR THE CHOICE OF APPROPRIATE EVT

The choice of the appropriate EVT would have to be done by an interdisciplinary EIA team Some criteria that could be considered for use in the choice of EVT are given below

a Data requirements

Two types of data could be used, viz primary and secondary data Collection of primary data is generally expensive and requires more trained personnel and time Subjective EVT s require more primary data whilst objective methods could be applied with secondary data However objective methods require reliable data on damage functions, if such data is not available considerable technical expertise and experimentation and epidemiological studies to generate damage functions would be required Such experimentation can be expensive However since damage functions are technical, it is believed that once estimated they can be used in different socio-economic circumstances

b Importance of free market

The major assumption on which EVT's are based is that the social value of the environment has been derived from aggregation of individual values/

Table 2
Component of Total Economic Value of Biological Resources (Habitat)

Total Economic Value (TEV)				
Use Values (personal consumption of commodities)			Non-Use Values (non-personal consumption of commodities)	
Present Value Use		Future Use Values		
Direct use values	Indirect use values	Optional use values	Bequest values	Existence values
Value generated from direct consumption of commodities	Value generated from indirect consumption of commodities	Value generated from maintaining options for either direct or indirect consumption of commodities in future	Value generated from conserving of consumption opportunities for future human generations	Value generated from preserving existence of biological resources for their own sake
Food, Fibre, Timber, Fuel wood, Medicines Recreation etc,	Maintenance of ecological systems, Nutrient recycling, Carbon sequestration, Watershed protection etc	Use of chemical as future pharmaceutical, Use of genes in increasing future agricultural productivity	Preserving unique habitats, species etc,	Preserving endangered habitats, species etc,

Table 3
Basis and Methods of Environmental Valuation Techniques (EVTs)

Objective EVTs

a Productivity change

Principle	Method	Advantages	Disadvantages
Where a change in the environment affects a marketable commodity the value of the environmental change is reflected in the market value of the change in commodity	The method consists of the following two steps 1 Estimating the physical relationship between the cause (environmental change) and the effect on the commodity This relationship is referred to as the damage function 2 Estimating monetary value The change in the physical quantity of the commodity affected by environmental change is multiplied by the market price of the commodity	This method can be easily understood because of its simplicity apparent pure scientific base and close relation to the market It appeals to technical scientists and even to those who do not have a knowledge of economics	Damage functions are not readily available Even if available damage functions may be site specific Estimation of damage functions could be expensive in terms of time and other resources required Estimating damage functions could have technical problems in isolating the cause and effect from other extraneous factors and in accounting for natural change that would occur irrespective of the artificial environmental change Only use value of the environmental change could be estimated by this technique

b Preventive cost and replacement cost

Principle	Method	Advantages	Disadvantages
The value of the environmental change is estimated by estimating the cost people incur to prevent damage the environmental change causes or the expenditure people would incur to replace the damaged environment (replacement cost) to its initial state	Two methods could be used 1 Collecting data on actual costs people would incur to prevent an environmental damage or restore a damaged environment to its original condition 2 Estimating the preventive or restoration costs on the basis of technical experts	The preventive or restoration cost estimates may be readily acceptable because of the clear intuitive principles they are based on	The preventive expenditure method assumes that people are aware of the environmental problem and would take preventive action This may not be the case The technique is biased on the values of the rich who can afford preventive expenditure The technique used assumes that the benefit from preventive expenditure is limited solely to the prevention of the environmental damage It could have other benefits too for which the expenditure is done The replacement cost method assumes that the original environment could be fully restored This may not be technically possible Even if possible it may not have the same value as the original (like in the case of archaeological sites) The methods will recognize values only of those people who are attempting only to avert the only environmental damage It may being on-site, not recognize the values of those people who have totally moved away from the site of the environmental damage in anticipation of it

c. Human capital approach

Principle	Method	Advantages	Disadvantages
Where a change in the environment effects the health of people the value of lost productivity (wages) and medical treatment costs and in the case of death the present value of potential productivity of the person is considered to be the value of the environmental change	The application of the human capital approach is similar to that of productivity loss approach It is necessary that the cause of environmental change and the effect on human health are identified and the number of persons effected is quantified (dose response function), the loss of working days and the wages earned are known to estimate the value of the environmental change	The analytical method is simple and is easily understood by policy makers	The cause and effect of environmental change and human health is not well known Epidemiological research would be expensive To consider the value of unemployed and poor as zero could an inequitable proposition Psychological costs of suffering and long term chronic conditions of illness will not be valued Valuing human life monetarily may be ethically objected to on ethical grounds

d Hedonic value

Principle	Method	Advantages	Disadvantages
There are two hedonic methods of environmental valuation namely property value and wage differential methods In the absence of a market for environmental quality its value is obtained from the prices of surrogates such as property and wages It is presumed that the property value and wages also include a value for environmental quality Further the value of the environmental resource could be desegregated if all other factors determining property value and wages are known	Data is collected on the value of property or wages under different environmental quality conditions and on the factors affecting the property value and wage level The value of the environmental quality is estimated by regressing the property value or wage level with their determining factors, as well as the environmental quality variables	This technique can estimate the total value of the environmental quality	It needs a large data base and sophisticated analytical technique viz regression Problems connected with the use of the regression technique are therefore associated with this method Environmental variables may not be as accurately quantifiable as is required for regression People may not be aware of the environmental quality difference in the case of some pollutants until the change is drastically effected

e Travel cost approach

Principle	Method	Advantages	Disadvantages
The value people place on environmental quality is estimated on the basis of the cost of travelling to that site and the value of productive time that is spent on visiting the site	The area surrounding the concerned site is divided into equi-distant concentric circles/zones Visitation rates for each of the zones are calculated These visitation rates are regressed on travel costs and other socio-economic variables for each zone to derive demand curves for each zone Consumer surplus is estimated from the demand curves	The technique can be used to estimate total value of the environment	The application of the technique requires a collection of a great deal of data and involves the use of the sophisticated procedure of regression analysis Therefore problems associated with regression analysis are inherent in the technique Considering the value of productive time may be erroneous if travel is undertaken during leisure or by unemployed people A trip may be to multiple sites In such situations disaggregating the cost to a single site may be difficult The value of the environment estimated by travel cost does not consider the total value of the environment It ignores the option and existence value It also ignores the benefits derived from the site by those who do not visit the site They include people living close to it

Subjective EVT's

a Contingent valuation method

Principle	Method	Advantages	Disadvantages
People are asked directly about their willingness to pay for an environmental benefit or their willingness to accept compensation for the loss of an environmental benefit assuming that they are aware of the change/s in the environment and their implications for human welfare	Sample surveys are conducted to elicit peoples valuation on willingness to pay or accept Different techniques used to elicit responses include open ended questioning and bidding games	Theoretically the method is able to value all benefits (use and nonuse) of the environment The only applicable technique to value environmental changes that do not have any relation to the market	The method is of a hypothetical nature Its results may not be readily acceptable to technical scientists and policy makers The method can estimate biased values which could be corrected The method assumes/requires that people are aware of the environmental problems and their likely impacts The method does not constraint the demand for environment on actual income (Which could be corrected) Hence values may be unrealistic

Benefit Transfer Method

Principle	Method	Advantages	Disadvantages
The value of environmental impacts that have been already estimated (within the country or outside it) is used with appropriate modifications	Estimates the value of environmental impacts closely similar to the impacts of the concerned project are selected These values are adjusted to account for differences in income property rights, lands prices institutions culture etc	The method is rapid and convenient	The acceptability of the values could be questioned if the conditions particularly income and culture, differ widely

preferences A perfectly competitive market reflects (through prices) social value of resources based on individual preferences Most EVT's (except the contingent valuation technique) depend indirectly on the market price of a commodity that is affected by environmental change Hence the "degree of perfectness of the market" of the commodity under consideration determines the degree of accuracy of the valuation

c Estimating the total value of the environment

The value of environmental resources is composed broadly of use values and non use values Use values generally are more tangible (fisheries production) and measurable, whilst non use values are not (conserving for future generations) Most objective EVT's are unable to value non-use values of the environment whilst subjective EVT's are able to value both use and non-use values of the environment

d Analytical requirement

The sophistication of statistical/econometric techniques required for the application of objective EVT's is less than that required for subjective EVT s

e Ethical/cultural acceptability

Techniques such as the objective method of human capital approach may not be ethically acceptable because the value of human life is estimated on the basis of potential cost earnings These techniques may not be socially equitable because they depend on prices derived form existing property rights and income distribution

f Intelligibility to policy makers

Techniques that could be intuitively understood and seem plausible are more likely to be accepted by technical scientists and policy makers, who may not understand the theoretical base of economics

PRINCIPLES AND PROCEDURES IN CONDUCTING EBC

The principles and procedures of conducting Extended Benefit Cost (EBC) are the same as those for conducting conventional Benefit Cost analysis except for the valuation of environmental impacts Since EIAs are conducted by technical scientists who are not aware of conventional benefit cost analysis this section briefly outlines the principles and procedures with the objective of building compatibility between EIA and EBC

EBC requires that EIAs identify and quantify environmental impacts over the project period The quantification of the impacts should be based on a comparison between 'with' and 'without' the project (i e incremental environmental impacts) EIA Terms of Reference should therefore clearly specify the above need if EBC analysis is to be used in future

Once all environmental impacts are identified (and quantified) they could be screened for economic valuation Figure 1 illustrates the impact screening procedure (ADB, 1996) If the impacts are internal (affect the project activities) or if they are mitigated such impacts are included in the project's financial costs or benefits Hence they do not have to be valued separately Impacts that are relatively small can be ignored This however is a subjective decision If the impacts are either very uncertain or are socially unacceptable for valuation such impacts should not be valued Impacts that are screened could be valued using an appropriate EVT such valuation should be guided by the criteria described

The environmental values, both benefit and cost streams could be integrated into the conventional benefit and cost streams and be used to estimate decision criteria, such as Benefit Cost ratio (B/C), Net Present Value (NPV) and Internal Rate of Return (IRR) This enables formal and methodical consideration of trade-off between economic and environmental benefits and costs in the decision making of development projects A project that has very high economic benefits with low environmental costs is not likely to be rejected Decision making becomes convenient and less controversial since both economic and environmental costs benefits are expressed in common, comparable and easily comprehensible monetary units Further environmental values are based on social valuation of environmental resources

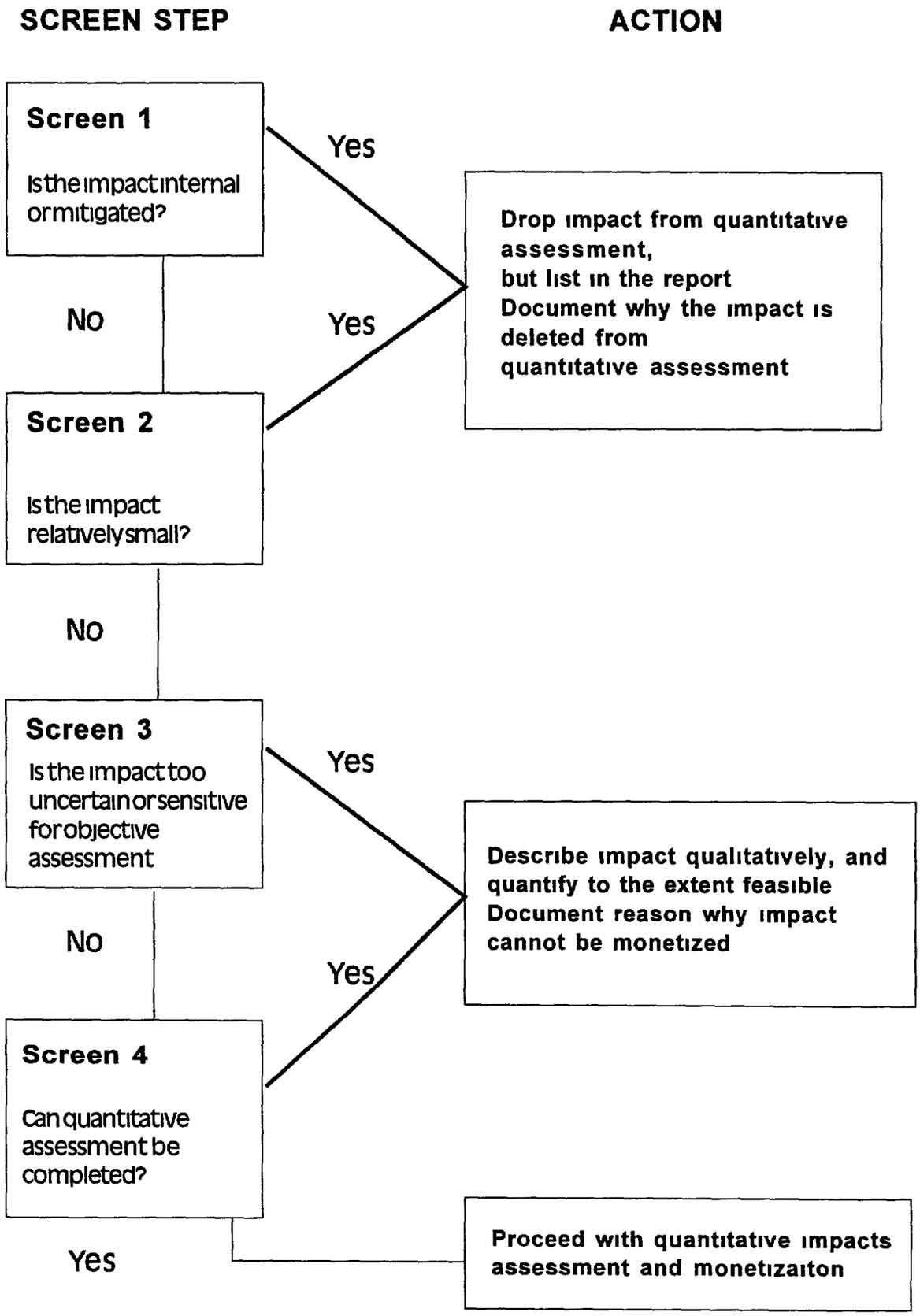
CONSTRAINTS AND SOLUTIONS TO APPLICATION OF EBCA

Institutional Constraints

As mentioned earlier, in Sri Lanka decisions on the economic and environmental acceptability of development projects are made independently of one another This has prevented the explicit consideration of trade-offs between economic growth and

Figure 1

The Environmental Impact Screening Process for Valuation



environmental conservation in arriving at decisions on the selection of development projects

Public Sector Projects

EBC analysis of public sector projects are conducted by line ministries often with the assistance of private consulting agencies and are reviewed for decision making by the NPD EIAs are conducted by line agencies often with the help of private consulting agencies EIAs are reviewed for final decision by the CEA Decisions are taken on economic viability and environmental acceptability by separate institutions

This situation could be rectified by institutional and procedural reforms in the analysis and evaluation of development projects A study has already been conducted on integrating environmental and economic analysis of public sector projects (Gunaruwan 1996) The study focuses on institutional reforms that are needed to fulfill this goal The recommendations of this study need to be implemented

Private Sector Projects

The investment by the private sector vis-a-vis the public sector has increased in the context of the climate created by current government policy emphasizing private sector led economic development in Sri Lanka Prescribed Projects whether in the public sector or private sector are both required to undergo EIA They are required to submit the EIA report to the CEA The EIA report is used by the (TEC) to arrive at a decision on the acceptability of the project

The financial and economic feasibility of private sector development projects are assessed by the project proponent However reports of such an analysis need not be submitted to the Technical Evaluation Committee (TEC) which is responsible for reviewing the EIA report As a result decisions are again made without due consideration of the trade-offs between economic and environmental aspects

Private sector developers could be required to submit the financial and economic analysis (or else an EBC analysis) along with the EIA report to the TEC This however would amount to forcing the private sector developer to divulge the financial details of the project and the developer is likely to object to doing so If this be the case EBC analysis of private sector projects would not be possible

LEGAL CONSTRAINTS

The National Environmental Act and EIA Terms of Reference

The NEA does not mandate the conduct of an EBC through the Guide Book on EIA (CEA, 1995) states as follows

> The weighing of the merits and drawbacks of various alternatives need not be displayed in a monetary cost-benefit analysis However if cost - benefit analysis relevant to the choice of alternatives is being considered or prepared for the proposed action it must be incorporated into EIA to help evaluate the alternatives

As of now the conduct of EBC is only voluntary The present Terms of Reference (TOR) for EIA do not strictly require the conduct of EBC Future TORs for EIA could make it obligatory The TOR should emphasize that environmental impacts should be quantified over the life time of the project, considering the comparison of the with and without project situation The practicality of providing such data is often doubted

Environmental Standards

Most of the environmental impacts (such as those on water and air) are subjected to national environmental standards Every project is required by law to mitigate such impacts Economic valuation of mitigated impacts is not required This is because environmental standards are set so as to ensure that no significant harm is caused to the environment and to human welfare and also because the cost of mitigation would be internalized in the financial and economic analysis

The only possibility of applying economic valuation would be to those impacts that are not covered by environmental standards, such as the impact on biodiversity and some watershed and ecological functional attributes of the environment

HUMAN RESOURCE CONSTRAINTS

Sri Lanka is making an impressive effort to train environmental economists About 20 economists have received short term training at Harvard University sponsored by the USAIDs Natural Resources and Environmental Policy Project (NAREPP) of the Ministry of Transport Environment

and Women s Affairs About twenty graduates have followed the M Sc course in Environmental Economics at master s level by the Postgraduate Institute of Agriculture, University of Peradeniya In addition about 500 public and private sector officials have received training at numerous workshops on environmental economic techniques

The preparation of EIAs and attempts at economic valuation of environmental impacts are currently undertaken by private consultancy firms These firms prefer to hire only well qualified and experienced personnel for this work Despite the numbers of trained personnel available very few of them are employed by the consultancy firm

This situation could be rectified by incorporating a more comprehensive module on environmental economics in the 10 day intensive EIA training workshops The module would be specifically designed to train individuals on applying environmental economics to an EIA Successful participants in these courses could also receive appropriate accreditation

RESEARCH CONSTRAINTS

The government and private sector agencies assign very low priority to research in environmental economics and do not yet have human resource capacity to do so Most of the research on environmental economics in the area of environmental valuation has been carried out by Universities Even this research too has been carried out on personal and not institutional initiatives There is no long term research program on environmental valuation that could estimate unit environmental values In this regard the Asian Development Banks initiative Asia Pacific Region Environmental Economics Technical Assistance (APREETA) is a commendable first step which needs to be supported The Environmental Economics Working Group (EEWG) which was recently established at the Ministry of Transport, Environment and Women's Affairs is also a commendable initiative through which the capacity for research and application of environmental economics can be fostered

ATTITUDINAL CONSTRAINTS

The importance of considering environmental impacts in the choice of development projects is not yet well appreciated and accepted by many decision makers It is argued that poverty alleviation should be given equal or greater prominence vis-a-vis environmental conservation in the project decision making process Most ecologists environmental non-governmental organizations and the general public are skeptical on the valuation of environmental impacts These attitudinal problems could be alleviated through awareness and educational programs on the merits of environmental valuation This could be best done through a sustained programs of awareness creation supported by adequate publications on environmental economics in the national languages

CONTENT ANALYSIS REVIEW OF ENVIRONMENTAL ECONOMIC APPLICATIONS IN PREVIOUS EIAS

This section contains a review of past EIA reports with the objective of evaluating if and, how environmental economic techniques have been applied The Table 4 contains a list of the EIA reports that were reviewed The EIA reports were reviewed on the basis of answers to the following questions

1 Does the TOR require an environmental economic analysis?

2 Did the EIA team include an economist?

3 With regard to each of the significant environmental impacts (both positive and negative) identified by the team have they been valued?

4 Are the proposed mitigatory measures valued?

5 Does the report include a financial analysis of the project?

6 Was an Extended Benefit-Cost analysis conducted?

It is clear from the above review that economic analysis within EIAs has not been thorough it must be noted that the more recent EIAs reflect a greater effort to incorporate economic abalysis than previous ones

We now explore some of the potential problems and limitations in carrying out the economic analysis

1 The EIA process is a relatively recent development in Sri Lanka The economic analysis of EIAs can be expected to improve over time, particularly after some good EIAs, which can serve as models for future EIAs An increasing number of consultants trained in environmental economic techniques are also likely to have a positive impact on the quality of economic analyses of future EIAs

Table 4
Content Analysis of Environmental Economic Analysis in Past EIAs

Name of Project/Date	Env Econ Analysis Required?	Economist on Team?	Significant Impacts valued?	Mitigatory Measures Valued?	Financial Analysis included?	EBCA Conducted?
Kerawalapitiya Reclamation Project - December 1993	Yes	Yes	No, qualitative estimates used (e g 'Least damage , 'no damage)	No, ' The cost of mitigation is usually overwhelmed by the large economic gains achieved through appreciation of value and social benefits accrued through the project"	No	No
Rajawella Golf and Hotel Project - September 1993	Yes -"The acceptability of the proposed project and the alternatives to be analysed through an environmental cost-benefit analysis	Yes	Some benefits valued e g revenue from tourism	No	No	No - Although the common yardstick of measuring BCA is monetary values such an exercise is beyond the scope of this study What is presented is more on a value judgement basis"
Colombo-Katunayake Expressway project - 1992	Yes	No	No	No	No	No
Clay Extraction and Blanketing of Samanalawewa Reservoir - July 1994	Yes ' Cost of mitigation measures are required"	No	No	No	No	No
Integrated Petroleum Refinery and Power Plant Hambantota - Jan 1996	TOR not annexed	Yes	Some, using values estimated in US for similar impacts adjusted for Sri Lanka	Yes	No	Yes
Combined Cycle Power Plant - Kelanitissa - December 1995	Yes	No	No	No	No	No
Sanitary Landfill at Mahara - No date	Yes	Yes	Yes	Yes	Yes	Yes

Name of Project/Date	Env Econ Analysis Required?	Economist on Team?	Significant Impacts valued?	Mitigatory Measures Valued?	Financial Analysis included?	EBCA Conducted?
200 B/R Hotel Project - Seeduwa - April 1994	No	No	No	No	No	No
Shrimp Farming Complex Hambantota - 1995	No	No	No	Yes, but methodology not clear	No	No
Landfill Site at Galudupitiya Marsh Welisara - 1994	TOR not annexed	Not Clear	No	No	No	No
Sapugaskande BOO Power Station - 1993	Yes	No	No	No	No	One page description of CBA table referred to in text is missing
Upper Kotmale Hydro Power Project - addendum Sept 1996	TOR not annexed	Not clear	Only avoided cost of alternative generation methods	No	Yes	Yes

2 The team of consultants commissioned to undertake an EIA may not have included an individual well versed with the techniques for carrying out an environmental economic analysis Sometimes the TOR may combine the requirement for an analysis of socio-economic data, with that for an economic analysis of the project These would be jointly referred to as a socio-economic analysis This section may then be completed by an individual by the designation of a 'socio-economist' However 'socio-economist' is not a recognized designation unlike a sociologist, or an economist, and it is possible that the 'socio-economist' is neither of the above In such situations economic analysis tend to be inadequate

3 A comprehensive economic analysis of a project requires specific data which need to be collected by other professionals As the framework for the economic analysis is developed, the analysts would have to interact with the other experts and discuss various impacts and attempt to quantify them This may require the other experts to adjust modify various aspects of their field studies Hence the economist should be commissioned from the beginning of the EIA process and have regular interactions with the rest of the team It would be difficult to undertake an economic analysis at a late stage of the EIA, after all the field data collection has been completed

4 Due to the difficulty of obtaining values for certain environmental impacts some EIA reports disregard the entire section by issuing a blanket statement such as that in the Rajawela Golf and Hotel Project However, it is useful to recognize that a well developed framework for an economic analysis is by itself a clear and methodical tool for decision-making It is acceptable to leave gaps in the economic analysis wherever values cannot be obtained The decision-maker can then assess the project using acceptable lower-and upper-bound values for the missing variables This technique was well developed in the Upper Kotmale Hydropower project The analysts completed the economic analysis but only gave lower and upper bound values for the impact on the water-falls that would be affected by the project

CONCLUSIONS AND RECOMMENDATIONS

Economic valuation of environmental impacts can contribute to sustainable development by providing unambiguous information to decision makers to prudently choose development projects It will enable formal and methodical recognition of trade offs between economic growth and environmental conservation However, given the above constraints the application of economic valuation of environmental impacts would require a resolute program of research, training and institutional reform in Sri Lanka

The following recommendations are suggested to improve the role of environmental economic analysis in the EIA process

1 The TOR for EIAs can be revised to include more specific requirements leading to a complete extended benefit cost analysis Thereafter the requirement to conduct an extended benefit cost analysis should be made obligatory The steps of an EBCA can be listed out and inserted as separate requirements By doing so the EIA report may contain at least a partially developed EBCA This activity will be undertaken under the ADB funded APREETA project

2 A short Manual of Guidelines on conducting an EBCA should be prepared for reference by EIA practitioners It should be based on case studies relevant to Sri Lanka

3 The EIA intensive training workshops should include a comprehensive module on environmental economic analysis This module should consist of intensive lectures and training through case studies of EBCA Furthermore, as mentioned earlier a program of accreditation of environmental economic analysts should be established

ENDNOTES

[1] The periods are only indicative and not empirically based They reflect the authors judgement of the time when the general public in Sri Lanka became aware of these different development concepts

[2] The same amount of monetary benefits (or costs) received at present and future are not equal in value Money is preferred now than later because the possibility exists to reinvest it and there are risks involved in recovering it

[3] The assumption that human welfare is achieved by maximizing only national income is a major weakness of BC analysis

[4] Project boundaries must be defined geographically and temporally

[5] i e large number of buyers and sellers homogenous products free mobility of resources technology and information unrestricted entry and exit to the industry etc

[6] Not all non-timber forest harvesting is destructive Non-timber forest products can also be sustainably harvested

REFERENCES

Asian Development Bank (1996) *Economic Evaluation of Environmental Impacts* A workbook

Central Environmental Authority (1995) "*Guidance for Implementing the Environmental Impact Assessment (EIA) Process* Ministry of Transport Environment and Women s Affairs

Gunaruwan T (1995) *A Procedure to Integrate Environmental Concerns into the Appraisal Procedure of PIP Projects* Paper presented at NAREPP workshop July 1995

McCauley David S (1994) *Environmental Economics and Environmental Impact Assessment Seeking Complementarity* Paper presented at the UNEP/ NETLAP Workshop Kathmandu

7 THE ROLE OF CONSULTANTS IN ENVIRONMENTAL IMPACT ASSESSMENT

Shantha K. Hennayake *

INTRODUCTION

Environmental Impact Assessment (EIA) is recognized widely as a planning tool for major development projects The EIA process depends on a large number of people and institutions Consultants play a central role in the entire process and therefore a clear understanding of their responsibilities is paramount to the success of the process itself The purpose of this chapter is to examine closely the role of consultants in making the EIA process more effective

CONSULTANTS IN THE EIA PROCESS IN SRI LANKA

Specialist knowledge and experience are essential ingredients in the assessment of the impacts of any development activity on the environment The services of specialists covering a wide range of disciplines are required for this purpose While concerned government agencies like the Central Environmental Authority (CEA), Coast Conservation Department (CCD) and the line Ministries can be expected to have in their own cadres at least some of the specialists in the required disciplines, the project proponent (PP) is more likely to have to depend on several independent consultants in order to help carry out his responsibilities in the EIA process For this purpose the PP may hire individual consultants to carry out the different tasks or he may even decide to hire a specialist organization to handle all the EIA responsibilities on his behalf

The National Environmental (Procedure for Approval of Projects) Regulations No 1 of June 1993 has laid down the procedures for examining environmental impacts of development projects before they can be approved for implementation The gazetting of these regulations has increased the demand for environmental consultants and thereby encouraged the setting up of consultancy organizations that can help project proponents to obtain environmental clearance for development projects

The services of a consultant will be required during the EIA process for several purposes Proponents of development projects will usually engage a consultant to prepare Initial Environmental Examination Reports (IEER) and Environmental Impact Assessment Reports (EIAR) Project Approving Agencies (PAAs) will require consultants for the purpose of providing technical assistance in the evaluation of IEE Reports and EIA Reports Consultants will also be engaged by the Secretary to the Ministry in charge of the subject of Environment to serve as members of advisory panels during the hearing of appeals Consultants will also be required to provide technical expertise in the monitoring of conditions attached to permits

THE EIA CONSULTANT

Peter Block (1981) has pointed out that anyone who is trying to change or improve a situation without having direct control over its implementation could be considered a consultant This definition is also applicable to an EIA consultant since he is expected to help change or improve a development project so that it may harmonize with the environment An EIA consultant consequently uses his professional skills in the development of a project but has no direct control over the implementation of his recommendations This then points out that the consultant must not be biased either towards the PP or the PAA It is even true to say that if there is any bias at all then that bias should be towards safeguarding environmental interests The latter statement should however not be interpreted as a protectionist bias towards environment, but rather as a development oriented bias wherein the consultant is seeking means of enhancing the environment by well managed resource usage and by appropriate technologies

* The author wishes to gratefully acknowledge the assistance rendered by Shiranee E Yasaratne Mahesha Ranasoma and Mervyn S Wijeratne in compiling this Chapter

Previous Page Blank

THE ROLE OF AN EIA CONSULTANT

The steps in the EIA process where consultants are involved are

I Submission of Preliminary Information (PI) which contains a description of the proposed action
II Environmental Scoping,
III Preparation of IEE/EIA report
IV Public Participation,
V Evaluation of IEE/EIA report
VI Monitoring

I Submission of Preliminary Information (PI)

A carefully prepared document setting out the relevant preliminary information can greatly accelerate the understanding of environmental impacts associated with a development project Such a document could well be to the advantage of a PP as this could be accepted by the PAA as an IEE report, thus shortening approval procedures To be so accepted, the PI should be seen to present an unbiased view of both the positive and negative impacts of a proposed action Although a consultant is hired and paid for by the PP he is expected to present a true picture of associated impacts, including adverse ones Where environmentally harmful impacts are identified, the consultant is expected to assess their degree of severity and recommend measures to mitigate such adverse impacts

A factual statement of environmental impacts will benefit the PP and the consultant The PP will benefit in two ways Firstly the process of project approval will be hastened, resulting in saving of time and money Secondly it will enable modification of the project plans at an early stage to avoid or minimize adverse impacts Modifications introduced at the project planning stage cost much less than when introduced later The services of a consultant should therefore be obtained at an early stage in order to reduce possible heavy expenditure later on

II Environmental Scoping

The CEA Guidelines for Environmental Scoping states that *formal scoping sessions bring together in one place a wide spectrum of people with extensive knowledge or experience to help the PAA identify all issues which must be addressed in the assessment process These specialists can also help define the level of detail which should be given to each issue and develop Terms of Reference for the study Participants will also identify possible alternatives to the proposed project activities" (CEA, 1995)* The CEA document lists the participants in the scoping process as *all concerned (government) agencies, the proponent of the action, and other interested persons"* It is very necessary that the project proponent should be accompanied to scoping meetings by his consultant/s since the discussions will focus on technical matters The consultants should play an active part at scoping meetings in the identification of issues, defining the level of detail to be given to each issue and developing the Terms of Reference (TOR) for the study

The consultants should press for limiting the issues to those that are relevant to **significant environmental** impacts They should point out why certain issues that other participants consider significant cannot be considered at scoping meetings They could also object to the inclusion in an EIA of issues that are not directly relevant The consultants should help in assigning degrees of significance to the selected issues so that only significant issues are discussed They should insist on the Terms of Reference for the EIA being a realistic set of guidelines that would enhance the value of the contribution being made by the project to the country and the community involved

The CEA Scoping Guidelines (CEA 1995) considers it *essential that the project proponent prepares a concise packet of information to distribute to confirmed participants prior to the (scoping) meeting, or be prepared to devote a considerable amount of time in the meeting providing background descriptions and answering rudimentary questions "* Distribution of the concise packet of information to the participants followed by answers to participants' questions appears to be the more effective alternative The information that is required to be provided includes *project goals, objectives, target geographic areas, anticipated work schedule, anticipated affected physical, biological, social and economic environments, the objectives and expectations of the scoping meeting, and the opportunities for participants to obtain follow-up information from the PAA or the project proponent "*

The consultant's services can be effectively used to prepare this information for the scoping committee In the case of large projects involving high levels of investment, the services of an advertising agency can be obtained in the layout and printing of the above information Providing technical assistance to the PP for the gathering of information to be submitted to the PAA must however remain the responsibility of the consultant

III Preparation of EIA Reports

The EIA report is central to the EIA process The stages prior to this report lead to the EIA report, the subsequent stages are based on this report The consultants preparing the EIA report therefore constitute the most important group of consultants in the EIA process The term 'EIA consultants" is very often used to refer only to the consultants preparing the EIA report The role of the consultants preparing EIA reports is dealt with in detail later in this chapter

IV Public Participation

The CEA Guidelines on Scoping list the following as the responsibilities of the PP in relation to Public Participation *"The project proponent must respond to (public) comments by making every effort to modify alternatives including the proposed action, develop and evaluate alternatives not provided, give serious consideration to providing supplementary information in the document and make factual corrections "* The public according to the CEAs Scoping Guidelines include *"location businesses, interest groups or individuals adjacent to, or in the immediate vicinity check of the proposed project work area, or otherwise influenced by the physical, biological, social or economic changes inherent in the proposed project actions, concerned Non-Governmental Organizations (NGOs), and interested governmental agencies "*

The PP needs to anticipate the concerns of these groups and launch a public relations program which stresses the advantages of the project to both the national and local economies The program should emphasize the genuine concern of the PP for the environment, and why it is in his interest to care for the environment The EIA consultant should be closely associated with this public relations exercise and provide the required technical information

V Evaluation of IEE/EIA report

After scrutinizing the EIA report, the PAA may require further information and clarifications At this point the PP once again requires the services of the consultants When the PAA is satisfied with the EIA report, a decision will be made whether or not to approve the project As most PAAs lack required expertise to evaluate the technical content of the EIA report, a Technical Evaluation Committee (TEC) is usually appointed for this purpose The PAA will, in consultation with CEA, select members of the TEC from among the experts available in the country The PAA very often looks up to university academic staff and free lance researchers for this purpose The TEC is in effect a body of consultants to the PAA They are expected to objectively evaluate an EIA report for reliability accuracy and acceptability They are also expected to point out its errors, omissions and inadequacies and suggest measures to improve the content of the EIAR The role of the TEC is strictly limited to providing advice The PAA alone will make the final decision The PAA is however expected to consider the recommendations and advice of the TEC in arriving at a decision Thus the consultants serving on the TEC have an even heavier responsibility than the consultants preparing an EIA report The Sri Lankan experience shows that the consultants serving on the TECs have generally been very objective and impartial

VI Monitoring

The CEA Guide lines for Conducting Environmental Scoping emphasize that *"The success of the EIA process would be totally negated if the conditions imposed by the PAA are not effectively monitored"* Monitoring entails the regular measurement of selected parameters to determine any changes from the earlier existing situation Monitoring starts with the commencement of the construction phase and continues through the operational phase Some monitoring (e g of effluents and emissions) requires laboratory analysis involving a high degree of expertise The PP or the PAA, as the case may be, will have to obtain the services of experts to carry out such monitoring Once again, these consultants are expected to perform their role objectively It is only through sound monitoring that the effectiveness of the mitigation measures can be gauged and any needed corrective action taken Consultants engaged in monitoring also therefore play a vital role in the EIA process

Monitoring being very expensive consultants should limit it to the essential minimum Consultants should ensure that monitoring is carried out according to standards agreed with the PAA and that the results are correctly recorded and interpreted

THE CONSULTANT'S ROLE IN EIA PREPARATION

Adhering to TOR

The role of the EIA consultant in this regard is very clear and direct He must prepare the EIA report according to the TOR provided by the PAA Although the consultant is not required to go beyond the limits of the TOR he does not need to always confine himself within its bounds The EIA report may

be found inadequate if the consultant has failed to fulfil all the requirements of the TOR

The consultants are expected to prepare a high quality EIA report in conformity with the TOR A high quality EIA report is one which enables the decision makers to arrive at a sound decision with ease Although this is a difficult task the quality of the consultants can be measured by how successfully they accomplish it

Expression of Expert Opinion

The basis of a comprehensive EIA report is the successful identification of the project s likely impacts and defining the significant impacts for detailed assessment CEA, 1996 The consultants are expected to employ the methods available for this purpose The Manual on EIA Methodologies Applicable to Sri Lanka prepared by the Central Environmental Authority (1996) provides details of the available EIA methodologies Most methods of identifying impacts and defining their significance involves a heavy contribution from the consultants in the form of expert opinion or professional judgement' The scientific assessment of impacts commences only after identification of the most significant impacts A consultant s professional judgement forms the basis for subsequent analyses For every identified significant impact a sound assessment has to be done A sound assessment has to be made of every identified significant impact Mitigation measures have to be proposed for every significant impact Here again the consultant must exercise his professional judgement in deciding on the most effective and appropriate mitigation measures

A most important role expected of the consultant at this stage is to compare different project alternatives Analysis of alternatives is one of the most effective ways in EIA to minimize or prevent environmental impacts arising from development projects Alternatives that differ in environmental and social impacts may be found at several levels in development planning alternative policies and strategies at the national and sectoral levels, alternative patterns of economic growth land development and resource use for regions and alternative sites technologies designs and operating procedures for individual projects

Maintaining Professional/ Intellectual Standards

EIA consultants are expected to maintain the same intellectual standards that are commonly accepted in any professional study EIA studies require a large amount of data on various aspects of environment While a part of this data can be obtained from secondary sources, the rest has to be generated as primary data Generating primary data from the field or in a laboratory has to be done with the utmost care and objectivity Consultants may sometimes be compelled to resort to short cuts in generating data as the time available for the preparation of EIAs is often short The consultants may also have to compromise on data collection in order to cut down costs Inexperienced and unqualified consultants can make serious mistakes in data collection for such reasons

Analysis of data too must be objective, scientific and of the highest quality as in data collection Evaluators of EIA reports should be able to easily verify the scientific validity of conclusions raised Therefore the need to select appropriate methods of analysis should be clearly explained

In the process of preparing the EIA study consultants indirectly perform other roles EIA consulting teams are often the first group of people to inform the public of an impending project This usually occurs when scoping sessions are conducted in the field Therefore local people may depend on consultants for information on the project Here EIA consultants are expected to discuss project details, not as representatives of the PP but as a team of independent consultants studying its impacts At these meetings people should be made to feel free to openly express their views and concerns about the project Here the consultants need to exercise caution not to show bias towards the project and especially not to deceive mislead or unduly influence the public to win support for the project The people should not be promised anything that cannot be realistically delivered merely to obtain their consent Consultants should also make sure that their efforts do not lead to conflicts among the people Disagreements and division among people over development projects are a common phenomenon People often have "good reasons to oppose development projects Consultants should therefore be prepared to be patient listeners and managers of conflict resolution and try to address the concerns of the people Very often the people who express concern themselves have effective answers or mitigatory measures to the issues they raise The consultants should pay attention to such home grown wisdom ' as they can be not only be very simple and realistic but also very cost-effective

Bias Towards the PP

An EIA consultant is expected to be independent by being impartial and unbiased in

preparing an EIA report Although the consultants are hired by the PP, they are not expected to simply support the project by deliberately overlooking or under-estimating potential adverse environmental impacts It is very likely that an EIA prepared with partiality and bias will be found inadequate and faulty by the PAA and referred back to the PP for correction and elaboration At the other extreme, explicit bias towards the project could lead to its rejection It is important to remember that a sound development project could be rejected because the consultants mistakenly tried to help the PP by producing a biased EIA report Consultants who take a biased approach towards an EIA report are actually doing a disservice to the PP

The EIA Team

As mentioned previously, an EIA will require several consultants having different areas of expertise The areas of expertise needed for a particular EIA study may vary considerably from one another but in general areas such as ecology sociology and physical sciences can be considered as the core areas for any EIA A widely used document published by the World Bank states that the core team for any EIA should generally represent the following disciplines

project manager often a planner, social or natural scientist, or environmental engineer, has experience in preparing several similar EIAs, has management skills and sufficiently broad training and/or experience to be able to provide overall guidance and to integrate the findings of individual disciplines,

- ecologist or biologist (aquatic, marine or terrestrial specialization, as appropriate)
- sociologist/anthropologist has experience with communities similar to that of the project
- geographer or geologist/hydrologist/soil scientist and
- urban or regional planner

The aspects needing special attention may vary from one project to another for similar projects from one location to another It is therefore necessary that the team is selected carefully to suit the project and the environmental needs which are covered by the TOR

EIA Team Leader

The team leader is the principal consultant in the EIA team Although the entire inter-disciplinary team is involved in the preparation of an EIA, the overall responsibility for preparing it and assuring its quality lies with the team leader In picking an EIA team, the greatest importance must be attached to the selection of a team leader The team leader is expected to play a more responsible role than the other members of the team Murthy (1988) states that "the team leader is expected to provide day-to-day technical direction schedule the work and ensure that schedules are met control costs, coordinate with various departments and disciplines, provide overall integration of the technical, scientific, and policy aspects of the project and provide for quality control and peer review" These qualities are discussed at length by Cleland and Kerzner H (1986) Thus any specialist cannot become a team leader

A team leader should have a number of personal and professional qualities

1 Demonstrated knowledge and skills in specialized professional field

2 Positive attitude

3 A thorough knowledge of the EIA process

4 A rapport with individuals (inter-personal skills)

5 Ability to communicate with both technical and non-technical persons

6 Self-confidence

7 Commitment and dedication

8 Ability to lead the members of his team

9 Ability to take quick decisions

10 Overall coordinating abilities

Poor team leadership is always reflected in an EIA report Having the right team leadership is very important in preparing a good EIA report

EIA Consultancy Firms

The task of preparing EIA reports is very often entrusted to a consulting firm The World Bank guidelines (1991) state that the selection process should be based primarily on technical competence and experience These guidelines allow the use of price as a selection criterion only under very restricted circumstances It is highly unlikely that such circumstances would apply to an environmental

assessment as such studies are inherently complex, with outputs that are difficult to specify completely in advance" (IAIA 19) Although the statement is made in the context of World Bank funded projects the argument remains valid for any EIA at any level

The same document recommends that the criteria for selecting consulting firms should include technical competence, experience in EIA, adequacy of proposed work plan in terms of understanding the project, responsiveness to the TOR and effective management of work, qualifications of the personnel assigned in terms of education, training and experience, suitability to perform the duties to be assigned, language skills, successful experience in similar or other EIAs and experience in the area of project location

A number of consultancy firms have carried out EIAs in Sri Lanka during the last five years Some of these firms have had international partnerships Some EIA reports have been produced entirely by foreign consulting firms and yet others have been prepared by the PP Very often the same individual consultant has served in more than one consultancy firm Table 1 provides a sample list of EIAs carried out by consultancy firms

Contribution of EIARs to Decision Making

Selected EIA reports were analyzed to determine the extent to which they helped in making the decision to approve the project The selection of the EIA reports is arbitrary but it is adequate for this purpose These EIAs can be divided into two broad groups

1 Those which were prepared well enabling easy decision making

2 Those which were prepared unsatisfactorily thereby creating difficulty in decision making

Group 1 Very Useful
- Kalu Ganga Gem Mining
- Kerawalapitiya Land Reclamation
- Kukule Hydropower

Group 2 Less Useful
- Upper Kotmale Hydropower
- Rajawella Golf and Hotel
- Bata-Atha Industrial Park
- Colombo-Katunayake Expressway

TABLE 1

CONSULTANCY FIRMS THAT HAVE CARRIED OUT EIAs IN THE RECENT PAST

PROJECT	CONSULTANCY FIRM
Rajawella Golf and Hotel	Technology, Management and Development Studies (TEAMS)
Kerawalapitiya Reclamation	Engineering Consutants Ltd
Menik Ganga Diversion	Resource Development Consutants Ltd
Colombo-Katunayake Expressway	Japan Bridge and Structures Institute Inc and TEAMS
Southern Railway Line Extension between Matara and Kataragama	Korea Consutants International
Upper Kotmate Hydro Power	A team of consultants working under Ceylon Electricity Board (CEB)
Relocation and Modernization of Tanneries Industrial Estate Baa-Ata	Resource Organization and Management International (Pvt) Ltd (ROMIN)
Kandalama Hotel Project	Lanka Asia Management System Co (LAMSCO)

PERFORMANCE OF CONSULTANTS

The purpose of this section is to highlight some of the problems/weaknesses in the performance of EIA consultants For this purpose some EIA Reports have been reviewed While a few of these reports were of high quality, the majority fell short of expectations while some others were exceptionally poor

CONSTRAINTS AFFECTING EIA CONSULTANTS

The performance of consultants is directly related to the role they are expected to play Performance will drop whenever consultants are unable to play their roles effectively due to various constraints These constraints finally lead to poor quality EIA reports and therefore poor quality decision making

The main constraints experienced by the consultants fall into three categories

[a] Personal constraints constraints faced by consultants due to their own inadequacies

[b] Process constraints constraints faced by the consultants in carrying out the EIA

[c] Physical constraints constrains very often beyond the control of individual consultants

Personal Constraints

Analytical skills

Lack of analytical skills is often highlighted in many EIA reports In many cases the baseline data presented does not relate to the impacts identified nor have mitigation measures been proposed Most reports do not show evidence of the use of any of the standard methods of impact identification or assessment of significance This inadequacy is very prominent in early EIA reports More recent reports have employed at least one method

In most of the EIA reports reviewed the consultants have failed to elaborate on the methods and techniques of collecting and analyzing socio-economic data Thus there is hardly any possibility of verifying the validity of conclusions While attempts have been made in the analysis of biological and physical environmental data there is hardly any analysis of social and economic data Very often the data is presented without interpretation The reports present numerous data on the affected populations and their economic and social lives However the methods of information generation, samples used, sample selection are questions that usually go unanswered For example, the EIAR for the Bata-Atha tannery relocation project simply states *"almost all of the farmers interviewed, from the northern section of the Bata-atha Grama Niladari Division, have a positive attitude towards the implementation of the project"* However, the numbers of families interviewed has not been mentioned in the report This is a very unscientific approach The same report states *"a few chena cultivator families, presently living on the site temporarily, will be displaced There is no necessity to compensate them since they are squatters"* Three questions arise at this point how many families does "a few" mean? how long does "temporary" imply? are the chena cultivators happy to leave the site without any compensation?

In all reports reviewed, the section on social and economic impacts was very loosely written without adequate detail or precision For example statements such as *"Infrastructure facilities will be developed within and around the site area These include power supply and telecommunication"* This is a general statement and no positive or negative impacts on the local population could be inferred by it Another statement in the EIAR for the Bata-Atha tannery relocation project reads as follows *"The new opportunities presented by the change in land use will present additional job prospects for the people of the area and help elevate their standard of living"6* This too is a very general statement The consultants have failed to answer the following questions which are more relevant in this context what are the new job opportunities? how many of them? what are the salary levels? how many jobs will be allocated for the local residents?

Lack of good analytical skills are sometimes a result of employing unqualified 'consultants or consultants with poor dedication to their work

Experience

Most EIA consultants in Sri Lanka lack adequate experience in preparing EIAs Only a limited number of EIAs have been completed in Sri Lanka since the gazetting of the regulations Thereafter only a few consultants have been actually involved in preparing these reports Thus it is impossible for all potential EIA consultants to have had previous experience in undertaking EIAs These

potential consultants must participate in training programs held both internationally and locally

Presentation

An EIA report should be neatly prepared and professionally presented While some EIA reports are quite impressively prepared there are others which indicate hurried preparation The Bata-Atha tannery relocation EIA report is a good example of the latter group It is surprising that the exact project site is not marked in any one of the 12 maps included in the report Some of the entries in appendices appear to be direct photocopies of consultant notes and are hardly legible (Specimen in Appendix 1) The matrix prepared to define significance of impacts too is a direct reproduction of notes and certain parts of the matrix are illegible (Specimen in appendix 2)

Busy Schedules

The specialists of repute in Sri Lanka are always in high demand and therefore they are busy and expensive to hire This often prevents them from serving as EIA consultants when the need arises In addition many consultants are full time employees of various public sector institutions and therefore have limitations in participating in EIA work This has led to a developing tendency to engage inexperienced personnel to work under the supervision of senior consultants This tendency is not at all conducive towards guiding the EIA process in the right direction although it offers a way to obtain the services of "busy" specialists

Process Constraints
Weak Team Work

Well coordinated team work is essential to the preparation of a good EIA report The consultants need to complement each other s contributions Mutual understanding and keeping other team members informed of each specialist s work is central to the preparation of a good EIA report

The need for inter-disciplinary team work however appears to be poorly developed as yet in Sri Lanka The selection of EIA consultants whether they be individuals or firms, is often not the result of open and competitive bidding Personal links still play an important role in the selection of consultants and hamper, if not prevent healthy rivalry between the competing consultants The poor quality of some EIA reports reflects the poor selection of consultants It is reported that in one case other successful bidder entrusted the preparation of the entire EIA report to one individual, who lacked both breadth and depth of expertise in most of the relevant areas The whole report it is alleged, had been prepared by this individual without any assistance from specialists in the other fields, even though expertise in several disciplines were needed The reported result was that the members of the Technical Evaluation Committee could not obtain clarification of the issues they raised

Several other cases of similar but less severe nature have been reported Consulting firms that have been awarded the contract to prepare EIA reports have allegedly entrusted the work to one or two consultants even though their expertise was inadequate to address all the issues relating to the environmental impacts of the particular development project Even where a team of experts had been assembled to prepare an EIA report, each expert is reported to have worked independently and alone There had been no communication with the other team members and little coordination of the individual contributions to the overall report It is essential that one member of the team act as leader to coordinator to the team effort The responsibility of the team-leader to coordinate the individual contribution and manage the team effort to produce a comprehensive EIA report

Non Adherence to TOR

A very common but easily corrected weakness in EIA reports is non compliance with the TOR This may be because the consultants do not take the task of preparing EIA reports seriously or because of the lack of professionalism in the attitude of the consultants/firm EIA reports often fail to include a list of preparers, qualifications or experience Some reports also fail to take note of the study area which is very specifically defined in the TOR The social and economic issues included in the TOR such as labour requirement land availability for relocation, socio-cultural impacts due to migratory workers are rarely examined adequately in the report

Bias

Bias towards the PP is not uncommon in EIA reports, but is mostly indirect A few EIA reports however display naked bias towards the PP This aspect has been dealt with in detail elsewhere in this chapter The EIA report prepared for the Rajawella Golf and Hotel Project is a clear example 8 of bias in an EIAR towards a project

Regulations

There are many instances where a PP discovers the necessity of preparing an EIA only when the project is ready for implementation By this time the PP may have invested considerable sums of money on project development and therefore finds the EIA requirement as a barrier to the implementation of his project Furthermore, the regulations require that nothing is done physically on ground until the EIA has been accepted

The inability for a PP to develop his project further during the course of the EIA study is a bottle-neck The main constraint here is that there is no quantitative guide as to how much of project concept development is needed before an EIA could commence In some cases, the TOR for the EIA requests project details far beyond its conceptual designs At the same time, the PP has considerable uncertainty surrounding the projects economic viability and therefore is reluctant to invest too much on initial investigations as well as on technical details In cases where the PP has already invested on such items as acquisition of the project site, he tries to persuade both the EIA consultants and the PAAs to approve his project with minimum modification

Accessibility to Data and Information

EIA studies are primarily for local level projects However, most of the baseline data available are mostly secondary data available for national and to some extent regional levels Thus, there is always the problem of availability of data to carry out impact assessments at local level As a solution to this problem, in some EIA reports, local environmental impacts have been assessed on the basis of data from other places A good example of this is found in the EIAR prepared for the Trincomalee coal fired power project

The biggest failure in data collection is in the area of cultural and political views concerns and reactions of people affected Most often the consultants have either failed to recognize these concerns or they have deliberately overlooked them In a number of cases where the EIA report presents a picture of overwhelming support for a project public opposition has become the reality The Kandalama Hotel, Colombo Katunayake Expressway Bata-Atha Industrial Park Rajawella Hotel Project are some examples

PHYSICAL CONSTRAINTS

Time and Financial Constraints

Preparation of EIA reports are expected to be completed within a relatively short period of time In the case of very large projects the time period may extend up to one year The project proponent expects the consultants to complete their report very quickly, as the EIA is considered to be an additional burden to overcome The consultants find themselves in the dilemma of meeting the requirements of the TOR and pressure to complete the report in time As the consultants are hired by the project proponent the wishes of the proponent are often complied with In doing so it is however inevitable that the quality of the EIA report is adversely affected

Financial constraints too affect the quality of EIA reports In Sri Lanka as pointed out earlier EIA is still considered an additional burden by project proponents, who are therefore reluctant to spend much money on the preparation of an EIA As a result the EIA is allocated a very limited budget The consultants are compelled to compromise on the quality of the report in order to operate within the available limited budget

Behavior of Consultancy Firms

EIA consultants face a number of constraints in preparing good quality EIA reports None of the consulting firms preparing EIA reports are specialists in EIA Many of these firms regard the preparation of EIA Reports as only a new avenue in earning money As mentioned earlier, there is no well established competitive bidding process to identify the best consulting firms to prepare EIA reports In the state sector the most important consideration is the cheapest bidding and not the quality of the bidder Thus, a project proponent may not get the services of the best qualified consultants to carry out an EIA study

Some consulting firms bid for EIAs claiming their EIA team comprises several consultants sometimes even without their knowledge If the firm wins the bid the actual consultant who will prepare the EIA report may not necessarily be from those whose names appeared in the bid Consulting firms try to maximize their own profit margin by hiring consultants not mentioned in the bid for a smaller fee In some cases consulting firms have attempted to cut cost by hiring as few consultants as possible

It is ironic that some of the consulting firms are not very concerned about how the EIA study is done nor in its quality Consulting firms will continue to behave in this manner unless and until penalties are imposed for presenting poor EIA reports

Politicisation of Projects

Sri Lankan society is highly politicized and as a result even issues that should not be politicized become so and develop into political controversies Once a development project becomes politicized it becomes very difficult for consultants to study the project objectively There will always be people opposing the project no matter what, simply because of political ideologies Proposing mitigation measures become extremely difficult in situations like this The provision in the EIA process for public involvement is very often used by those with vested interests This became quite clear in the case of the Kandalama Hotel project and the Colombo Katunayake Expressway project

GUIDELINES FOR CONSULTANTS

Consultants should be aware of the roles they are expected to play in preparing EIA reports The following guidelines were decided upon in association with consultants at an awareness workshop conducted for them jointly by CEA and CES in June 1995 It was organized jointly by the Center for Environmental Studies and the Central Environmental Authority The CEA will incorporate most of these findings into the "Guidelines for Consultants" to be published soon

1 Consultants must be fully aware that in undertaking to provide their services they are guiding the decision makers in the national development process

2 Consultants should avoid actions and situations that are inconsistent with their professional obligations or that are likely to raise doubts about their integrity

3 Consultants shall arrive at their technical conclusions in a logical manner They should not be based on speculations If assumptions are made, the basis for making decisions such assumptions should be declared They should be made in the light of expertise/experience, in good faith, and should not be biased in any way by outside criticism/influence

4 The language used in the preparation of EIA reports should be simple and non-technical so that they can be easily understood by decision makers and general public Facts should be condensed and synthesized in order that the report is concise and well focussed The conclusions reached should be unambiguously and clearly stated

5 Technical data such as maps/matrices/graphs/ computer modelling data should be included as an annex to the report

6 Consultants are expected to interact closely within the multi-disciplinary team Unrealistic time targets should be avoided (In the case of preparation of EIA reports and incomplete document is at the risk of being rejected by a PAA)

7 Collective field work will always be required Interaction with affected communities is an essential part of the EIA process

8 On completion of individual contributions, further interaction is required with the Team Leader and other members of the team in order to ensure a holistic approach During the process of editing inferences/findings of individual reports could be misinterpreted In order to avoid such situations it is the responsibility of the consultant to interact closely with the editors at this stage

9 All EIA reports should be authenticated by the consultants

10 Consultants should be aware that legal recourse could be sought for any deficiency, misrepresentation, inaccuracies or fraudulent information contain in an EIA report

11 Consultants will be responsible for making technical contribution and defend any technical inferences made, on behalf of PP at every state of the EIA process These will extend to public hearings and hearings of an appeal

12 Consultants must endeavor to participate in any awareness programs held on the EIA process on their behalf

13 There exists a wealth of literature on EIA worldwide Consultants must ensure that they are aware of the current trends and methods

IMPROVING EIA CONSULTANCY SERVICES CONCLUSIONS

Many of the constraints mentioned in the previous sections will take long to overcome As the EIA process in Sri Lanka is still in its early stages, it is our responsibility to ensure that the process matures in a controlled manner It is obvious that the EIA process cannot be improved merely by pointing out the inadequacies of consultants and consultancy firms Some structural adjustments are needed to simplify the EIA process so that the PP does not perceive the EIA as a barrier Convincing the PP of the benefits of minimizing adverse environmental impacts is more crucial than stringent regulations The lengthy and often confusing approval procedures demotivate the PP In many cases the CEA is seen as a monster by many PPs

It is evident that the attention paid to the preparation of EIA reports is not adequate If any attention has been paid in the past, it is merely incidental as EIA preparation has been largely left out from the EIA improvement programs The result of this neglect is manifest in the poor quality of the EIA reports submitted EIA consultants/firms do not appear to be learning from the mistakes of others either as there is hardly any communication among them

Three strategies can be adopted to change the situation and to improve the quality of EIA consultants On the regulatory side EIA consultants and firms should be required to register with the Central Environmental Authority The registration should not be given to any consultant or firm seeking registration but minimum requirements should be laid down to ensure that only qualified specialists will serve as EIA consultants The registration should be renewed annually and those consultants and firms that produce poor EIA reports should be warned first and their registration revoked if corrective action is not forthcoming In short a very active accreditation scheme should be implemented

On the training side the government should give equal priority to the training of EIA consultants although most of them are in the private sector As stated earlier, the EIA process essentially revolves around the EIA report Poor EIA reports can be detrimental to otherwise good development projects Improving the quality of EIA reports is not just a matter for the private sector it is a national need

On the institutional side there is hardly any interaction between EIA consultants Many specialists engaged in preparing EIA reports regard EIA only in terms of short term lucrative consultancies There is no real interest in EIA as an activity that needs to be developed and improved Institutionalization of EIA is a real need This can be achieved through the formation of an association of EIA consultants along the lines of International Association of Impact Assessment (IAIA) IAIA is the largest international professional organization established to improve Impact Assessment The annual conference of IAIA has become a forum to present and exchange latest research knowledge in methods, techniques and tools in impact assessment This forum will provide opportunities to EIA consultants and other professionals to look critically at EIA and to improve EIA preparation This association could introduce a rating system for consulting firms and even EIA reports Secondly, specialized courses on impact assessment can be introduced in the universities and offered to the private sector The Center for Environmental Studies of the University of Peradeniya offers a Post-Graduate Diploma in Environmental Assessment Currently this is the only course on environmental assessment in Sri Lanka

As the EIA report is central to the smooth working of the entire EIA process, it is extremely important to take every possible step to improve its quality This can be achieved only by raising the quality of EIA consultants

REFERENCES

Block P (1981) *Flawless Consulting A Guide to Getting Your Expertise Used* Austin TX Learning Concepts

Canter L *(1994) Environmental Impact Assessment* New York McGraw Hill

Canter L (1991) Interdisciplinary Teams in *Environmental Impact Assessment Environmental Impact Assessment Review* Vol 11 No 4 PP 375 387

Central Environmental Authority (CEA)
No 1 A General Guide for Project Approving Agencies (PAAs)

No 2 Guidelines for Environmental Scoping

Central Environmental Authority *Guidelines for Consultants* Under preparation

Central Environmental Authority (1996) *Manual of EIA Methodologies Applicable to Sri Lanka*

Cleland D I and H Kerzner (1986) *Engineering Team Management* Van Nostrand Reinhold Company Limited New York 1986

Kubr M (1988) *Management Consultancy A Guide to the Profession* ILO

Markham C (1987) *Practical Consulting* London Institute of Chartered Accountants

Murthy K S *National Environmental Policy Act (NEPA) Process* Boa Radon Florida CARS Press Inc (1988) Pp 57 59 Quoted in Canter Larry *Environmental Impact Assessment 1966*

National Environmental (Procedure for Approval of projects) Regulations No 1 of 1993 Government Gazette June 24 1993

Peters T J and R H Waterman (1982) *In Search of Excellence* New York Harper and Row

8 EDUCATION AND TRAINING IN ENVIRONMENTAL IMPACT ASSESSMENT

Ariyaratne Hewage

The terms education and training are used here with specific meanings Environmental Education is considered as a means of providing a sound understanding of the principles governing the different aspects of environment through the formal education system In Sri Lanka this is done largely at university level The discussion on environmental education focuses on the certificate diploma and degree courses offered by the universities The term training is used here to cover programs with a practical bias offered by various institutions mainly to improve the knowledge, skills and attitudes of practising professionals Such training programs extend from half a day to ten days some programs are conducted on a full time residential basis

EDUCATION PROGRAMS

Most university education programs cover the subject of environment in a broad manner but do not specifically focus on EIA Each of these programs is designed to address a specialized area of the subject of environment such as environmental engineering environmental economics environmental science environmental law, natural resource management, wild life management and forestry management Some university education programs do however include the subject of EIA as a module or, component of the course The principal environmental education programs offered at Sri Lankan universities are shown in Table 1

Table 1
Environmental Education Programs Offered at Sri Lankan Universities - 1996

Type of Education Program / University	Master's Degrees	Diploma Programs	Certificate Programs
Moratuwa	• Environmental Engineering • Environmental Management	Post graduate Diploma in Environmental Engineering • Environmental Management	
Colombo	• Environmental Science	Post graduate Diploma in Environmental Science	
Peradeniya	Post Graduate Institute of Agriculture • Environmental Economics • Natural Resource Management Post Graduate Institute of Science • Environmental Science • Wildlife Ecology and Management		Centre for Environmental Studies Environmental Awareness
Sri Jayawardenepura	• Forestry Management		
Open University of Sri Lanka			Wildlife Management

When the Natural Resources & Environmental Policy Project (NAREPP) began in 1992 there were only three main environmental post-graduate programs namely the M Sc Program in Environmental Science at Colombo University M Sc Program in Forestry Management at Sri Jayawardenepura University and the Post-graduate Diploma Program in Environmental Engineering at Moratuwa University

Several regular university programs include a module on a subject related to environment, the details of such programs are given in Table 2

NAREPP ASSISTANCE TO UNIVERSITIES

The project document of Natural Resources & Environmental Policy Project (NAREPP) (1990)[1] included a planned offer of 12 scholarships to selected candidates from Sri Lankan institutions to follow masters degree courses in the USA There was no provision for the support of environmental

Table 2
Regular University Programs with an Environmental Component

University	Title of Degree	Title of Module
Colombo	• Bachelor of Law (LLB) • B A • B Sc Zoology (Special) • B Sc General • B Sc General • B Sc Botany (Special)	• Environmental Law • Environmental Economics • Environmental Science • Ecology, Biodiversity • Environmental Science • Environmental Topics
Peradeniya	• B A	• Environmental Geography • Environmental Economics
	B Sc (Special/General) • Zoology • Botany • Geology	 • Ecology • Ecology • Environmental Geology
	• B Sc Agriculture	• Environmental Economics
	• B Sc Engineering	• Environmental Engineering
Moratuwa	• Post Graduate Diploma in Urban Dev • P G Diploma in Housing Dev • M Sc in Town and Country Planning • M Sc/Post graduate Diploma in Land Use Planning & Resource Management • B Sc Engineering	• Environmental Planning - do - - do - - do - • Environmental Engineering, • Hydraulic & Environmental Engineering
Kelaniya	• B Sc Zoology (Special)	• Environmental Pollution and Monitoring • Environmental Impact Assessment
Eastern	• B Sc (Physical Science) • B Sc (Biological Science) • B Business Admn • B Commerce	• Environmental Studies - do- - do- -do-
The Open University	• Bachelor of Engineering Technology	• Technology, Society and Environment
Ruhuna	• B A Economics (Special)	• Environmental Economics

education at Sri Lankan universities Since inadequate professional capability in environmental management had been identified as a critical issue, NAREPP agreed to support building the capacity of local institutions to provide environmental education and training The University Grants Commission (UGC) supported this idea NAREPP then decided in early 1992 to utilize the funds allocated in the NAREPP budget under US masters degree programs to provide assistance to the local universities A committee of senior teachers from several universities appointed by the UGC endorsed the feasibility of this proposal By mid-1992 NAREPP formally agreed to support the development of university environmental education programs The main areas of NAREPP support were

a) development of four M Sc degree programs,
b) provision of about 10 scholarships for each of the four M Sc Degree programs,
c) establishment of the Centre for Environmental Studies at the University of Peradeniya,
d) provision of foreign and local training on environment to university faculty members (Table 3),
e) provision of equipment (computers, audio visual aids etc) and text books and other reading material and
f) linking the university faculties with government and private sector agencies

The National Environmental Action Plan (NEAP) - prepared in 1990 by the Ministry of Environment* had recommended the establishment of a separate institution to undertake environmental education and research in the country No serious attempt had however been made to implement this proposal until 1992 mainly because of non availability of funds When NAREPP indicated its willingness to support such a project, the University of Peradeniya decided to establish the Centre for Environmental Studies (CES) as a multi- faculty institution The Vice Chancellor is the ex-officio Chairman of the CES The Deans of all seven faculties namely Agriculture, Arts Dental Science Engineering, Medicine, Science, and Veterinary Science and the Director of the Post Graduate Institute of Agriculture are the other members of the CES NAREPP provided the basic equipment such as computers and audio visual aids to the CES

Table 3

Provision of Environment Related Foreign Training to University Faculty Members

Title of the Program	Venue & Dates	Participating Universities				
		Peradeniya	Moratuwa	Colombo	Open University	Ruhuna
Environment Impact Assessment for Developing Countries	Univ Of Tennessee USA July 26-Aug 14 1992	1	1	1	2	-
Workshop on Field Research Methods in Wildlife Science	Wildlife Institute of India, Dehra Dun Feb 26 - March 1 1993	-	-	-	1	-
Training Workshop on Environmental Economics & Policy Analysis	Harvard Institute for International Development USA June 21 - July 23, 1993	2	1	-	-	1
Training Workshop on Environmental Economics & Policy Analysis	Harvard Institute for International Development USA June 12 - July 14 1995	1	-	1	-	1

* The term Ministry of Environment will be used in this Chapter to refer to the Ministry in charge of the subject of environment Presently it is the Ministry of Transport Environment & Women s Affairs

NAREPP also contracted with CES to conduct several EIA training programs and awarded other consultancies in order to inaugurate a fund for the CES

The CES is one of the principal institutions which conducts EIA related training in the country today EIA related short training courses are also offered to specific client groups by the University of Moratuwa and the Open University of Sri Lanka Several faculty members of these universities who have been trained under NAREPP EIA training programs now provide training and consultancy services on EIA

EIA TRAINING PROGRAMS

NAREPP represents the first organized, formal and regular effort at EIA training in Sri Lanka The EIA Orders published under the National Environmental Act (NEA) in the Government Gazette of June 24, 1993 appointed several government ministries and departments as "Project Approving Agencies ' (PAA) EIA is a vital part of the project approval process The law requires these agencies to assess the environmental impacts of new development projects through an EIA The PAAs are required to prepare the Terms of Reference (TORs) for the EIA review the EIA report and finally decide whether to approve the project or not The Central Environmental Authority (CEA) is assigned overall responsibility for executing the EIA process in collaboration with the PAAs The Natural Resources Management/ EIA division of the CEA is responsible for the implementation of the EIA process The Ministry of Environment coordinates with CEA and PAAs in EIA implementation The Secretary of this Ministry considers appeals made by any developer against a decision made by a PAA When the EIA regulations came into effect in June 1993, the country had neither the trained personnel in the government agencies nor the persons qualified to teach EIA in education and training institutions The Ministry therefore requested the USAID/ NAREPP to assist in developing and organizing EIA training programs to fulfil this need In March 1992 NAREPP commissioned a study on the identification of training needs and development of environmental impact assessment and environmental management training for Sri Lanka Two US experts Dr Peter Meier and Prof Frank Mc Cormick carried out this assignment submitted their recommendations in April 1992[2]

The main findings and recommendations of the report were as follows

a) The officials of relevant government agencies with the CEA at the forefront need to be provided immediately with job skills required in EIA
b) Agencies such as the Board of Investment (BOI) and the Ceylon Electricity Board (CEB) which have already been assigned the responsibility for environmental assessment desperately need EIA training for their officials within the shortest possible time,
c) The need to strengthen university level education in environmental fields is quite evident,
d) A 9 or 10 day intensive EIA course may be offered for the key officials in public sector agencies,
e) The proposed course may be offered on a residential basis outside Colombo to secure maximum participation
f) An important element of the course is to provide hands on experience to participants by way of doing a mini-EIA on a real project proposed by a developer The participants should be taken to field sites and be provided with opportunities to study the probable impacts of the proposed project,
g) The participants should be given a set of comprehensive reading materials including a source book and course materials,
h) The proposal to establish a Centre for Environmental Studies within the university system should be supported,
i) The development of university environmental education programs particularly at masters degree level should be supported

NAREPP having decided to reprogram its activities with a strong component on environmental education and training accepted these recommendations and proceeded to implement them The main objective of NAREPP assistance was to build the capacity of local institutions to provide environmental education and training In line with this objective NAREPP sponsored seven representatives from university faculty and key government agencies to follow the course on Environmental Impact Assessment for Developing Countries at the University of Tennessee, Knoxville during July- August 1992 It was intended to use the participants of this course in future NAREPP EIA training programs The first ten day EIA intensive course was held in September 1992 at Hikkaduwa, a coastal town about 100km south of Colombo The course was conducted by US consultants Professor Craig Davis and Dr Peter Meier with contributions from several local experts The participants at the Tennessee course also followed this course with a view to taking over from the US trainers the responsibility of continuing it 43 persons from various agencies followed the entire EIA intensive course while 5 persons followed parts of it A list of the participants grouped by agency is given in Table 4

Table 4

Participants (by agency) in the first EIA Intensive Course Hikkaduwa - 1992

Agency	No of Participants
Central Environmental Authority	13
Ministry of Transport, Environment & Women's Affairs	01
Ministry of Forests, Irrigation & Mahaweli Development	03
National Water Supply & Drainage Board	01
Ministry of Tourism & Rural Industrial Development	01
Coast Conservation Dept	02
Board of Investment	03
Ministry of Power & Energy	03
Ministry of Transport & Highways	01
Sri Lanka Institute of Development Administration	02
University of Colombo	03
University of Moratuwa	03
University of Peradeniya	02
The Open University of Sri Lanka	03
NGOs	02

The table shows that the CEA other government agencies and the universities were well represented on this course The main subject areas covered in this program are given below

History and purpose of US/National Environmental Protection Act (NEPA) The EIA decision-making process, Ecological constraints, Agricultural development in Sri Lanka, lessons learned, Video (Wells Springs Case Study Lessons of Wells Springs)

Basic concepts of environmental economics, Pollution control technology, The Trincomalee coal power plant, Incorporating environmental issues into planning and policy-making, Public participation and scoping Environmental problems in the USSR Video (Nuclear waste management problems in the USSR)
Valuation techniques, The EIA process plenary briefing Case Studies group briefings, Video (Remnants of Eden)

Methods of EIA TOR (case study), Conflict resolution Workshop, Video (It needs political decisions Urban environmental problems), Group Sessions, Video (Waste not want not)

Group Work Sessions , preparation of presentations Video (Save the earth feed the world", Only one atmosphere')

Group Presentations

The workshop focused on conceptual aspects of EIA and the American experiences

TRANSFERRING RESPONSIBILITY FOR EIA TRAINING TO SRI LANKAN INSTITUTIONS

Another useful development was taking place during this time in the local university system Several universities established environment related training and educational programs at undergraduate and post-graduate levels A significant outcome of this process was the establishment of the Centre for Environmental Studies as a multi-faculty institution

The EIA intensive course which had been evolving over a period of five years is now considered comprehensive training program and just forth

TRAINING ON SPECIFIC ASPECTS OF EIA

Table 4

Participants (by agency) in the first EIA Intensive Course Hikkaduwa - 1992

Agency	No of Participants
Central Environmental Authority	13
Ministry of Transport, Environment & Women's Affairs	01
Ministry of Forests, Irrigation & Mahaweli Development	03
National Water Supply & Drainage Board	01
Ministry of Tourism & Rural Industrial Development	01
Coast Conservation Dept	02
Board of Investment	03
Ministry of Power & Energy	03
Ministry of Transport & Highways	01
Sri Lanka Institute of Development Administration	02
University of Colombo	03
University of Moratuwa	03
University of Peradeniya	02
The Open University of Sri Lanka	03
NGOs	02

The table shows that the CEA, other government agencies and the universities were well represented on this course The main subject areas covered in this program are given below

History and purpose of US/National Environmental Protection Act (NEPA) The EIA decision-making process Ecological constraints, Agricultural development in Sri Lanka lessons learned, Video (Wells Springs Case Study Lessons of Wells Springs)

Basic concepts of environmental economics Pollution control technology The Trincomalee coal power plant Incorporating environmental issues into planning and policy-making Public participation and scoping Environmental problems in the USSR Video (Nuclear waste management problems in the USSR)
Valuation techniques The EIA process plenary briefing Case Studies group briefings Video (Remnants of Eden)

Methods of EIA TOR (case study)

Conflict resolution Workshop Video (It needs political decisions, Urban environmental problems), Group Sessions, Video (Waste not, want not)

Group Work Sessions , preparation of presentations Video (Save the earth feed the world' " Only one atmosphere")

Group Presentations

The workshop focused on conceptual aspects of EIA and the American experiences

TRANSFERRING RESPONSIBILITY FOR EIA TRAINING TO SRI LANKAN INSTITUTIONS

Another useful development was taking place during this time in the local university system Several universities established environment related training and educational programs at undergraduate and post-graduate levels A significant outcome of this process was the establishment of the Centre for Environmental Studies as a multi-faculty institution

The EIA intensive course which had been evolving over a period of five years is now considered a comprehensive training program adequate for the EIA training needs of the country The agenda of the current course is condensed below

Introductory Session Course Expectations, Description of Workshop and Assessment of Participants' Basic Environmental Knowledge, Introduction of Course Materials/Source Book

Concepts in Environmental Protection & Management Sustainable Development Issues Specific to Sri Lanka, Environment & Development - An Overview Ecological Foundations for Environmental Management, Bio-diversity and its significance to Sri Lanka

EIA Process and Techniques I Planning as an alternative to EIA
EIA Process in Sri Lanka, Legal Issues in EIA Conducting Environmental Scoping Setting Terms of Reference for EIA - Evaluation of EIAs, Public Participation in EIA Process

EIA Process and Techniques II Environmental Economics and its Application in Extended Cost-Benefit Analysis, Social Impact Assessment Application of Geographic Information System in EIA Monitoring in EIA, Team Management in EIA Case Studies Briefing Group Discussion with Case Study Writers and Facilitators

Post EIA Process Revision of Presentations,Group Presentations and Critique, Simulation of Public Hearing, Debriefing Case Studies and Public Process, Participants' Evaluation of the course Post-Course Assessment

The responsibility of conducting the EIA intensive course has been successfully transferred to Centre for Environmental Studies in the following manner

a) conduct of the entire course only by local trainers
b) preparation of reading materials, case studies and other documents by local resource persons,
c) coordination and organization of the course by local institutions, and
d) funding of the course from local sources

The course can now claimed to be truly indigenous

TRAINING ON SPECIFIC ASPECTS OF EIA

The EIA Intensive Course covers all aspects of the EIA process but only in a general way It was considered necessary to organize training in specific aspects of EIA Accordingly, special workshops on EIA methods and monitoring were organized to help improve skills of professionals

Training Workshop on EIA Methodology

A NAREPP workshop on EIA Methodology was conducted by a US consultant in October 1994 It was designed to help improve the capabilities of EIA preparers to use appropriate methods in EIAs The principal methodologies presented at this workshop included overlays, matrices and networks The participants applied these methodologies to case studies of projects provided to them Participants then, discussed strengths and weaknesses of the methodologies and how to improve their application

A breakdown of the 30 participants who followed this workshop is as follows

Private sector (consulting firms)	- 11
Government agencies (CEA and PAAs)	- 10
University teachers involved in EIA Training and Consultancy	- 09

Some Participants in this course later served as trainers on EIA methodology while others used them in preparing EIA reports

Workshop on EIA Monitoring

Monitoring has been identified as the weak link in the EIA process in Sri Lanka NAREPP organized a 5 day residential workshop on EIA Monitoring in April 1995 with the assistance of two US consultants and a few local resource persons This workshop was designed to help develop local capabilities in formulating and implementing a Monitoring Plan as an integral part of the EIA process It covered the following subject areas

- Principles of environmental monitoring
- Purpose and types of monitoring
- National and regional monitoring

- Availability of baseline information in Sri Lanka
- Issues of sampling statistics and data quality
- Planning and designing EIA monitoring programs
- Conducting EIA monitoring sampling and analysis, quality control
- Developing recommendations for meeting EIA monitoring needs in Sri Lanka

Forty participants from government agencies, private sector and the universities followed this workshop

The recommendations presented at the workshop by the participants were submitted to concerned public and private sector agencies [3]

EIA TRAINING COURSES CONDUCTED BY THE CES

The Centre for Environmental Studies (CES) is one of the principal institutions engaged in EIA training The major training program coordinated by the CES is the 10 day EIA intensive course CES has conducted this program twice a year since 1994 with financial assistance from the Ministry of Environment, the CEA and NAREPP The course consists of the following three parts, namely

i Conceptual Framework of EIA,
ii Hands-on experience /Application of EIA, and
iii Presentation of a mini EIA report illustrated with a short video produced by the participants

Participants who successfully complete the course are issued certificates The resource persons for this course are drawn mainly from the Universities of Peradeniya Moratuwa, the Open University of Sri Lanka and the CEA The CES also conducts other short training courses on EIA for specific groups of participants These courses cover broad subject areas of EIA preparation (mainly for consultants), formulation of TORs for EIA (for the members of PAA) and EIA monitoring (for the participants from both public and private sectors) Table 6 gives a summary of the short training courses conducted by the CES during the last four years

Table 6

Short Training Courses Conducted by the CES - 1996

Title of the Course	Participants				Date
	Government	NGOs	Private Sector	Universities	
Mini Workshop on EIA for Agriculture/Land/Forestry and Irrigation sectors	21	12	04	12	November 1994
Mini Workshop on EIA for Industrial and Mining Sectors	27	10	06	15	November 1994
Mini Workshop on EIA for Fisheries/Coastal and Tourism sectors	22	10	01	13	December 1994
UNEP-NETTLAP Workshop on Coastal Zone Management	08	04	03	05	November 1994
Workshop on EIA for the Newly Appointed Project Approving Agencies	35			-	June 1995
EIA for Members of EIA Oversight Committee of Project Approving Agencies	34			-	July 1995
EIA Preparation for Consultants Registered with the Central Environmental Authority	10	-	40	15	July 1995
EIA Awareness Workshop for NGOO	02	20	-	03	November 1995

These courses have been funded by the Ministry of Environment CEA and NAREPP

EIA TRAINING CONDUCTED BY CEA

CEA, being the main implementing agency of the EIA process in Sri Lanka, has actively participated in developing and coordinating all EIA related training programs conducted by NAREPP and CES Since 1993 CEA has coordinated with the PAAs, in administrating a large number of EIAs and IEEs This experience has enabled CEA to identify the important areas which require training Most EIA reports submitted during the past four years have failed to reach the required standards These reports do not provide sufficient information for PAAs to arrive at decisions on the approval of projects The CEA has identified the preparation of EIAs as a vitally important area for training CEA has organized a series of short training courses on EIA preparation for private consultants and for members of consultancy firms CEA has also organized several short training courses to provide private sector developers with a basic awareness of EIA and Environmental Pollution Licensing (EPL) requirements A summary of the short training courses organized by the CEA is given in Table 7

EIA Related Training Programs Conducted by SLIDA

The Sri Lanka Institute of Development Administration (SLIDA) is the principal government institution providing training for executive grade officers in the public sector As these officers including those who work at the provincial and divisional levels are involved in managing development projects they need to be provided with a basic understanding of environmental issues Their skills need to be strengthened to integrate the environmental dimension of the development process SLIDA has accordingly developed two training programs covering the general aspects of environmental management

Table 7

Short Training Courses organized by CEA - 1996

Title of Course	Duration	Number of Participants			
		Public Sector	Private Sector	Universities	NGOs
Second Awareness Workshop on Environmental Approval Procedures for Developers/Investors	One Day 25/05/96	05	31	-	01
Third Awareness Workshop on Environmental Approval Procedures for Developers/Investors	One Day 24/08/96	-	32	-	-
Awareness Workshop for NGOO in the Southern Province	One Day 22/06/96	-	-	-	41
Training Programme for the Irrigation Sector	Two Days 05 & 06/12/96	-	-	-	-
Workshops for Districts and Divisional Secretaries	8 one day Workshops	193	-	-	-
Workshop to Review the Associated Projects	One Day 05/3/96	27	-	-	-

These programs are coordinated by SLIDA faculty members who followed the ten-day EIA intensive course conducted by the Center for Environmental Studies EIA is as an important component of this program A summary of these training programs is given the Table 8

other community groups) of the citizens' responsibility in the EIA process,

b) to strengthen their capacity in interacting with the government agencies and project developers,

Table 8

SLIDA Training Courses in Environmental Management - 1993 - 1997

Title of the Course	Medium	Month and Year	Number of Participants
Environmental Management	English	Aug 1993	27
-do-	English	Nov 1993	25
-do-	English	Jan 1994	20
-do-	Sinhala	March 1994	18
-do-	English	May 1994	20
-do-	English	Oct 1994	15
do-	English	Feb 1995	21
do-	Sinhala	April 1995	16
-do	English	June 1995	28
-do-	Sinhala	July 1995	25
-do-	English	Jan 1996	22
-do	Sinhala	Feb 1996	21
-do-	English	July 1996	19
-do-	Sinhala	Oct 1996	31
-do-	Sinhala	Dec 1996	23
-do-	English	Jan 1997	14
-do-	Sinhala	Feb 1997	18
Environmental Impact Assessment	English	March 1996	25
-do-	English	Nov 1996	22

TRAINING PROGRAMS CONDUCTED BY NGOS

Several environmental NGOs are involved in organizing EIA related training programs for various community groups Environmental Foundation Limited (EFL) and Mihikatha Institute (MI) are the main Colombo based NGOs involved in organizing awareness programs on EIA for their members and other community groups These training programs aim

a) to create awareness (among the members and

c) to encourage NGO members and community groups to participate actively in the scoping and public hearings, and

d) to provide information on the proposed development projects and their likely impacts

However the message given through these programs have not been correctly understood by some participants They seem to think that their task is to protest against any development project Summary of EIA related training programs conducted by the Environmental Foundation Ltd (EFL) and Mihikatha Institute (MI) are given in Table 9

Table 9
EIA Related Training Programs Conducted by EFL and MI 1993 - 1997

	Place and Date	Number of Participants	Subject Areas Covered
EFL	July 1993 - Tangalla	100	Public commenting making submissions at public hearings
	March 1994 Colombo	65	Scoping, public comments and oral submissions, monitoring, provisions of NEA and CCA in relation to EIA/IEE harnessing public comments
	April 1994 - Negombo	54	-do-
	July 1994 - Kandy	48	- do -
	May 1994 - Uswetakeiyawa	80	Public Comments, Perusal of an EIA report, relevant legal provisions monitoring
	November 1994 - Kandy	60	- do -
	February 1995 Gampaha	40	Scoping, public participation and relevant provisions in NEA
	May 1995 Puttalam	75	- do - Focus on aquaculture
	September 1995 - Colombo	150	Provisions of NEA and CCA relating to EIA/IEE scoping public comments gathering public support, monitoring relevant guidelines significant effects
	September 1995 Tangalla	60	- do -
	March 1996 - Hambantota	50	Public participation monitoring oral submissions relevant provisions in NEA and CCA
	March 1996 - Colombo	65	Organizing a protest campaign to restore the 30 day public commenting period in view of the Cabinet decision to restrict to 15 days
	December 1995 Rajagiriya	200	Requesting an EIA participation in scoping making comments (written and oral) importance of alternatives
	August 1996 - Kandy	50	Public commenting, participation in scoping and monitoring relevant provisions in NEA
	September 1996 - Galle	65	Same as above - in addition, relevant provisions in CCA
	October 1996 - Colombo	100	Public commenting, relevant provisions in NEA
	October 1996 - Talawakele	150	do -
MI	March 1994 June 1994	06 (For Custom Officers)	Enhancing awareness on the importance of preventing cross & broader trade of endangered species
	March 1995 Dec 1995	90	Buffer zones legal structure participatory programs
	Aug 1993 - to date	200 (for Lawyers)	Environmental Law
	Jan 1993 to date	40 (for Journalists)	Environmental issues (EIAs Industrial pollution Environmentally unsound projects etc)
	June 1996 March 1997	47	Sensitizing the people by using videos on Environmental Law Critical Environmental Issues
	June 1996 April 1997	20	Environmental Law

IMPROVEMENT OF EIA RELATED UNIVERSITY ENVIRONMENTAL EDUCATION PROGRAMS

Application of Knowledge and Skills

The weightage given to EIA in most of the university post-graduate programs is considered to be quite low EIA as taught in some post-graduate programs, appears to be confined to conceptual aspects EIA requires an inter-disciplinary approach As these programs have been formulated within a single discipline framework such as engineering, economics and ecology, they lack other essential disciplines Most participants in these masters programs, particularly those at Moratuwa and Colombo universities are practising professionals They need to be introduced to the application aspects of EIA in actual situations A few universities have introduced interdisciplinary curncula to some extent through the services of visiting lecturers A strong component of EIA should be introduced into all university environmental education programs to enable students to understand the environment in its totality The participants of such courses will be able to apply the knowledge and skills they gain in these courses to interact better with students of other disciplines More university teachers should be trained to impart EIA instruction to students The number of university teachers who have followed the EIA intensive courses conducted by the CES is given in Table 10

Financial Resources

Inadequate financial resources has been a major constraint to the development of post-graduate programs in environment the constraint will be more severe when NAREPP assistance ends in mid-1997 The universities will find it difficult to maintain the high standards achieved in these programs without funding from alternative sources No time should be lost to search for alternative sources of funding to maintain these courses

Gainful employment for the graduates who have followed the environmental degree programs has become a priority issue

REVIEW OF EIA TRAINING AND SUGGESTIONS FOR IMPROVEMENT

EIA training has evolved as a comprehensive program over the past five years with an emphasis on development and application of skills related to EIA There are however, some shortcomings which need to be remedied

In 1996 NAREPP conducted an evaluation of EIA Intensive Course through a mail survey A questionnaire was sent to 288 participants of the EIA Intensive Courses conducted dunng 1992 - 1996, 158 persons (54%) responded

Table 10

University Participants in EIA Intensive Courses conducted by the CES - 1992 to 1996

Universities	Colombo	Eastern	Sri Jaya wardene pura	Kelaniya	Moratuwa	Open University	Peradeniya	Ruhuna	Sabara gamua
Number Of Participants	6	6	7	5	9	10	20	2	1

The percentage of participants (by groups) who responded is shown in Table 11

Only 44 3 percent of the respondents had previously received environmental related training Of this number slightly less than half had received their training abroad

Commenting on the usefulness of the course in career development only about 10 percent felt that this course was useful in getting promotions while about 4 percent felt that it was useful in obtaining foreign scholarships None of the respondents reported receiving an increase in salary (Figure 1)

Nearly half the respondents reported that this course was extremely useful in their work while only about 11 percent reported that the course did not help their work Eight percent reported that the course helped to increase their awareness on environmental management

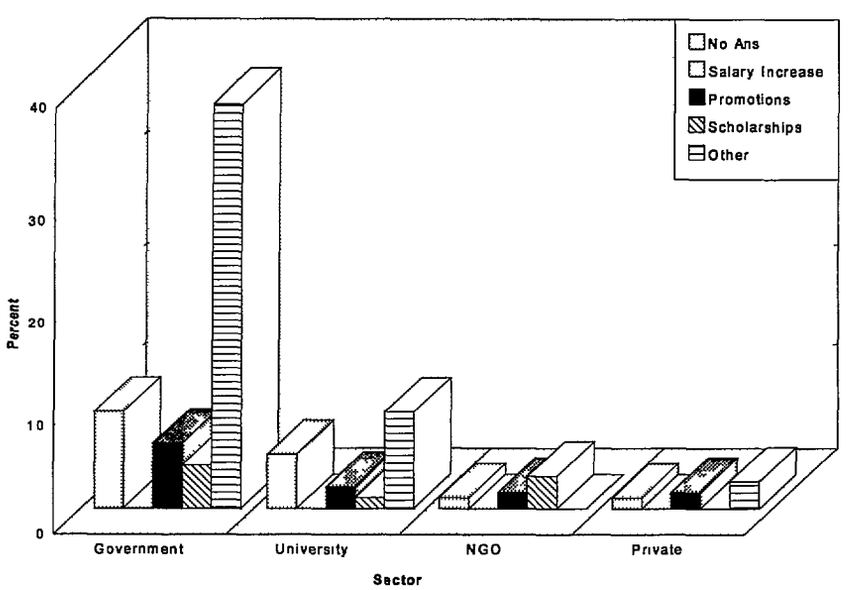
Nearly 60 percent of them were directly involved in environmental related work while 40 percent were indirectly or partially involved (Figure 2)

Table 11

Percentage of Respondents in EIA Course Evaluation

Sector	Percentage Distribution	
	Total Participants	Survey Respondents
Government	67 70	60 8
University	19 09	23 4
NGO	7 29	7 6
Private	5 23	2 5
Other	0 69	5 7

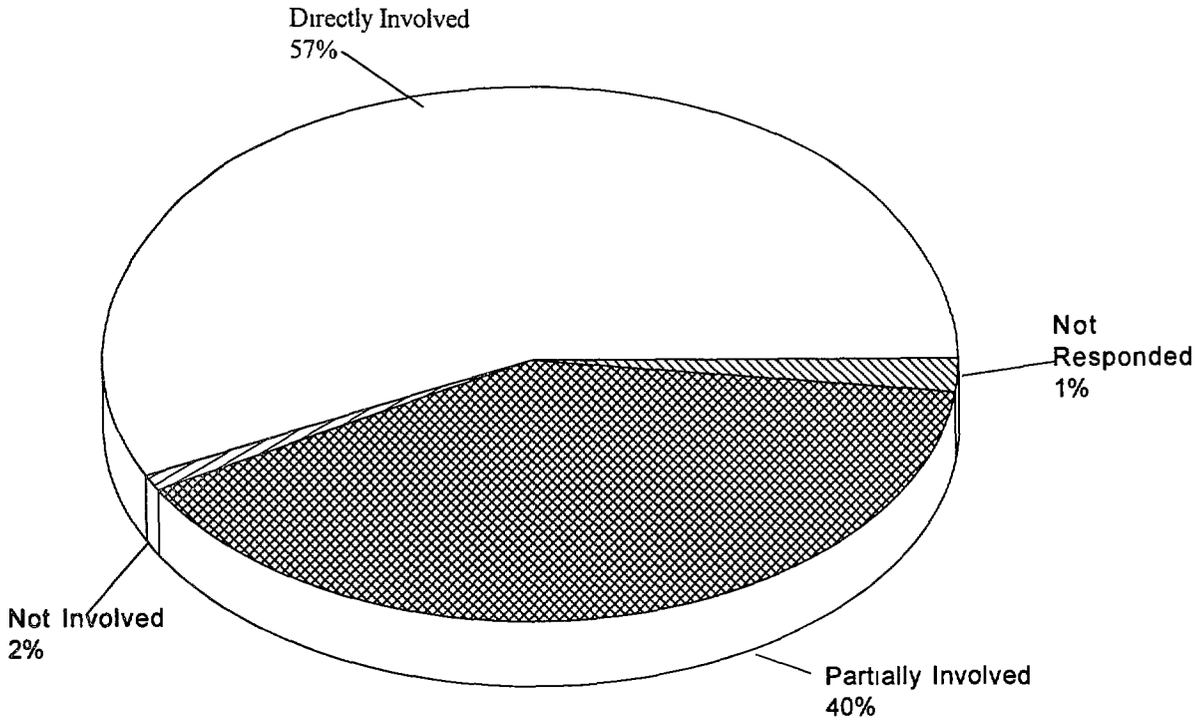
Figure I
Usefulness of Course by Employment Sector



Other category includes those who felt the training was useful for work broadening knowledge for teaching and for Skills development

Note Useful in obtaining salary increase = 0

Figure 2
Participants' Involvement in Environmental Work



About 60 percent of the respondents had been involved in one or more environmental impact assessments after their training About a third of them have served as a member or manager in one or more EIAs, a quarter of them have functioned as a reviewer/manager and only 5 percent as team leader

Table 12 summarizes the responses regarding the usefulness of the course in EIA skill enhancement

The improvement of skills listed in Table 12 varies depending on the sector a participant is employed in For example the preparation of TOR,

EIA scoping and organizing public hearings are generally done by the government sector specifically the Project Approving Agencies (PAA) EIA training and consulting work is done by the universities and private sector The participants reported that the course has helped not only those directly involved in EIA activities but also those involved in development planning and management

Funding of Training

The EIA training programs begun in 1992 under NAREPP auspices have now been well integrated into the system However the EIA training programs conducted by the CES are still funded with assistance provided by NAREPP, the Ministry of Environment and the CEA NAREPP assistance will cease when the project terminates in mid 1997 The Ministry and the CEA may find it difficult to provide funds needed to continue this program The participants or their employers may have to pay for at least part of their training Alternate sources of funding including international donors should be sought for continued support of EIA training programs

Training Methods

Lectures have been the principal means of imparting knowledge and skills in these training programs mainly because they are conducted by the university teachers Since the course participants are adults the use of more adult-learning techniques

Table 12
Usefulness of the Course in Improving EIA Skills

Skill	Not at all helpful (%)	Slightly helpful (%)	Helpful (%)	Very helpful (%)	Extremely helpful (%)	Not responded (%)
EIA TOR Preparation	2 50	3 80	39 21	34 80	8 20	11 40
EIA Consultant Selection	8 20	15 20	32 90	20 90	3 20	19 60
EIA Scoping	1 90	5 73	29 10	38 60	12 70	12 00
Organizing Public Hearings	5 70	12 70	30 40	23 40	11 40	16 50
Enlightening Communities	3 80	12 70	30 40	27 20	11 40	14 60
Provision of Inputs for EIA Approvals	7 00	5 10	29 10	27 20	12 70	19 00
Incorporating Environmental Concerns in Planning Activities	2 50	6 30	19 61	43 00	17 10	11 40
Using EIA knowledge in day to day decision making in job	4 40	8 90	22 20	37 30	15 80	11 40
EIA in teaching/training	5 10	9 50	26 60	27 80	19 00	12 00
EIA in consulting	5 10	10 80	25 90	24 10	13 9 0	20 30

and self-learning opportunities seems more appropriate It would therefore be useful to organize training of trainers programs for the instructors of this course

Medium of Instruction

Most of the EIA training programs discussed so far have been conducted in English Many potential participants who could benefit from EIA training lack fluency in English This limits their ability to follow presentations and to make use of the reading material provided These courses should therefore be offered in the national languages as well

Improving EIA Training Curricula

Present EIA training programs concentrate on the preparation of EIA reports The training is focused on the environmental aspects of a single project The EIA exercise carried out by the participants is restricted to the project area and does not take into account the impact of other existing or proposed projects in the same area The carrying capacity of the environmental resources of the area is also not considered Strategic EIAs which include these aspects should be made an important component of the program The following types of strategic EIAs need to be included

a) Sectoral EIAs which cover the specific sectors such as agriculture, industry, and tourism
b) Regional EIAs which cover all projects proposed to be located in a given geographical area Such EIAs, would for example assess the impacts of development activities on a given watershed or river basin, and
c) Policy EIAs which help the study of the environmental impacts of various government policies

The use of EIA in development planning and management processes should be introduced to the training courses The sessions devoted to strategic EIAs will help improve the participants' overall perspective on the environment without limiting it to narrow areas

Application of EIA Training

The Administrative Reforms Committee report (1988) identified "the lack of integration of training with career development and progression as a major factor that negates any attempt at expanding training in the public sector for this reason

the Committee has recommended the combination of the responsibilities of training and of career development "[4]

This comment can be applied to EIA training as well Some PAA officers who have followed the EIA training have not been assigned to work in environmental cells On the other hand most members of environmental cells have not received any training in EIA All public officers should be able to use EIA as a planning tool as they are involved in planning and implementing development projects They should think environmentally Many public officers who have followed the EIA training do not appear to use it in their work This can be traced to the lack of systems available in the public sector than to their personal inability to use such training At present there are no accepted systems built into the procedures of the public sector to use EIA as a planning tool or to incorporate the environmental dimension into the development processes The National Planning Department has however recently introduced a new project submission form where line ministries submit basic information regarding various aspects of the project proposal under the Public Investment Program (PIP) These aspects include the environment as well Public officers who submit project proposals are required to consider the probable impacts of the project on environment at the feasibility stage of the project cycle There is no system established in the public sector to consider environment as an integral component of the project management for projects falling outside the PIP The systems established to incorporate environmental dimension in planning and management must be expanded to cover all public sector projects including those outside the PIP

The private sector also fails to take the environmental dimension into account in planning and managing projects Private sector managers normally do not consider environment as an integrated component of project management They do so only when required by EIA and Environmental Protection Licensing (EPL) regulations Project proponents seeking loans from banks or other financial institutions address feasibility only in terms of economic, financial, market and technical perspectives but not the environmental perspective The private sector also should develop the capacity for environmental analysis of their projects since it will benefit them in the long run More EIA training programs for private sector personnel should therefore be organized

EIA Consultants

A number of consultants and consultancy firms are registered with the CEA as EIA preparers Some EIA/IEE reports have been prepared by consultants who are not registered with the CEA The present practice is that the developer selects individual consultants or a consultancy firm to prepare the EIA No qualifications are laid down for persons preparing an EIA report Most EIA reports so far submitted are found to be of substandard quality These reports are therefore of little use for decision making Some EIAs have been rejected because they did not provide adequate information and analyses as required by the PAAs Developers have been known to pay high consultancy fees for the preparation of EIA reports irrespective of their quality A few private consultants have followed the EIA training courses conducted by the CES/CEA More training programs should be organized for EIA consultants Consultancy firms should be requested to sponsor their staff members for such courses It is proposed that an accreditation scheme be established for EIA consultants to ensure the preparation of EIAs only by qualified professionals Such a scheme, it is envisaged, would have close links with the EIA training programs

FUTURE DIRECTIONS AND POTENTIAL FOR TRAINING

The standard of living can be improved only by greater productivity and creation of employment opportunities in the different sectors of the economy, especially industry agriculture and tourism Such development can involve increased depletion of the natural resources of the country including vital ecosystems The national task will, therefore be to achieve economic development with minimum environmental damage

The assessment of the environmental impacts of development projects becomes crucially important This process requires qualified personnel in the government agencies, among the developers and the NGOs Particularly important will be the public's awareness of the varied impacts of development projects There is a growing interest on various aspects of environmental management emerging from all sectors EIA training and awareness programs will therefore have an increasing demand

The developed countries now require environmental standards to be met for various products that they import In this context of local and global trends it is imperative to take appropnate

steps to manage the environment One effective means of achieving this objective is the development and conduct of environmental training programs for all sectors

Environmental training programs so far conducted in Sri Lanka have been largely limited to the national level organizations This is mainly due to the fact that most of the requirements under the National Environmental Act have to be enforced by the national regulatory agencies The National Environmental Act is enforceable through out the country except the North Western Province which has enacted its own legislation on environment The subject of environment is presently listed in the "concurrent list of the Constitution Although the national and provincial government agencies are expected to handle the environmental issues concurrently in actual practice most of the major functions stipulated in the law are handled by only the national organizations Environment may become a devolved subject in the proposed devolution of power from the centre to the penphery This means that the provincial authorities will have a major role to play in future environment management EIA training programs should therefore focus equally on provincial institutions as well

As environment cuts across administrative and political boundaries it is also useful to organize regional programs on EIA and other aspects of environmental management The South Asia Cooperative Environment Program (SACEP) is already supporting environmental programs in the SAARC countries Environmental training programs should be organized at regional level so that SAARC countries can share experiences

ENDNOTES

[1] International Resources Group *Sri Lanka Natural Resources and Environmental Policy Project* Rep No Sri Lanka 91 - 001, Submitted to USAID, February, 1991

[2] Meier P and McCormick F *Training Needs for Environmental Impact Assessment Pollution Control and Natural Resource Management in Sri Lanka* NAREPP Colombo April 1992

[3] Robert Smythe and John Butler *Recommendations for Improving Project Based Environmental Monitoring in Sri Lanka* NAREPP Colombo 1995

[4] Govt of Sri Lanka Publication Bureau *Training and Career Development* Report No 5 of the Administrative Reforms Committee Colombo 1987

REFERENCES

Canter Larry W *Environmental Impact Assessment* McGraw Hill 1994

Carpenter Richard and Maragos James *How to Assess Environmental Impacts on Tropical Islands and Coastal Areas* Environment and Policy Institute East West Center/Asian Development Bank Hawaii 1989

Goodland Robert and Valerie Edmundson (edited) *Environmental Assessment and Development* An IAIA World Bank Symposium The World Bank Washington D C 1994

Ministry of Transport Environment and Women s Affairs (Govt of Sri Lanka) *National Environmental Action Plan 1995-1998* Colombo 1994

Smith Barry J and Delahaye Brian L *How to be an Effective Trainer* (2nd Edition) Queensland Institute of Technology New York 1987

The World Bank *Development and the Environment World Development Report - 1992* Oxford University Press Inc Washington DC 1992

The World Bank *Environmental Assessment Source Book Vol 1* Washington DC 1991

9 PUBLIC PARTICIPATION IN ENVIRONMENTAL IMPACT ASSESSMENT

Hemantha Withanage

Introduction

Environmental conservation has now become a political issue, with increasing public participation in decision making In most third world countries decision making is still in the hands of politicians bureaucrats and the rich Sri Lanka is one of the countries where this situation is changing very slowly Lack of public participation in decision making in Sri Lanka and many other countries has resulted in serious environmental damage Such damage was caused by most of the large development programmes implemented in Sri Lanka including the Mahaweli Multipurpose River Development Project, Lunugamwehera Project, Nilwala Flood Protection Project Gin Ganga Project and the Samanalawewa Hydropower Project

In Sri Lanka some proposed development projects were rejected because of technical problems, political reasons tender issues etc Some others were rejected because of strong public protests Many other projects were also rejected On the other hand some projects were adopted even in the face of strong public protests Many examples of such cases can be cited No Environmental Impact Assessment (EIA) was carried out for the Samanalawewa Project As a result the public was denied the opportunity to submit their comments on the project proposal A leak that occurred after the filling of the reservoir resulted in billions of rupees being spent on the unsuccessful attempts to repair the leak Downstream farmers are still clamouring for water to irrigate their paddy fields but their demand for water cannot be met The tapping of upstream Walawe river water for the Samanalawewa project and the lack of greatly reduces the flow of water into the Uda Walawe tank which provides the water for paddy fields located downstream If an EIA had been prepared and made available for public comment these issues could have been raised and mitigated

When construction of the Kandalama Hotel was begun with no opportunity provided for public comments the public protested against the closed process Later this became a political issue during the subsequent election campaign These protests would have been successful had they been confined to likely impacts the environment This issue was made use of by political parties at The Voice of America (VOA) Relay Station at Iranawila was also started without an EIA conducted according to Sri Lankan law The resultant protests led to violence and the death of a villager These incidents indicate the consequences of ignoring public opinion

Recently the Colombo-Katunayake Expressway project faced strong protests because the project proponents had not suggested acceptable arrangements for the relocation of families displaced by the expressway, and had not considered alternatives to the project When the EIA was made available for public comments, more than 600 comments were received from among the 1200 households identified as being affected by the project

The Upper Kotmale Hydropower Project (UKHP) proposal was rejected for the second time in December 1996 by the Central Environmental Authority (CEA) because of its adverse environmental impacts and also because alternatives had not been considered It was found that the project was not economically environmentally or technologically viable and that it would destroy the aesthetic quality of the area The Ceylon Electricity Board (CEB) the present proponent appealed to the Secretary to the Ministry of Environment against the first rejection of the UKH Project by the CEA in 1995 The Secretary to the Ministry of Environment on the advice of the Panel of Experts who considered the appeal upheld the decision not to approve the project

After three years experience of the EIA process, the Road Development Authority (RDA) laid

Previous Page Blank

the foundation stone and started construction work in 1995 on the 134 km long six-lane super highway from Matara to Colombo without an EIA or even a feasibility study being carried out The proposed highway is estimated to affect more than 16 000 families The failure to prepare an EIA shows the arrogance of the politicians and the lack of sensitivity on the part of policy makers towards the members of public who would be affected by the construction of the highway Construction work has also recently begun without EIAs on certain industrial parks, harbours and hotels

'An essential function of any nation is the securing of proper living conditions for its people It is important that a legal framework exists which ensures a special place for environmental and natural resources protection in the economic activity of the nation" (Chukwuma 1996)[1] However in Sri Lanka this aspect of economic security has been underestimated by the governing system One reason for this situation in the early years was that there was no "*access to information* or the *right to participation*" although we have had many legislative enactments The National Environmental Act (NEA) provides for public participation Apparently the authorities do not accept the public s right to participate in decision making, in other words they are not willing to share power

WORLD RECOGNITION OF THE RIGHT OF PUBLIC PARTICIPATION

The right to participate has been accepted in the developed world for a long time The Rio Declaration (1992) which was based on the Stockholm Declaration adopted at the 1972 United Nations Conference on the Human Environment states that *'environmental issues are best handled with the participation of all concerned citizens Nations shall facilitate and encourage public awareness and participation by making environmental information widely available"* [2] (Keating 1993) The Report of the World Commission in Environment and Development (usually referred to as the Bruntland Report) adopted by the UN General Assembly in 1987 recognised the need for a *a political system that secures effective citizens' participation in decision making"*, as a prerequisite for sustainable development (Bruno 1994) [3]

According to this report *"public participation includes public hearing on all projects and investment decisions that may impact the environment, public right to participate and submit comments as part of the Environmental Impact Assessment and Environmental Audit procedures, the right to initiative and referendums regarding environmental issues (procedures for putting decisions to a public vote), the right to interview and question governmental officials involved in environmental decisions, the right to legal redress and remedies for environmental or personal damages"* (Bruno 1994 page 31)

NATIONAL ENVIRONMENTAL LAW AND PUBLIC PARTICIPATION IN EIA

Participation of the public in EIA has now become a right rather than a privilege The Environmental Impact Assessment procedure laid down in the National Environmental (Amendment) Act No 56 of 1988 provides this entitlement Part IV C -- Approval of the Projects, Section 23BB Sub-section (2) states *'A project approving agency shall on receipt of an initial environmental examination report or an environmental impact assessment report, as the case may be, submitted to each project approving agency in compliance with the requirement imposed under sub-section (1), by notice published in the gazette and in one newspaper each in Sinhala, Tamil and English languages, notify the place and times at which such report shall be available for inspection by the public and invite the public to make its comments, if any, thereon"*

Sub-section (3) says *Any member of the public may within thirty days of the date on which a notice under sub-section (2) is published, make his or her comments, if any, thereon to the project approving agency which published such notice, and such project approving agency may, where it considers appropriate in the public interest afford an opportunity to any such person of being heard in support of his comments and any other matenals, if any, elicited at any such hearing in determining whether to grant its approval for the implementation of such prescribed project"*

Section 23DD, Sub-section (1) states *Where a project approving agency refuses to grant approval for any prescribed project submitted for its approval, the person or body of persons aggrieved shall have a right to appeal against such decision to the Secretary to the Ministry of Environment"* [4]

Accordingly under this Act affected parties and interested parties can submit their comments before a decision is made to grant approval for any new project

The Guidelines published by the Central Environmental Authority under this Act have

encouraged public participation One provision is *"As part of the scoping process the appropriate PAA should Invite the formal and informal participation of all concerned agencies, the proponent of the action, and other interested persons (including representatives of the affected public and others who might not be in accord with the action on environmental grounds)* (Central Environmental Authority 1995)[5]

A public hearing is held at the discretion of the PAA when it considers that it would be in the public interest to do so According to the CEA Guidelines *"a variety of situations may fall within the meaning of 'public interest" and these cannot be exhaustively defined Factors for the Project Approving Authority (PAA) to consider are whether a proposed prescribed project is highly controversial, whether more expressions of public views are essential to make decisions, whether the proposed prescribed project might cause unusual national or regional impacts, whether it might threaten a nationally important environmentally sensitive area, whether a formal request for a public hearing has been requested by an interested party* (CEA 1993 page 12 & 13)

These quotations show that the Sri Lankan law specifically the National Environmental Act is quite clear in regard to public participation in decision making in the EIA process However it is limited to decision making in respect of new projects It does not cover all the environmental issues This law does not provide for EIA or public participation in arriving at decisions regarding existing projects For example there is no provision for public participation in decisions to provide environmental protection licences (EPLs) even though such decisions may affect the public

PUBLIC PARTICIPATION IN OTHER ASIAN COUNTRIES

Sri Lanka permits greater public access to decision making in environmental issues than most other Asian countries Bangladesh China Malaysia Philippines Sri Lanka and Vietnam allow public participation (Welles 1995) Public participation is not mandatory in the Philippines China does not provide for public hearings Thailand does not provide for public participation Public participation is limited in India and Indonesia The central government in most countries maintains coordination with local authorities but unfortunately such coordination is limited in Sri Lanka (Annexure I)

ISSUES IN PUBLIC PARTICIPATION

Though the law allows it, public participation remains a controversal issue throughout the world *"In certain advanced countries, most of the traditional forms of citizens' participation, such as public hearings, advisory boards and study groups, frequently seem to have citizen input but in reality lack substance Hearings are usually the only participation procedure applied in most decisions "* (Checkoway, 1980) *"Nevertheless, they are often held at times and in places which constrain access The public hearing is intimidating to those who have not acquired appropriate expertise in public speaking thus placing the citizen at an immense disadvantage with regard to the deciding authority that controls the time and can mould the character of questioning No opportunity exists for citizens to confront the decision makers in a dialogue to deal with issues extensively and more informally (Chukwuma, 1966)*

These shortcomings also exist in the Sri Lankan system The public can participate at the following four stages of the EIA process in Sri Lanka the scoping stage, the 30-day public commenting period public hearings and appeal hearings In practice, however, many problems and shortcomings must be expected since EIA is a novel process in Sri Lanka

PUBLIC PARTICIPATION IN SCOPING

Concerned citizens have not been invited to the EIA scoping sessions for most new projects although it is clearly provided for in the guidelines Some Non-Governmental Organisations (NGOs) were invited on a few occasions but not the affected people The Board of Investment (BOI) and the Ministry of Industries invited NGOs at the early period of the EIA process but no longer since most NGOs represent environment interest groups, consulting only NGOs does not fully meet the purposes of public participation NGOs often have special expertise on certain issues making it necessary that they be consulted People living in the vicinity of project sites are the most vulnerable group They have intimate knowledge of the area and its resources Project Approving Agencies (PAAs) have shown no initiatives to increase participation of the affected public in scoping

WRITTEN PUBLIC COMMENTS

Public comments submitted within the mandatory period of 30 days are still minimal for

various reasons which include the following

- The public does not receive the EIA notices owing to lack of effective communication
  Copies of EIAs are not available at the designated local stations The number of copies of the EIA/IEE reports made available to the public is also inadequate
- Officers of local authorities are not aware of the importance of making these reports available to the public They treat them as confidential documents and keep them locked away in filing cabinets
- The public cannot easily read and understand these documents owing to their bulky size and the technical language used,
- Rural people lack writing and reading skills,
- Some EIA/IEE reports are very expensive and members of the public often cannot afford to buy them
  There is no compulsion to make comments and the public has no idea of the importance of their comments,
- The public has no faith in the EIA process and is often not aware of citizens' rights
- Members of the public are reluctant to oppose powerful politicians developers and the rich
- Past experience indicates that the authorities do not take public comments seriously

In many instances the affected people are not aware of the project or the EIA reports This shows how project proponents hide the project details until they receive approval It is however useful to study how many comments have been received in respect of each EIA/IEE (ANNEXURE II) In some cases comments have been received from many citizens while no comments have been forthcoming in others One or more of the above-mentioned reasons or even other unknown reasons may have contributed to the lack of comments or they may not have affected the public at all Lack of confidence in the PAAs is however the main reason for lack of interest The PAAs like to receive more standard comments but the lay public cannot be expected to do so However it is important to review these impediments and to devise an effective mechanism to get maximum public participation

THE VALUE OF PUBLIC PARTICIPATION

Although public participation in the decision making process is mandated by law certain private sector developers and the politicians appear to discourage public participation The recent Cabinet decision to reduce the public commenting period of 30 days to 14 days is the result of one such effort The industrial growth lobby and certain persons in responsible positions were trying to justify the reduction on the grounds that it was an experimental move in an effort to speed up the project approval process (see Annexure III) The strong protests against this decision fortunately prevented it receiving legal sanction

The time schedule for each of the steps in the EIA process clearly shows that the maximum stipulated time for public comments and for other official work has been limited whereas no limitations of time are placed on the project proponent for carrying out his responsibilities In some cases the project proponent has taken more than one year to prepare an EIA It is accepted that a project area should be studied well before any project proposal is designed and approved It must then be recognized that this is the main reason for the delay in the EIA process It is therefore evident that the process of approving the project cannot be speeded up by cutting down the period for public comments It is worth mentioning that during the recent public hearing organised by the National Task Force on redrafting of the NEA, representatives of the public requested at least 60 days for public comments on EIAs It is ironical that the Cabinet of Ministers still sees only the public commenting period as the bottleneck in the EIA and project approval processes

The NEA provides 30 days for public comments in order to make sure that the public is given an opportunity to participate in the EIA process It is therefore important to provide as much time as possible for public comments Of late, the CEA has been allowing 30 calender days for public comments although during the last three years the 30-day period did not include public holidays as defined in the Holidays Act No 29 of 1971

PUBLIC HEARINGS

Very few public hearings were held during the last three years Most PAAs do not usually hold such hearings In the case of the Upper Kotmale Hydropower Project, the Ministry of Power and Energy and the Central Environmental Authority organised one such hearing which was very successful from the public's point of view The Ministry of Fisheries organised one public hearing in 1994 to consider the granting of approval for three prawn farms These were very successful and helped in arriving at sound decisions No other PAAs have afforded such opportunities The two public hearings referred to above were held in two very different ways The hearings on the prawn farms were held at each

site in a very informal way Many affected people with no experience in public speaking also expressed their ideas and opinions The decision of the PAA was taken at the site itself The Upper Kotmale Public hearing which was held at Nuwara-Eliya about 20 km away from the project site was very formal People who are normally shy to speak in public were thereby restrained from freely expressing their ideas and fears Other constraining factors were the EIA was presented in technical language the PAA and the Technical Evaluation Committee expected more technical comments and less socio-economic opinions the time allowed for each person was very short people who had not submitted written comments within the 30 days public commenting period were not allowed to participate in the discussion Arrangements for future pubic heanngs should provide adequate time for members of the public to express their views The public hearings should also be organised in a manner that encourages informal discussion of issues

APPEAL HEARINGS

In the history of the EIA in Sri Lanka appeals were made against the decision of the PAA in respect of only two projects In the first case that of the Rajawella Golf Course the Secretary Ministry of Environment who heard the appeal altered the conditions laid down by the Technical Evaluation Committee (TEC) of the Central Environmental Authority It is incorrect for a non-technical official to change the conditions laid down by a technical committee whose members represent several disciplines His duty is not to change the conditions but to decide whether the PAA had made a fair decision In the second appeal (regarding the Upper Kotmale Hydropower Project) the Secretary of the Ministry upheld the decision of the CEA to reject the project In both these cases the members of the public who had submitted comments had the opportunity to participate in the appeal hearings

UPPER KOTMALE HYDROPOWER (UKHP) EIA

This project is a good example of public participation in the EIA process As in the case of many other projects members of the public were not invited to the sessions of the scoping committee However, during the 30-day commenting period several people submitted written comments both for the EIA (1994) and for the addendum (1996) About 100 people participated in the public hearing organised by the PAAs in connection with the UKHP They also voiced their protest against the project proposal through demonstrations poster campaigns banners and slogans Many of these people spoke against the project In the appeal referred to earlier public participation was very high

After the rejection of the project by the CEA and by the Secretary to the Ministry of Environment CEB prepared an addendum on an alternative called Yoxford diversion merely to include a non-feasible/ unrealistic alternative The CEA as PAA invited public comments on it During the decision making process a public hearing was not allowed and the decision was taken behind closed doors On one occasion the CEA sought police help to stop NGO representatives attending a TEC meeting held at the CEA This action which was at first attributed to the arrogance of the bureaucrats and the ill-treatment of public representatives was later found to have been caused by a misunderstanding This underlines the need for people to organise themselves to express their views on environmental issues while at the same time maintaining a dialogue with hte authorities

PROMOTING EFFECTIVE PUBLIC PARTICIPATION

Since members of the public are generally not aware of the right of the public to participate in the EIA process, many organised groups such as NGOs provide the leadership in public participation *"The institutionalisation of public participation makes provision for interested parties to hold controversial views A not too formal procedure affords opportunities for a realistic dialogue between supporters of the development projects and the affected public, which might aid in making compromises required for granting permits and thus for implementation"* (Chukwuma, 1996)

The experience gained from the Colombo-Katunayake Expressway Project EIA and the Upper Kotmale Hydropower Project EIA demonstrates that the EIA process can be made to work in Sri Lanka It also illustrates some of the important problems that must be overcome in order to make it work *"These problems include government bias towards development, ignorance and lack of democratic traditions of the mass of people, and a lack of commitment, training, and a willingness to share power on the part of the professional elite In all probability these fundamental problems will continue to plague the process for the foreseeable future and there is little that committed advocates of EIAs can do about it, whether those advocates are as powerful as the World Bank, for example, or as marginal as a fledging NGO"* (Westerfield and Withanage 1996)

The following suggestions are made both to governmental institutions and to NGOs for improving the implementation of the EIA process

The most serious problem with Sri Lanka's EIA process is perhaps the short period of time available to the public to obtain copies of the EIA report and then to prepare and submit their comments The current EIA regulations allow the public only 30 days from the date of the notice This period is extremely short and quite inadequate and puts enormous pressure on the public

If the authorities or the project proponents want to improve a proposed project, it is important to increase the time allowed for public comments to a more reasonable level like 60 days Under no circumstances should they attempt to shorten it to 14 days At present developers are allowed unlimited time to prepare IEE and EIA reports The salient facts within these reports are often difficult for most people to understand because the reports are written in highly technical language and in a manner that justifies and promotes the project proposal It is quite unreasonable to expect the public at large -- ignorant of the issues, unorganised and under-financed -- to prepare meaningful comments on technical issues within a period as short as 14 days If the PAAs expect more standard types of comments this can only be provided by established technically competent organizations Such organizations may not operate in the affected areas or may not have the capacity to deal with the environmental and socio-economic impacts of every development project proposal Only increasing the time limits for public comments can enable individuals or newly formed citizens groups to prepare informed comments

For effective implementation of the EIA/IEE process the developers and PAAs should make the EIA/IEE reports easily available to the public *"It is an unfortunate fact of life that publication of a notice of the availability of the IEE/EIA report in a national gazette or even local newspapers is not enough to inform local people -- those most directly affected by development -- of their opportunity to comment This practice of informing people through the newspapers comes from the United States and other Western democracies It is based upon the traditions in universal literacy, a free press, of activitism and protest'* (Westerfield and Withanage 1996) These are not the traditions in Sri Lanka Publication of a single notice in a newspaper is not an effective way to inform traditional farmers and villagers A more practical prompt and inexpensive solution to this problem would be to require developers to also notify the affected public by means of posters and leaflets and announcements through loudspeakers Notifying the public through such means would benefit the developers also by reducing the delay in approving (or rejecting) projects Developers however perceive that it is not in their interest to inform the public of their right to comment, since the exercise of that right might well result in the rejection of the project proposal Broadcasting the notice on radio and television is another effective way of informing the public since these media are increasingly used in Sri Lanka Another effective channel of informing the local people is the use of the existing traditional institutions such as Welfare Associations, Death Donation Societies, and Trustees' Councils (Dayaka Sabhas) of the temples and other places of worship

Other important factors that hinder public comments on EIA reports are the difficulty in obtaining copies of IEE/EIA reports the cost of the reports and their presentation EIA reports are generally expensive in relation to the income levels of the affected local communities Copies of the reports should be priced at the cost of copying only and nothing more Only about five free copies of these reports are presently made available at the offices of the PAAs CEA and the respective local authorities for public scrutiny This number of copies is totally inadequate It should be increased to at least 25 copies Additionally all the Grama Niladhari offices in the local authority area should be sent one free copy each Providing free copies to these traditional institutions will improve the level of public participation

EIA/IEE reports must be presented in a form that the local people can readily understand in order to get their maximum participation Many reports were earlier written in English In the case of the Kirinda Fishery Harbour Project, the Environmental Foundation Limited (EFL) demanded a Sinhala version or at least a summary of the report in Sinhala In the case of the Colombo-Katunayake Highway representatives of the public sued the authorities to force them to make EIA reports available in Sinhala the majority language in Sri Lanka Care must also be taken to ensure that the translations are accurate and complete Ever since the requirement for Sinhala translations of EIAs/IEEs was mandated in Sri Lanka in several instances the translations were inaccurate or incorrect and important data had been omitted Omissions or inaccuracies can be pointed out by interested parties if the time limit for public comments is extended

The most important issue is that these reports should be understood by lay readers because they are the people who are expected to comment

"The need for this requirement has been recognized by the European Union, which required that all EIA reports in EC countries contain a non-technical summary of the required information If this need is acknowledged for industrialized countries where literacy and technical training are high, it is all the more important in developing countries, where the mass of the people lack technical training"(Westerfield and Withanage, 1996)

Public participation can also be encouraged by inviting all interested parties to attend scoping sessions which prepare the IEE/EIA Terms of Reference Formal scoping meetings as organised at present do not attract ideas from the public Those sessions should be organised at a local level in a very informal way to get maximum participation If the public can participate in the process before the Terms of Reference are prepared, then the scrutiny of project proposal can be improved from the start and possible opposition can be reduced

A glaring inequity in the current Sri Lankan process is that project proponents can appeal against the rejection of their project proposals by either the PAA or the CEA, but project opponents do not have the same right of appeal This iniquity should be remedied

The law requires that a notice should be published in the papers to this effect We however hardly ever see such notices PAs should ensure this is done for every project approved

Though monitoring and evaluation are important aspects of EIA they are not being done by any project approving agency At present only the CEA can take legal action against a developer who violates any conditions attached to the approval granted to any project proposal Some projects especially prawn culture projects violate the conditions laid down in the approvals This right to file charges against such violations should be extended to the PAAs as well as to members of the public A system of self-monitoring by developers should also be introduced along with the establishment of community monitoring committees The very existence of such procedures would improve compliance with the legal requirements and would relieve the government of some of the burden of monitoring compliance

Work has not even started on many projects which were approved long ago The law requires that such projects should have their approvals revalidated

It is extremely important that politicians are not involved in this process If they are involved, people will be reluctant to comment freely even if they are severely affected

GOVERNMENT ATTITUDE TOWARDS ENVIRONMENTAL IMPACT ASSESSMENT

It has been pointed out that *"Clear government policies and adherence to those policies are necessary for the law to function as intended The Sri Lankan example shows that while certain officials exhibit integrity in the administration of the law, a very real problem still exists about the extent to which that attitude is shared throughout the bureaucracy"* (Westerfield and Withanage, 1996)

Lack of commitment to the EIA process on the part of government officials is one such example Many officials exhibit arrogance/impatience towards the public and NGOs whom they perceive as nuisances Such an attitude undermines the EIA process which aims to foster public participation and power sharing On occasions officials have been known to hide EIA reports from members of the public Others simply fail to educate the public on how to comment on a project proposal or they fail to invite the representatives of the public to scoping sessions Sri Lanka shares this lack of commitment on the part of government officials with other developing countries (Westerfield and Withanage 1996)

Bias shown in favour of some projects on the part of government officials and particularly officials within the PAAs is another problem The EIA regulations specify that the project proponent cannot also be the PAA Sometimes a Ministry can be the PAA, while the project proponent is a department or other agency which functions under it Bias is a serious problem in such situation Bias was apparently the reason for the approval of the UKHP by the Oversight Committee of the Ministry of Power and Energy over-riding the recommendation of its own Technical Committee

Even more flagrant bias was displayed in the case of the Colombo-Katunayake Expressway Project The Ministry of Transport and Highways as PAA published advertisements actively promoting the project! The Ministry refused to relinquish its position as the project approving authority (PAA) even when confronted with this evidence Environmental Foundation Ltd an NGO and the public eventually had the Ministry legally debarred from being the PAA The CEA was later appointed as the PAA

AWARENESS OF THE PUBLIC'S RIGHT TO PARTICIPATION

Since the EIA process is still very new to Sri Lanka more opportunities must be provided for the education and training of all practitioners in EIA including the public The term 'education is used here to mean communication that describes and promotes the EIA process generally *Training means providing the specific skills to different participants in the EIA system The training would range from instructions to EIA consultants to improve assessment of social, economic and physical impacts, to training for EIA policy-makers and managers, to members of the public on how to participate in the process Improvement of all these skills is surely needed in Sri Lanka, just as they are in other Asian countries Education on communication mechanisms and to get the maximum participation is the most essential thing to improve the EIA process" (Westerfield and Withanage 1996)*

The majority of people in developing countries including Sri Lanka are still years away from attaining the levels of education and assertiveness of their counterparts in industrialized countries where the EIA concept was developed

The public must be educated at two levels to increase their participation At the first level general awareness of the EIA process must be created in the public mind along with an understanding of its basic procedures NGOs sometimes conduct awareness programs but they are usually inadequate for many reasons It is a difficult task EIA can be made part of the school environmental curriculum to make students aware of the rights of the public Basic information can also filter through to parents and relatives Separate adult training courses for community members and community leaders could be sponsored utilizing available development aid funding for environmental education

Education in EIA should be imparted with reference to particular projects Project proponents should be required to advertise in advance of actual publication the fact that they plan to publish their EIA reports This would give people time to prepare themselves to comment Publicity could be given through leaflets and posters Some organised groups have shown in their campaigns that such publicity need not be expensive There is evidence that in the case of the UKHP, CEB officials and consultants spent considerable time in the Talawakele area talking to local villagers without actually providing them the full details of the proposed Upper Kotmale Hydropower Project (UKHP) They are reported to have given only the information that supported the project In this case they had not even informed the people of the sites selected for relocating them

The foregoing discussion has shown that the EIA process is not simply a matter of approving or rejecting project proposals The process identifies and compares the available alternatives in order to satisfy the government that the project has been designed to balance technical, economic, financial, social and environmental needs These decisions, often involving important trade offs, can be critically examined in the EIA process to ensure that a compromise reached is fair to all the parties involved (Westerfield & Withanage 1996)

CONCLUSION

The main objective of the EIA regulations is to minimize the harmful environmental impacts of development and to ensure that the public plays a direct role in that process These regulations are the greatest contribution made to environmental law in recent years The participation of organised groups in the project approval process does not by itself constitute public participation in its broad sense

The EIA is a tool that every developed country and the donor agencies like the World Bank, Asian Development Bank and Japanese ODA depend on for taking the decisions for project approval However in Sri Lanka some politicians, developers officials and planners see it only as a nuisance The EIA process has earlier been shown to be not merely a matter of approving and rejecting projects It also helps to understand the environmental social and economical implications of new proposals

Public participation is the basis for taking democratic decisions for national development Past experience illustrates that an open and honest EIA process and much hard work are necessary to make it work Even with these indispensable elements, it is still difficult to use the EIA process in developing countries to prevent the implementation of socially harmful projects The reasons are manifold Fundamental imbalances of power tilt in favour of developers and against the EIA process functioning as designed Ignorance bias and even corruption frequently affect government decision-makers Fundamentally people in developing countries lack the democratic traditions of many western countries where the EIA process was forged When all these factors are considered it sometimes seems that it

is only through the confluence of fortuitous circumstances that the EIA process works at all

Firstly the EIA reports should be aimed at non-technical decision-makers Secondly, the EIA process must be transparent and participatory with responsible public officials at some point in the process checking whether the EIA law is being implemented as intended Thirdly there must be competent organised groups who are free to make the public aware of the impacts of such projects and monitor the impacts of their implementation The most important factor is that the affected public should be consulted and should participate from the very early stages of the EIA process

This participatory approach of the EIA process is important It should be used in other sectors as well It is the only way to ensure balanced sustainable development of the country This can be achieved by explaining the issues to the people and encouraging them to express their opinions Political pressures should not be allowed to influence decisions which affect the environment and the public Ultimately, sharing of power with the public is the only way to satisfy the people s demand for justice

ENDNOTES

[1] Chukwuma C (1996) Undergirding environmental legislation and citizen participation in developing countries The International Journal of Environmental Education and Information Vol 15 No 3 Page 320

[2] Kaeting M (1993) Agenda for change Switzerland Centre for Our Common Future

[3] Bruno K (1994) Screening foreign investments Malaysia Third World Network

[4] National Environmental Act No 47 of 1980 and Amendment Act No 56 of 1988,Part IV C Approval of Projects

[5] Guidance for implementing the Environmental Impact Assessment (EIA) Process No 1 A General Guide for Project Approving Agencies(PAA) Sri Lanka Central Environmental Authority 1993

[6] Welles H (1995) EIA Capacity-Strengthening in Asia The USAID/WRI Model The Environmental Professional Vol 17 (No 2) pages 106 109

[7] Sri Lanka Government Gazette Extraordinary No 772/ 22 (1993) EIA Regulations Sri Lanka

REFERENCES

Bruno K (1994) Screening foreign investments Malaysia Third World Network

Chukwuma C (1966) Undergirding environmental legislation and citizen participation in developing countries The International Journal of Environmental Education andInformation Vol 15 No 3 Page 320

Guidance for implementing the Environmental Impact Assessment (EIA) Process No 1 A General Guide for Project Approving Agencies (PAA) Sri Lanka Central Environmental Authority 1993

Kaeting M (1933) Agenda for change Switzerland Center for Our Common Future

National Environmental Act No 47 of 1980 and Amendment Act No 56 of 1988 Part IV C Approval of Projects

Sri Lanka Government Gazette Extraordinary No 772/ 22 (1993) EIA Regulations Sri Lanka

Westerfield B Withanage H (1996)

Welles H (1995) EIA Capacity-Strengthening in Asia The USAID/WRI Model The Environmental Professional m Vol 17 (No 2) pages 106-109

ANNEXURE I - Title Public Participation in the EIA/IEE Process in Asian Countries

COUNTRY	PUBLIC PARTICIPATION	COORDINATION WITH LOCAL AUTHORITY
Bangladesh	yes	no
China	yes but no public hearings	yes
India	limited	yes
Indonesia	limited	yes
Malaysia	yes	yes
Philippines	yes but not mandatory	yes
PNG	yes	yes
Fiji	yes because most lands are private	sometimes
Sri Lanka	yes	limited
Thailand	no	no
Vietnam	yes	yes

(Source Welles 1995 pages 106-109)[6]

ANNEXURE II - Public Comments on EIA/IEE Reports in Sri Lanka

EIA/IEE	NUMBER OF COMMENTS
Wa-Lu Prawn Project (IEE)	7
Shibly Prawn Project (IEE)	7
Serendib Prawn Project (IEE)	18
Rajawella Golf Course (EIA)	**16**
Kukule Ganga Hydro Power Project (EIA)	2
Atherfield Industrial State (IEE)	0
Atomic Energy Laboratory (IEE)	7
Colombo Katunayake Expressway (EIA)	600
Upper Kotmale Hydro Power project (Addendum)	over 400
Sapugaskanda Power Station Extension (EIA)	1

(Source CEA)

ANNEXURE III - Time Limits set by NEA-EIA Regulations for the different steps in the EIA/IEE Process

According to the EIA regulations of the NEA the time periods for the process are as follows

STEP	EIA	IEE
Acknowledge preliminary information	6 days	6 days
Prepare TOR	30 days	14 days
EIA/IEE preparation	NO TIME LIMIT	
Check prima facie inadequacies	14 days	-
Public commenting	30 days	30 days
Forward public comments to PP	6 days	6 days
Respond to comments	NO TIME LIMIT	
Approval/reject project proposal	30 days	6 days
Prepare monitoring plan	30 days	30 days

(Source Sri Lanka Government Gazette Extraordinary No 772/22 1993)

10 DEVELOPERS' VIEW OF EIA

Sherine S Jayawickrama

Environmental Impact Assessment (EIA) is a relatively new feature in Sri Lanka and few developers have had personal experience with it Even some of the few projects that have been subjected to EIAs have sparked off great controversy and attracted much media attention Such projects include development of the Kandalama Hotel (Aitken Spence Group) the Upper Kotmale Hydro Power Scheme (Ceylon Electricity Board) and the Colombo-Katunayake Expressway (Road Development Authority) Although the media coverage taken at face value may suggest that developers objectives are completely at odds with the goal of environmental protection this view is rejected by developers as simplistic and inaccurate

The views and conclusions presented in this chapter are based on in-depth interviews with nine project developers [1] These developers represent different sectors of the economy levels of investment and stages in the history of EIA in Sri Lanka They include both private and public sector investments Most of these developers acknowledge that EIA is an important instrument the country must use to balance economic growth with environmental safeguards They also understand and accept the role of the Central Environmental Authority (CEA) in the EIA process

GENERAL PERCEPTIONS

In general developers who have been through the EIA process understand the importance of EIAs as a planning tool and feel that such a safeguard must exist in order to ensure sustainable development Most of these developers however appear to have had long and arduous experiences with EIAs and feel that the process must be streamlined and be more clearly focused They also feel that the EIA review process must reflect a more even balance between environmental concerns and economic development needs

Almost all the developers interviewed agree that environmental management is important for the country Many of them stated that sound environmental management is also a top priority for their organisation, because it makes good business sense The chief executive of Lanka Industrial Estates (Pvt) Ltd (LINDEL) said that right from the conceptual stage of LINDEL s industrial estate in Sapugaskanda one of its main features was an emphasis on high quality environmental infrastructure While this makes LINDEL s experience an unusual one it also makes it a good model for others because it illustrates that incorporating environmental considerations into project design can be very beneficial to the developer

Since the EIA process is less than five years old[2] many of the developers who have gone through

Building Environmental Concerns Into Project Design

Although EIA is the cause of long delays and frequent confrontation for many project proponents developers say that EIA is a useful tool in project planning

The CEB does not consider environmental management a concern that should be imposed on developers by an external source Rather EIAs must be used as a fundamental planning tool' to build environmental concerns into the project design itself

In spite of its controversial EIA Kandalama Hotel has received international acclaim (it won the Green Globe Award for Environmental Excellence) for successfully incorporating environmental aspects into the hotel s design

the process have witnessed its early development at close range A senior executive of the Aitken Spence Group, whose Kandalama Hotel went through one of the most controversial private sector EIAs to date felt that they were "guinea pigs' in an exercise where the CEA itself had no prior experience with an EIA for a large hotel project He stressed that although the CEA was "thrown into the controversy created by certain groups and was forced to take a critical view of Kandalama Hotel it remained helpful to Aitken Spence The Colombo-Katunayake Expressway (CKE) project, one of the first major EIAs in Sri Lanka, also suffered from the uncertainty and lack of guidance that were characteristic of the early years of EIA in Sri Lanka At the start of the CKE's EIA process the Ministry of Highways (which oversees the Road Development Authority—the CKE project proponent) was designated the Project Approving Agency (PAA) This was successfully challenged in court by Environmental Foundation Ltd (EFL)[3] which proved that the Ministry of Highways should not act as the PAA in this case because it would face a conflict of interest situation The EIA was also successfully challenged by EFL on the grounds that it was not published in all three national languages Although both of these oversights could easily have been avoided they added fuel to the gathering controversy that eventually killed the CKE project

Another strong perception among developers is that the EIA process as it is currently conducted tends to give environmental concerns more weight than development concerns A senior executive at Rajawella Holdings (Pvt) Ltd , whose golf course and country resort project was recently cleared after a lengthy EIA process, felt that the CEA in particular, should "hold the balance more evenly" between the need for development investments and the need for environmental protection and should avoid taking "too narrow a view ' A senior officer from the Ceylon Electricity Board (CEB) whose Upper Kotmale Hydro Power Project (UKHPP) was rejected after a controversial EIA felt that the EIA requirement has caused an undesirable concentration of power in the area of environment He felt that a better balance must be struck between environmental protection and development needs, especially in high-priority sectors such as power generation

A major concern among developers was that Sri Lanka did not have the required expertise or experience to effectively administer an EIA process that had such legal clout Many developers felt that the CEA and PAAs were not capable of providing them with adequate guidance during the EIA process They also felt that individuals appointed to serve on Technical Evaluation Committees (TECs) did not always have the knowledge or judgement to make balanced decisions about important development projects Developers were generally satisfied with the capabilities of their EIA consultants It was alleged however, that in booming sectors like prawn farming, certain consultants had ready-made" EIA reports that could be altered very quickly to meet the needs of different projects The interviewees stated that this practice undermines the credibility of the EIA process

Environmental NGOs Do They Hurt or Help?

Environmental NGOs have been a thorn in the side of many developers since the inception of the EIA process Many developers feel that although NGOs have much to offer in terms of public awareness and advocacy they have misused the EIA process and "disrupted' development They also feel that environmental NGOs are inherently suspicious of project proponents and will question any evidence in support of a project (even it reflects expert opinion) This "anti-development stance is not only bad for the economy but also bad for the environment in the long run

THE PUBLIC COMMENTING PROCESS

A unique feature of the EIA process in Sri Lanka is the opportunity it provides the general public to air their concerns about the potential environmental impacts of development projects and to assert their right to receive responses to these concerns This opportunity has been used extensively in Sri Lanka The government was recently reminded that this period for public comment is taken very seriously by environmental groups[4]

While developers recognize and accept the importance of public participation in the EIA process, there is a strong feeling that this opportunity is being used inappropriately by certain NGOs Almost all the developers interviewed said that they appreciated the genuine comments sent in by communities that might be affected by their projects but felt that certain

NGOs were predisposed to take a hostile position on almost any large development project They felt that this "anti-development stance and NGOs' power to agitate the public will be bad for the country in the long run

Some developers also hold the view that existing 'rules" for public participation in EIA allow NGOs and community groups so much freedom in raising issues that they put the developer at a disadvantage They felt that public participation works effectively only when there is a mature and accountable public The CEB felt that it was unfair and unnecessarily tedious for the developer to be bound to respond to all questions raised by the public even those that have no basis or are completely outside the scope of the EIA Many developers felt that the public commenting process gives outside parties (including NGOs, politicians and their business competitors) too much opportunity to disrupt the development process

Many developers complained that the concerns and protests arising from public comments often cannot be satisfied with even the most comprehensive and conclusive data provided by experts It was alleged that one NGO had waged a campaign of protest against the Rajawella golf course and country resort project and even taken the matter up in court Rajawella Holdings claims that even though scientific data has been provided to demonstrate that the golf course will not have adverse environmental impacts this could not satisfy the NGO concerned The Ministry of Industrial Development (M/ID) project to relocate existing tanneries at an industrial estate at Bata Atha is presently running into similar problems While M/ID fully supports public participation in the EIA process Ministry officials feel that large NGOs are mobilizing local communities to oppose the Bata Atha site without allowing them a fair chance to understand the true nature of the project

AWARENESS

A survey conducted by the Ceylon Chamber of Commerce in February 1996 indicated that some 56 percent of respondents (all private sector firms) had never heard of Environmental Impact Assessment or knew it by name only It can therefore be safely assumed that a significantly higher number is not aware of the law relating to EIA or of the existence of a list of 'prescribed projects " Awareness about the CEA however was much higher Every single respondent had heard of CEA and 72 percent either were familiar with the CEA or had had personal experience with it

With the exception of projects designed before EIA regulations were stipulated almost all developers interviewed said they had been aware of the EIA requirement when the project was being designed Many public sector developers have designated Environmental Cells whose officers have received training in EIA preparation and oversight Private sector developers who were not themselves aware of the EIA requirement at first were apprised of it by agencies from which they sought clearance (like the Ceylon Tourist Board the Board of Investment, and the Coast Conservation Department)

Will the EIA Process Discourage Investment?

Many developers feel that Sri Lanka has one of the lengthiest EIA processes in Asia Most say they have had to spend over two years on the EIA process and feel EIA has become a stumbling block in project clearance In a situation where investors are scarce developers feel that the government must streamline clearance procedures—not place obstacles in their path

Developers view Sri Lanka's EIA process unfavourably compared to other Asian countries An investor in Rajawella Holdings claims to have obtained clearance for a similar golf course project in Malaysia within two weeks Although many of the same issues had been raised, they were resolved in an expeditious and rational manner The Aitken Spence Group, which has opened hotels in the Maldive Islands, says that although Maldivian environmental regulations are more stringent, clearance procedures are streamlined and efficient

THE TIME FACTOR

Many developers felt that the time spent on the EIA process was the biggest problem posed by the EIA requirement In many cases developers said the EIA process[5] (from the first meeting with the CEA to the date on which the EIA decision was communicated to them) took more than two years Every single developer interviewed felt that this was an unreasonably long time to spend obtaining a clearance that was just one of the many official

clearances that were required for their project Some developers described the EIA process as "an unnecessarily time-consuming exercise while others said that even the IEE process could easily be streamlined to save time

The causes attributed for delay varied from developer to developer Unik Traders state that after they informed the CEA about their cement blending plant project they had to wait a month until a PAA was appointed In some cases especially for very large projects the preparation of the EIA report took a long time The EIA report for the Southern Highway was prepared over a period of 7 to 8 months The RDA noted that one reason for the EIA preparation being a lengthy process is that many EIA consultants are engaged in other full-time work (in academia or in government) After the EIA report is prepared it is submitted to the PAA and sometimes to the CEA for an adequacy test (to ensure that all aspects of the TOR have been covered adequately) This also holds up the process Developers also pointed out that since the EIA report contains so much technical information that is unfamiliar to them they often take a long period to review the drafts submitted by the consultants Details of the EIA process such as the requirement to translate the EIA report into all three national languages, also delay the process In the case of the EIA for the Dolphin Hotel expansion project although the EIA report was prepared in a month, the developer took 2 to 3 months to review the draft the CCD[6] took 4 months to conduct the adequacy test, and it took the developer another 2 to 3 months to obtain the Sinhala and Tamil translations

Tricky Timing A Catch 22 Situation

In the case of large projects that require multinational financing the EIA process presents a Catch 22 situation Project proponents require EIA clearance at the planning stage in order to leverage investment for implementation EIA evaluators require detailed information on impacts and costs/ benefits that cannot be provided at the planning stage The Regional Cooperative Petroleum Refinery faced this unfortunate situation with its proposed oil refinery project in Hambantota The TEC required detailed information which could not be provided until the project moved beyond the planning stage The project could not move beyond that stage, however until EIA clearance was given

Developers state that in most cases the EIA evaluation process (conducted by the Technical Evaluation Committee) was the most time-consuming component in the entire EIA process Several developers were of the view that inadequate scoping and lack of focus were the major reasons for the delays in the evaluation process They point out that issues that had not been identified in the scoping session and therefore had not been included in the TOR often came up at the evaluation stage and delayed effective decision making The Ministry of Industrial Development suggested that the EIA process follow the judicial system and identify several leading issues" at the start of the EIA process The final decision/judgement on the project should then be made on the basis of information/evidence relating to these "leading issues and attention should not be diverted by other issues Developers' views of the scope of EIAs are discussed in greater detail in another section of this chapter

THE COST FACTOR

All the developers interviewed said that the cost of commissioning an EIA report was not significant when compared to the capital costs of a large new project In several cases, developers paid well over Rs one million to consulting companies to prepare the EIA report While large projects with planned investments of over about Rs 500 million did not consider the additional cost of EIA preparation a burden, this cost could be prohibitively high for smaller projects Unik Traders pointed out that a developer establishing a small cement blending operation would be hard pressed to obtain the funds to pay for the preparation of an EIA report[7]

Although the cost of preparing an EIA report has not proved to be a problem, several developers said that the additional capital cost incurred in order to satisfy conditions imposed by the EIA was high In the case of Kandalama Hotel Aitken Spence Hotels spent a considerable sum of money redesigning the hotel in order to obtain EIA approval[8] In the case of Rajawella Golf Course the cost in terms of opportunities lost as a result of EIA conditions has been substantial The proponent lost the use of almost 30 percent of available land because the TEC ruled that the proponent had to leave a 100-metre reservation from the Full Supply Limit of the Victoria Reservoir

THE TECHNICAL EVALUATION COMMITTEE (TEC) AND THE EVALUATION PROCESS

Although most developers agreed with the concept of EIA, they voiced three major concerns about the manner in which EIA reports are evaluated in Sri Lanka First developers doubt whether all the individuals appointed to serve on TECs had sufficient experience and knowledge to evaluate EIA reports rationally Second developers question the desirability of giving TECs which were mandated to evaluate only the environmental impacts virtual veto power over decisions that could have significant impacts on the national economy Third developers felt that TECs often go far beyond the scope of the EIA in their evaluation and, as a result, do not make balanced rational decisions[9]

Many developers feel it is wrong that although EIA is a process of environmental assessment TECs are often constituted with individuals who do not have any specific environmental expertise Representatives of the Regional Cooperative Petroleum Refinery (RCPR) Inc said they were disappointed that the 22-person TEC appointed to evaluate their project did not include any environmental scientists For this reason they felt that the TEC was not qualified to making a fair and rational evaluation of the environmental impacts posed by the proposed project They also felt that the TEC was too large and unwieldy to steer effectively and that as a result, it was close to impossible to obtain any kind of consensus within the group

The proponent of the Rajawella project also questioned whether the members of that TEC were really 'experts He felt that members of the TEC did not have the 'experience or the breadth of knowledge' to make a rational decision about the project He said that the TEC had not accepted scientific data provided by his company on aspects such as the use of pesticides and water and instead accepted unsubstantiated projections made by its own members He was disappointed that after his company had spent a considerable amount of time and money on obtaining expert opinions these were disregarded by the TEC

The Rajawella proponent felt that the TEC did not maintain a clear focus on the most important issues posed by the project and instead were side-tracked by several minor issues He suggested that in cases like this, the CEA should step in and ensure that the TEC's evaluation remains within the scope of the EIA He also felt that, as a result of its lack of focus the TEC let itself be too strongly influenced by extreme fears and hysteria generated by a few NGOs Finally the proponent felt that the manner in which the TEC s decision was framed was unfair The TEC's decision divided the project artificially into five components and gave different decisions on each component The rejection of some of the most important aspects of the project essentially made the project unviable However, since only sections of the project (not the project itself) had been rejected the law prevented the developer from appealing against the decision

The CEB felt that the TEC for the UKHPP did not take a balanced view of this large hydro power project which was vital to the national economy It also felt that the evaluation was undermined by the fact that the TEC dismissed and disregarded expert opinions that were submitted with respect to certain issues The final 'judgement was only two pages long[10] and contained little explanation or justification for rejecting a project with a Rs 16 billion investment The CEB felt that the case of UKHPP effectively illustrated the danger of placing the decision-making responsibility for a crucial project (which had taken more than five years to develop) in the hands of a small group of people who based their decision on a narrow view of the project

THE SCOPE OF THE EIA

In conversations with developers the lack of clarity about the scope of the EIA emerged as a significant problem Developers' concerns regarding this issue are threefold First, developers feel that EIAs require assessment of too broad a range of impacts than is necessary They feel that TORs for EIAs must focus on the major issues and must not be diluted by trying to include every possible impact Second developers feel that TORs for EIAs often include issues that are outside the purview of an environmental assessment There is now debate about the legitimacy for instance of requiring the disclosure of a project s financial details for use in extended benefit cost analysis (ECBA) Some developers feel that government agencies do not have the right of access to financial details of private projects and that the requirement of an ECBA goes far beyond the scope of an environmental assessment Third developers feel that even in cases where the TOR has reasonably defined the scope of the EIA issues outside the TOR are introduced and tend to divert the TEC s attention at the evaluation stage

The proponent of the RCPR, for instance felt that many of the TEC's questions were completely outside the scope of the EIA While the TOR for the EIA dealt primarily with environmental impacts associated with project activities these issues took a back seat during meetings with the TEC Instead much of the TEC s attention was focused on issues like tax concessions profitability and financial viability aspects which the developer believes are irrelevent in an environmental assessment

The Ministry of Industrial Development (M/ ID) feels that, in the case of the proposed Bata Atha site for the relocation of tanneries there are legitimate concerns about issues like water availability and sea outfall that should be included in the EIA It feels, however that the requirement to provide comprehensive information on the project s impacts on bird and fish species is unreasonable given the dearth of such information in Sri Lanka M/ID felt that the CEA should take an active role in the scoping exercise and ensure that the TOR identifies the 'leading issues on which the EIA must focus The TEC must then evaluate the EIA report and deliver its judgement on the basis of these "leading issues "

The CEB felt that the evaluation of the Upper Kotmale Hydro Power Project (UKHPP) EIA report encompassed too broad a scope It felt that the TOR for UKHPP was eventually proved to be 'meaningless because at the time of review the questions that were raised were on technical issues like dam safety and sedimentation issues that were outside the scope of the EIA The CEB felt that such issues were "the proponent s responsibility and had already been adequately addressed in the technical feasibility It felt that EIAs should restrict themselves to environmental issues

MONITORING

Most developers thought that monitoring required by EIA was necessary but that monitoring requirements should be reasonable LINDEL stated that environmental monitoring was one of its top priorities LINDEL will soon have its own laboratory and engineering department to implement the monitoring plan included in the IEE for the Sapugaskanda industrial estate It will then play the role of the CEA within the industrial estate and will require all industries located within the estate to abide by LINDEL s environmental management rules

Although the Rajawella proponent felt that monitoring was essential he declared that the monitoring requirement placed upon the golf course project was entirely unreasonable The EIA decision required that Rajawella take responsibility for cleaning up any future pollution of the Victoria reservoir The proponent felt that this requirement was unreasonable because the reservoir was being polluted by numerous other sources The EIA decision also mandated that the proponent abide by any future monitoring requirements imposed by other agencies without negotiation These monitoring requirements add a heavy burden on the proponent and diminish the attractiveness of the investment

Other developers stated that EIA monitoring does not present a burden Aitken Spence Hotels has had no problems following the monitoring plan recommended for Kandalama Hotel The monitoring reports presented to the CEA form the basis for the annual renewal of Kandalama Hotel s Environmental Protection License (EPL)

PLACING EIAS IN A LARGER FRAMEWORK

Almost all developers interviewed were concerned that EIAs as presently conducted, take too narrow a view of development projects They felt that since EIA is a legal requirement and can be used to reject development projects its typically narrow view impedes balanced development decision making Developers felt that the environment represents only one of many dimensions that should be considered when making a decision about a development project The EIA however gives the environmental dimension precedence over all other considerations and provides the environment lobby with virtual veto power over development decisions It is therefore vital that steps be taken to place EIAs in the broader framework of national priorities which include economic growth industrialization regional development employment generation poverty alleviation and infrastructure development

The failure to place EIA in a larger framework becomes most evident at the public comment and evaluation stages Developers felt that at both these stages environmental issues were not considered in the broader context of national socioeconomic priorities Some developers felt that the institutional framework for EIA is such that the final decision tends to be biased toward the environmental perspective The Rajawella developer suggested that there be an environmental ombudsman who will listen to both the development and environment sides" and mediate between the two He also suggested that there be an impartial appeal panel before which developers can air their grievances at any stage of the EIA (not

only after the final decision has been made) The CEB representative suggested that the appellate body for EIAs be the judiciary which will consider the arguments of both sides in a more balanced way The main concern here is that under the current system the Secretary of the Ministry of Environment decides on the appeal Developers argue that this is not effective because the secretary would naturally lean toward the environmental perspective

CONCLUSIONS

Although different developers perceive some issues surrounding EIAs quite differently common views on a few important issues emerge clearly In general developers endorse the concept of EIA and feel that environmental considerations must be an essential component of development decision making Many developers were however not happy about the way in which the EIA process has been conducted in Sri Lanka Most developers tend to associate EIAs with radical NGOs and the blocking of economically vital projects In the aftermath of the most devastating power crisis in the country s history, developers felt strongly that the rejection of projects like Upper Kotmale at the EIA stage placed too much focus on environmental concerns and not enough on national economic needs Developers use this example to illustrate how the current EIA process can result in the pursuit of environmental protection objectives blindly at the expense of vital infrastructure needs EIAs are fast accumulating a dangerous reputation for having an inherently anti-development bias

From the interviews conducted three major concerns about EIAs can be discerned clearly First the period of time spent on obtaining EIA clearance is unreasonably long Since the EIA is only one out of many clearances needed to launch a project a delay of this length might serve to discourage investment in large projects Second the EIA as it is currently conducted does not have a clearly defined scope of issues to be covered As a result issues that are outside the scope of an environmental assessment are often included in the EIA especially at the public comments and evaluation stage In the eyes of developers these unrelated' issues have sometimes swung the decision against projects Third, those who administer EIAs (CEA and CCD) and those who evaluate EIA reports (TECs)—do not have the expertise or experience to do so effectively Developers feel that these individuals tend to take a very narrow view of the EIA They also feel that these institutions are too susceptible to pressure from environmental NGOs

Developers' concerns about the EIA process must be taken seriously and addressed effectively In doing this, it is important to bear in mind that EIA is not *an end* in itself, but merely *a means* to pursue the path of sustainable development In the past developers have felt that their potential contributions to the economy have been undermined by a very narrowly focused EIA process Developers' opinions suggest that there is an urgent need not only to streamline and expedite the EIA process but also to improve the "human resource infrastructure' devoted to the EIA process There is also an urgent need to clarify the role of EIA in the development process The government must take into consideration developers fears that EIAs, and thereby the environmental lobby could have veto power over important development decisions It is up to the higher levels of government to establish a proper balance between the goals of environmental protection and economic development and to prevent unnecessary conflicts between the two This even balance must be reflected in the institutional framework for EIA administration and evaluation from the CEA to the PAAs to the TEC, all personnel must be experienced and impartial This will be an important step toward enhancing the credibility and usefulness of EIA in the eyes of the developer

ENDNOTES

[1] The developers and their projects are listed below

- i Aitken Spence Group - Kandalama Hotel
- ii Ceylon Electricity Board -
  - Upper Kotmale Hydro Power project
  - Kukule Ganga Hydro Power project
  - Sapugaskanda Combined Cycle Power project
- iii Lanka Industrial Estates Ltd (LINDEL) Sapugaskanda Industrial Estate
- iv Regional Cooperative Petroleum Refinery Inc - Hambantota Oil Refinery & Power Plant
- v Madras Cement Ltd - Galle Cement Grinding & Blending Plant
- vi Miami Beach Hotel Ltd - Dolphin Hotel
- vii Ministry of Industrial Development - Bata Atha Industrial Estate
- viii Rajawella Holdings (Pvt) Ltd - Rajawella Golf Course & Country Resort
- ix Road Development Authority - Colombo-Katunayake Expressway Southern Highway

[2] The Coast Conservation Act of 1981 required EIAs for development projects in the coastal zone—as deemed necessary by the Director of the Coast Conservation Department (CCD) Hence the EIA process implemented by the CCD for coastal projects is nearly 17 years old Although the 1988 Amendment

to the National Environmental Act of 1980 introduced EIAs to the regulatory system it was only in 1993 that EIA regulations were passed to enable the Central Environmental Authority (CEA) to implement this Amendment Therefore the EIA process administered by the CEA is less than five years old

[3] Environmental Foundation Ltd (EFL) is one of the most active and influential environmental NGOs in Sri Lanka It has led vocal protests against many projects going through the EIA process and several project proponents have been taken to court by EFL

[4] The government recently reduced the period for public comment from 30 days to 14 days citing the need to expedite the EIA process This decision was met with intense criticism and vehement protest from many environmental interest groups and the period for public comments was consequently restored to 30 days

[5] This includes preparation of the Terms of Reference by the CEA preparation of the EIA report by the project proponent s consultants review of the EIA report s adequacy by the CEA the period for public comments revision of the EIA report (if required) and the review by the TEC Delays in the process could be caused at any one of these junctures by the CEA PAAs or TEC or by the proponent or consultants

[6] The EIA process administered by the CCD is different to the EIA process administered by the CEA For a discussion of both these processes refer the chapter on the legal framework of EIA in Sri Lanka (authored by Sandya Weerasinghe)

[7] There are several industries such as cement blending and leather tanning for which new projects <u>of any size</u> are required to go through the EIA process

[8] The CEA states that at the time that Kandalama Hotel was redesigned EIA was not a legal requirement

[9] It is important to bear in mind at this point that the final decision on the EIA is taken by the PAA based on the recommendation of the TEC It is <u>not</u> the TEC that makes the final decision the TEC is only an advisory body appointed by the PAA

[10] The CEA states that the two page letter was sent to the CEB with the TEC report annexed

11 SRI LANKA'S ENVIRONMENTAL IMPACT ASSESSMENT PROCESS IN RETROSPECT : LESSONS LEARNED, FUTURE PROSPECTS

V.K. Nanayakkara

BACKGROUND

Environmental Impact Assessment (EIA) was introduced by the Coast Conservation Act in 1981 as a component of its 'permit procedure' for the Coastal Zone which includes a narrow landward belt of 300 meters from the shoreline and a two kilometer band of ocean However, there was no legal requirement to assess environmental impacts of development activities for the rest of the country until 1988 [1] Notwithstanding criticism from the 'economic growth lobby that the EIA procedures are cumbersome and cause delays in investment and counter-arguments from the conservation lobby that the EIA/IEE procedures do not go far enough to protect the environment EIA has clearly served its purpose Environmental factors are now considered to a greater extent in project investment decisions than at any time before 1993 when the Regulations were gazetted under the 1988 amendments to the National Environmental Act However, EIA in Sri Lanka is still being refined in scope and procedure

INSTITUTIONAL ASPECTS

An Interdisciplinary Effort

The major constraint in assessing environmental impacts of projects continues to be the dearth of needed professional staff EIA scoping process includes drafting of the Terms of Reference (TORs) for IEEs and EIAs and review appraisal and of the IEE and EIA reports These tasks call for wide and deep knowledge of the subject areas An imposing array of specialists covering a wide range of technical environmental and socio-economic disciplines have served on the team of experts handling EIA tasks

The manpower constraint can be illustrated with an actual case A BOI project conceived for mechanized river bed gem mining in 1993 needed the TOR for an EIA It is reported that many of the experts employed for this EIA were not familiar with river bed mining of this type and scale It was also reported that there are very few experts in mechanized gem mining anywhere in the world and none in Sri Lanka A comprehensive information is also a vital necessity

EIAs make special demands on officials in the Project Approving Agencies (PAAS) as no single administrator is capable of managing all aspects of the EIA process Issues in the management of resources often extend beyond the jurisdiction of any single government agency priorities among agencies differ, responsibility and authority for management may be ambiguous where jurisdictions overlap agencies may not cooperate in decision making The need for expertise is therefore most evident in the PAA

Comprehensive information is a vital necessity This information often comes in voluminous EIA Reports to the senior decision makers These professionals must have the breadth and depth of knowledge to tender the correct advice to the Ministry Secretaries and Heads of Departments clearly concisely and logically [2]

Monitoring and Evaluation

EIA appears to have fared worst in the areas of monitoring and evaluation The measures for mitigation of environmental impacts proposed in approved projects are rarely tested against what is actually implemented Current procedure requires a proponent to send a copy of the monitoring plan to the CEA However, the CEA has received only one monitoring plan during the entire 3 years of implementing EIA regulations

Information Requirements

In Sri Lanka EIA report must be submitted by the proponent to the Project Approving Authority (PAA) The PAA scrutinizes the EIA report to decide whether the development activity should be approved as planned or be amended or be aborted EIA is clearly a voracious user of information

The proponent of the Kalu Ganga river bed gem mining project proposal alleged that the investment was held up by the CEA s delay in granting environmental clearance for the project The CEA and the project approving authorities, on the other hand, complained that the project proponent failed to provide adequate project details to prepare a meaningful TOR The Irrigation Department warned that in river bed mechanized mining projects predictive analysis would be difficult owing to the lack of basic data on sedimentation river morphology and river bed profile When information vital for decision making is lacking in quality or quantity a fair and factual EIA cannot be carried out A poorly prepared EIA is worse than none at all because it can mislead the decision makers Data requirements can be kept to manageable levels by including the major impacts and excluding the minor ones and by focussing on the TOR at the scoping stage

Careful monitoring of key environmental parameters over a period of time is hardly ever carried out in Sri Lanka Consequently environmental trends and changes cannot be identified and predictions cannot be verified A report series that constantly reviews the State of the Environment by identifying the major environmental concerns trends and emerging issues would present data information and insights for appraisal and analysis Such information would enable the EIA process to become an excellent decision making tool

Project Approving Agencies

The capacity of Project Approving Agencies (PAAs) need to be developed by introducing appropriate methodologies techniques and procedures for environmental assessment the provision of on-the-job training for PAA officials and the development of Management Information Systems Activities that require an EIA are now listed under 'prescribed projects to avoid any probable legal wrangling that could arise

ALTERNATIVE SYSTEMS OF ENVIRONMENTAL ASSESSMENT

Environmental laws become meaningless if Environmental Impact Assessment (EIA) regulations are not applied effectively For effective application it is necessary to define precisely the term prescribed projects' The statutory EIA currently in force is eminently suited for projects with point sources of pollution The potential of other comprehensive environmental planning techniques for environmental assessment has however not been adequately tapped in Sri Lanka These alternative techniques are particularly suitable for dealing with project activities that generate pollution from non-point sources

Strategic Environmental Assessment (SEA) versus Project EIA

The EIAs introduced in Sri Lanka have been successfully applied to individual projects at a micro level They have not been applied at the level of strategy Strategic Environmental Assessment (SEA) is gaining worldwide recognition as an application of environmental impact assessment at the level of policies plans and programmes This approach requires the consideration of the consequences of a range of actions early in the planning process It lays emphasis on preventing environmental damage and is proactive unlike the project EIA which reacts to development proposals rather than anticipate them Master Planning efforts in Sri Lanka with a clearer focus on resources management policies applicable to a spatial area somewhat resemble the SEA approach and constitute an imperfect first step towards SEA

Master Planning

A number of other reasons also support the SEA approach in incorporating the principles of sustainable development progressively to policies plans and programmes

The decision on the approval of a project is presently based solely on an appraisal of the impacts of that particular project This procedure can totally negate the purpose of environmental assessment, in cases where the impacts of the activities of a particular project fall short of the prescribed significance limit while a number of such projects sited in a given locality would lead to significant combined or cumulative effects This is especially evident in cases of land

reclamation hotel construction and prawn farming where the purpose of EIA can be circumvented by segmenting the investment into a number of projects

This situation has led to the contention that EIAs which are perfectly sensible at project level can be absolutely nonsensical at macro level (Suriyakumaran 1993) It has been further argued that EIAs should be retained only for projects where "resource balance sheets" a macro exercise has first been done [3]

Water Resources Master Plan

The foregoing discussion underscores the relevance and value of master planning for critical resources where user conflicts are bound to arise For instance the management of water resources requires a holistic approach to issues relating to resources such as an entire river basin or a ground water aquifer Independent sectoral project assessments are often made for extraction of water for drinking irrigation or power generation Yet an effective and efficient allocation of water resources can only be made within the framework of a national strategy for the sustainable use of water resources that is consistent with the country s overall development objectives A project level EIA cannot address the issues of competitive use of water for all purposes Other important issues that need to be addressed include the quantity and quality of water extracted and conservation of water resources including watershed protection Individual projects for water use should therefore be considered and decisions made only in the context of a Master Plan

Forestry Master Plan

Similarly a Master Plan for the forestry sector should provide a framework for sustainable forestry development A comprehensive long term development framework for the forestry sector when implemented will ensure that the valuable natural forests and related wildlife and other biological resources will be conserved and that forests can provide environmental services and forestry products to meet the needs of the people sustainably (Sri Lanka Forestry Sector Master Plan 1995) [4] Any project for extraction of timber or non timber forest products should therefore be assessed and approved only on the basis of the Management Action Plan presented in the Master Plan rather than through independent EIAs

Coastal Zone Management Plans

Coastal Zone Management Planning seeks to define the issues, policies and actions for long term planning and management of the coastal region which has a unique identity The Sri Lanka Coastal Zone Management Plan addresses the issues of shoreline erosion and the loss and degradation of natural coastal habitats, as well as of recreational cultural and scenic sites Appraisal of development project proposals within the broad mandate given in the Coastal Zone Management Plan involves consideration of the needs of the people as well as the condition of the ecosystems in a manner a project based EIA cannot adequately accomplish

Special Area Management (SAM) planning involves local community groups in both the project design and project implementation processes SAM plans promote ecosystem based coastal management in geographically demarcated locations as is being done at Hikkaduwa, Unawatuna and Rekawa It provides opportunities to undertake development activities in the designated special area within the scope of strategies and activities outlined in the SAM Plan Master Planning or for that matter any sectoral planning which includes sectoral EIAs should be regarded as a dynamic, rolling and long term process reacting to both the actual and expected political social economic and environmental changes

Spatial Planning and Zoning

Spatial planning for urban areas is carried out at the local government level Adequate legislative authority is provided by The Town and Country Planning Ordinance No 13 of 1946, the Urban Development Authority Law No 41 of 1978 and by the Housing and Town Improvement Ordinance No 19 of 1915

Many important environmental objectives for the built environment in urban areas can be achieved through spatial planning and zoning without resort to formal EIA procedures
These objectives include

- the elimination of slums and blighted areas,
- reduction of overcrowding (which is a threat to health safety and public welfare)
- creation of comfortable/vital neighbourhoods by decentralized housing and
- optimum use of land through zoning that restricts noise to levels that are consistent with the designated uses of the zone

Once a zoning plan for an urban local authority or a built up area" of a rural local authority is approved special procedures must be clearly laid down for the grant of exemption The land use classification specified in the zoning plan is presumed to be valid for the life time of the plan The zoning technique enables areas that are important for environmental conservation to be reserved for environmentally compatible uses Activities described and gazetted as "Dangerous and Offensive Trades" that generate pollution can be restricted to the areas demarcated for such activities These projects can be required to meet design standards that would ensure that environmental threats to human health and critical resources are avoided or minimized

Environmental factors should be considered in overall regional planning exercises These include classifying a region or the entire territory of a country into broad land use categories such as residential, industrial and green (agriculture, forestry or nature reserves) These factors should also provide the basis for local zoning procedures applicable to the development and subdivision of lands or to specified types of land use that are considered potentially harmful to the environment The administrative authorities of designated geographical areas are then given special legal protection to carry out tasks involved in providing the people s basic needs such as health care

Land Use Planning

Decisions on allocation of land for programmes and projects that use the limited land available should ideally be based on a scientific land use plan Any allocation of land among competing users should rationally be made only after a land suitability evaluation has been made on the basis of the carrying capacity of the land and the needs of the community Any conveyance of state lands to project proponents for "development or a change from the present use of any land should therefore be done only in accordance with the land use plan prepared at the appropriate level-national provincial/district divisional village or area (plot)

AN INTEGRATED-ITERATIVE PROJECT CYCLE

Having reviewed the alternatives to EIA we can now examine how the EIA process itself can be improved This can be accomplished by integrating Benefit Cost Analysis (BCA) and Environmental Impact Assessment (EIA) which currently run as two disparate and parallel processes All development assistance agencies operate on the basis of a project cycle - a procedure ranging from high level policy discussions with prospective investors through the initiation of project ideas and their translation into actual projects During the 1993- 1996 period, the efforts of the CEA and the Project Approving Agencies focussed on the incorporation of environmental concerns into the project formulation, appraisal and selection Some investors however perceive EIA as an administrative bottleneck to be dispensed with as soon as possible, not realizing how EIA can safeguard their investments in the long run The EIA rately figures in the consideration of project implementation (supervision and monitoring) and evaluation

The normal life cycle of a project progresses through several somewhat distinct but partially overlapping stages or phases For example, a project begins as an initial idea or concept in the mind of the proponent and is progressively developed into an investment The project identification (conception) and formulation stages include appraisal of alternatives The relative duration of these stages where the initial idea gathers shape through successive approximations varies with the type of investment

The following basic steps can be identified in the pre-investment phase

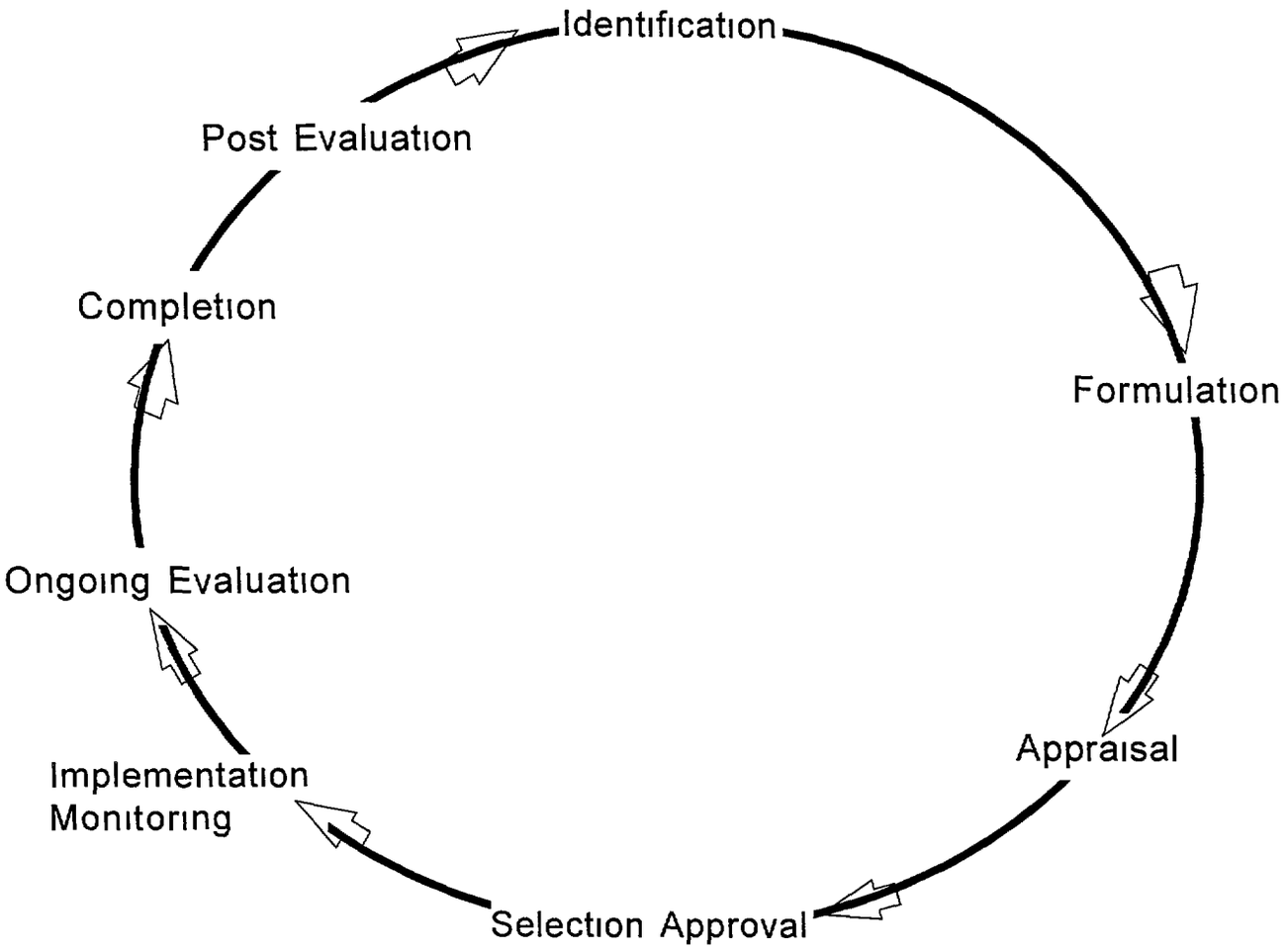
1 Concept phase
2 Formulation phase
   Pre-feasibility
   Feasibility
3 Appraisal of alternatives
4 Selection of the best alternative

The traditional project cycle tends to obscure the complexities that are evident in the gradual development of a project idea from the conception stage through pre-feasibility and feasibility stages to its final design This model further assumes that selection of the best available alternative (decision-making) after appraisal is a final and irreversible decision whose implementation must follow a linear path from the point of the original decision The real life situation is very different The project proponent needs to alter modify and effect changes during the pre-investment and post investment stages This requires a pragmatic and dynamic approach The traditional project cycle shown in Figure 1 demonstrates a fairly static linear path

Possible environmental implications of prescribed projects need to be examined at the earliest possible stages of their planning so that their

Figure 1

Traditional Project Cycle



final design and implementation would minimize adverse environmental impacts and maximize environmental benefits The EIA must therefore be an integral part of the development project cycle Figure 2 shows how a recursive and a reiterative process which replaces the traditional static process can achieve this integration How does one approach project development in the iterative process ? It is by keeping the options open from an early stage in the identification and formulation of the project, to enable the design procedure to repeat itself Several alternatives should be considered during the pre-feasibility phase by obtaining the data and the survey reports at a level that the successive approximation demands The process may be taken forward from the original concept and pre-feasibility stages to the feasibility stage

Project proponents are advised against restricting the project proposal to a single site or location or to a particular technology Under no circumstances should the proponent prepare detailed engineering designs at the pre-feasibility stage What is required at this stage is only a broad brush consideration of environmental matters This protects an investor from making heavy financial commitments at an early stage in the project cycle since subsequent changes in the project design or location could prove to be very expensive Yet this was the unfortunate experience of the Upper Kotmale Hydro Power Project where a sum of Rs 12 million was spent on the preparation of an EIA report to harness the waters of its seven tributaries by the construction of a 34 ft high dam at Talawakelle across Kotmale Oya consideration of alternative sites and locations to generate the equivalent amount of energy in a less environmentally harmful manner had not been considered Instead of getting such a detailed project design done too early in the process the original project idea should have been taken along a voyage of discovery to assess alternative proposals which would have mitigated the adverse environmental impacts Each alternative should have been treated as a hypothesis to be tested

The identification formulation and appraisal stages can be broadly described as the concept phase during which potentially feasible candidate projects are explored The appraisal phase constitutes a process to determine whether a project is technically feasible financially sound economically viable and environmentally acceptable and capable of yielding sustained benefits over its economic life It may be necessary to investigate the financial (market analysis) technical environmental, economic organizational and administrative viability of each alternative The more feasible and profitable options that are derived from this ranking process may be subjected to a further detailed examination with a view to limiting the options that would be considered for comprehensive EIA analysis The great advantage of this scheme is the opportunity it affords for the return to the original project idea for modifications

Figure 3 sets out graphically the iterative activities suggested in the formulation and appraisal phases In the pre-feasibility phase (stage 1) several alternatives (say ten) can be tentatively analyzed for their environmental technical and economic viability (IEE level) Several options can then be submitted for a detailed feasibility study If three options are submitted for the feasibility study(stage 2), their environmental impacts and other features could be analyzed in greater detail (EIA level) This procedure would leave only one or two options to be studied in depth at the design stage (stage 3) The iterative process can be described as comprising steps which move forward and backward These steps include formulation and appraisal reformulation and reappraisal and re reformulation and re-reappraisal

This allows the appraisal of alternatives in the pre-feasibility and feasibility stages to be fed back into a receptive and responsive decision making process leading to changes in the original project conception as regards siting technology etc Rapid appraisal methods can be used in the preliminary information and pre-feasibility stages to generate information needed for decision making at relatively low cost More rigorous methodologies can be employed at the feasibility stage for EIA to generate information for a comprehensive assessment

The order of magnitude of the EIA costs in each phase progressively increases If for instance, the costs are in the order of 10 monetary units in the pre-feasibility stage the costs would be 100 units in the feasibility stage and 1 000 units in the design stage If, after selection of the best alternative, a further design change is required (Supplemental Environmental Report) during the implementation stage the order of costs would be in the region of 10 000 units This clearly shows how the iterative EIA/BCA project cycle imparts a greater realism to project planning

Table 1 attempts to list the procedural steps in the project planning process adopted by the national planning authorities alongside the sequential steps in the statutory EIA procedure In this table the sequential phases in the development planning project cycle are compared with the EIA sequence Benefit - cost analysis (BCA) examines project profitability for investors and compares the project with other projects competing for the same funds

Figure 2

The Integrated Iterative Project Cycle

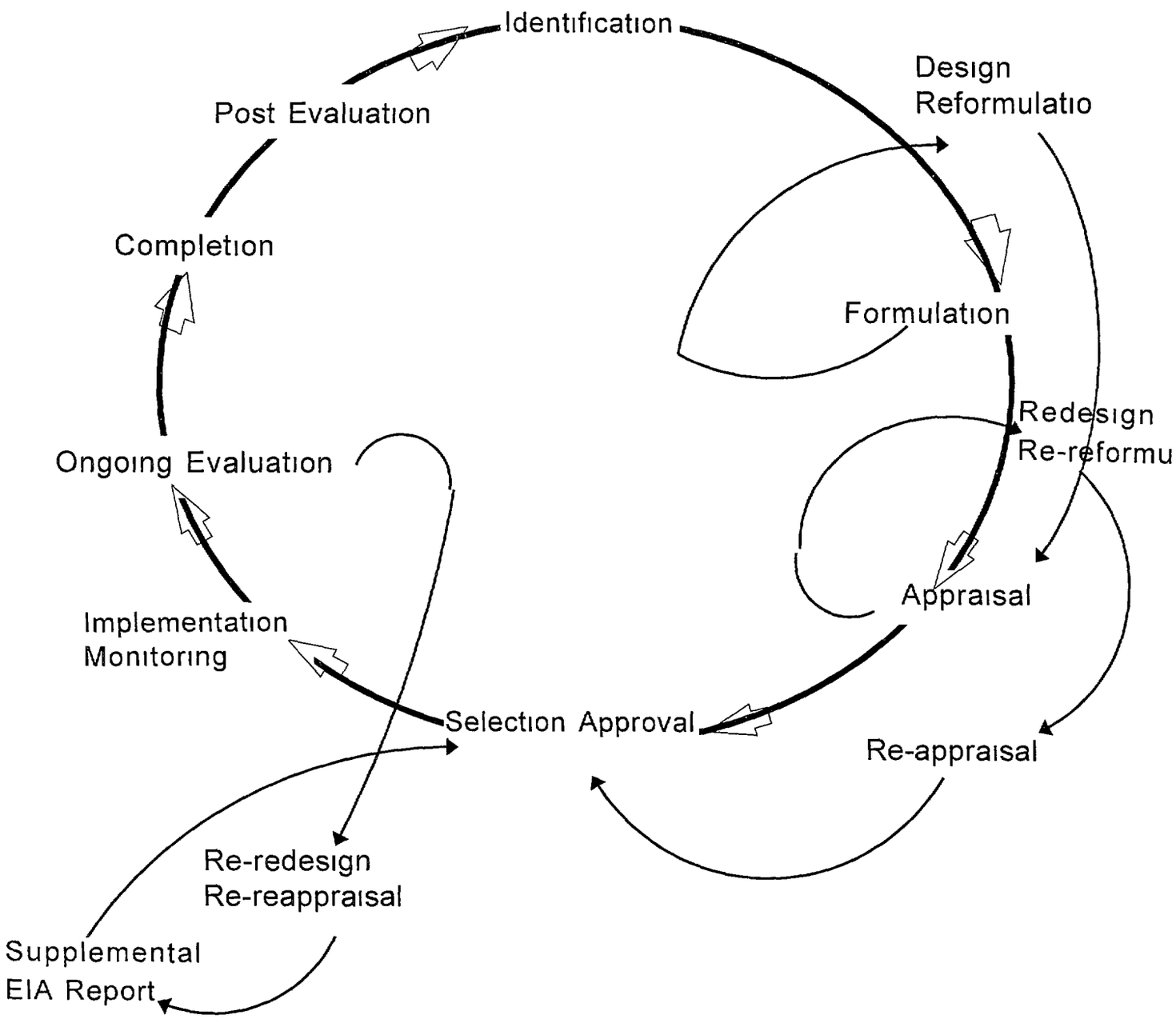


Figure 3
Iterative Process

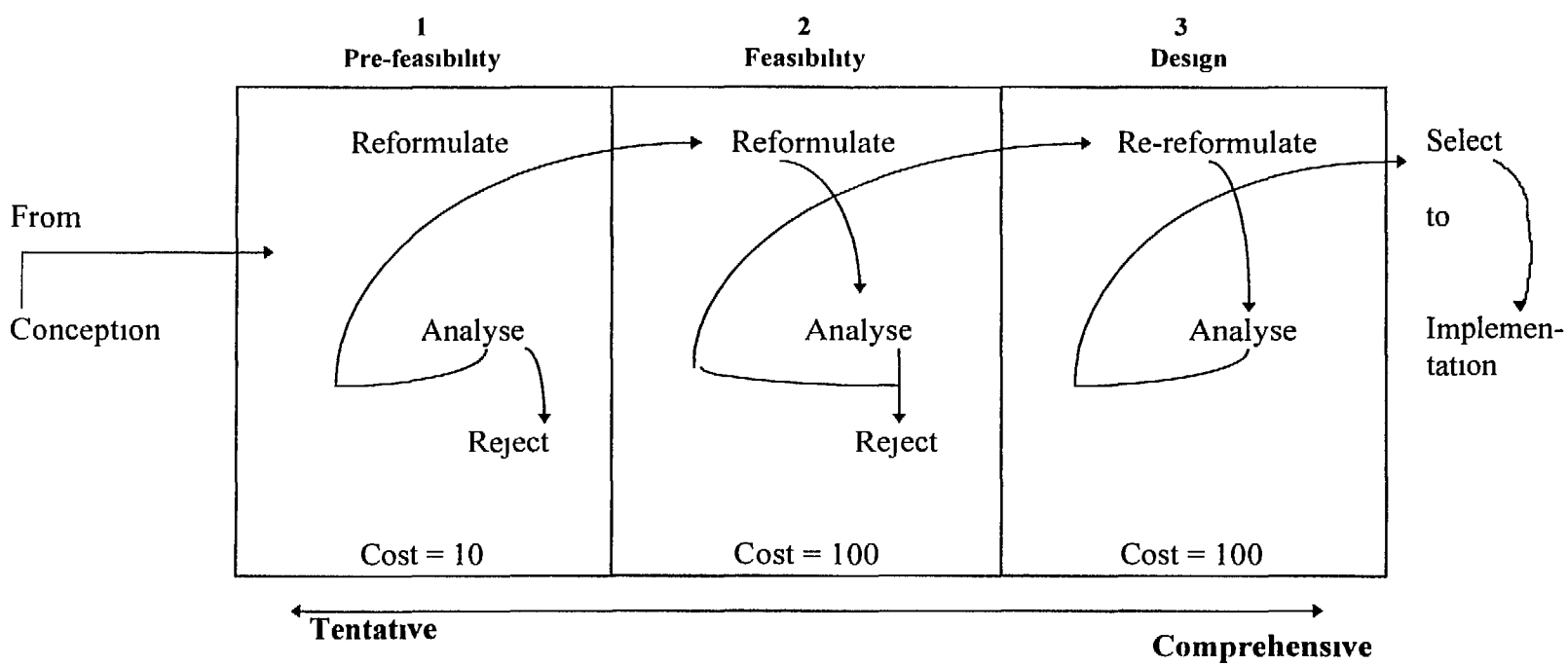


Table 1. Comparison of sequential phases in Project Planning and Steps in EIA

Project Planning	EIA
1 Identification	1 Preliminary information
	2 Environmental information checklist
	3 Public participation
2 Formulation	
	4 Environmental site clearance
	5 Scoping
	6 Prepare IEER/EIAR
3 Appraisal	Data gathering
Pre-feasibility	Initial assessment
Feasibility	Impact identification and prediction
Financial	Identification of mitigation measures
Technical	Valuation of environmental costs & benefits
Administrative	Public comments
Organizational	Refine mitigation measures
Environmental	Design monitoring program
Economic	
CBA, ranking of alternatives by IRR or other non-discounted methods	
	7 Approve/Reject EIA
4 Selection & approval	
5 Implementation	8 Monitor for compliance
(supervision)	
(monitoring)	
	9 Instal mitigation measures
6 Evaluation	
7 Mid course modification and re-design	10 Supplemental EIA report
7 Post-evaluation	
	11 Lessons for future EIAs

Conducting a comprehensive EIA is greatly facilitated if the initial stages of developing the project through successive approximations have reached the IEE level of analysis Most technology and siting alternatives may have been sifted at the initial screening- the checklist stages and what comes into the EIA stage is a proposal that can be developed into an implementable activity by incorporating the necessary modifications For this purpose the current EIA process has to be amended for EIA to follow the earlier stages of preliminary information scoping IEE etc The EIA presently a one stage exercise should be amended to become a multistage process Preparing the final report would represent the last stage of a long process

What happened in the cases of Coal-fired power plant at Trincomalee and the Upper Kotmale Hydro power plant was the commitment of vast sums of money on comprehensive and detailed engineering designs and in-depth EIAs without even considering the feasibility of alternative sites and technologies This led to acrimonious debates and confrontation between the project proponents and environmental interest groups If proper EIA/BCA integration is achieved through an iterative process the projects are much less likely to uncover unexpected negative impacts requiring expensive corrective or mitigatory measures as the experience of the Samanalawewa hydro power project has well demonstrated

A massive leak which occurred at the Reservoir of the Samanalawewa hydro power project has led to a double tragedy On the one hand, the reservoir cannot be filled to its expected supply level and million of rupees had to be spent in trying to correct this error This could have been avoided if the environmental impacts were identified earlier through the iterative process explained earlier

A lack of serious consideration of alternatives has been a major shortcoming in the EIA process as hitherto practised in Sri Lanka This situation has come about through a wrong perception of the project development cycle Development planners think of EIA as being just one component of feasibility studies on a project proposal whereas project proponents consider EIA to be a quick 'once and for all exercise to be complied with and forgotten soon thereafter In contrast, the environmentalists consider Benefit Cost Analysis (BCA) as only one component of a legally established EIA process An integrated project life cycle which replaces the traditional non-recursive, linear project path would dispel this myth and permit project proponents as well as planning and environmental authorities to develop projects in partnership for better resource conservation and long term profit

Project Planning and environmental assessment can be made more effective by assuring that planners and planning units within development agencies are thoroughly trained and prepared to introduce environmental considerations from the conception stage of the development planning process We know from world wide experience that the high levels of acrimonious debate can best be avoided, and the quality of planning decision could be improved when environmental considerations are introduced to the development agencies planning systems as normal considerations of project preparation just as are the social, technical and financial aspects of projects, programs or master plans

In the future conceptual and on the job training should be provided to development agency planners on an on-going basis in order to make it possible for them to effectively integrate environmental considerations into project planning, thereby improving the quality of both project and environmental decision making

Agency planning systems can easily be adapted to include environmental considerations in their formal planning process Assistance to the planning units of the development agencies to facilitate the integration of environmental considerations should be provided in tandem with extended environmental training for the planners themselves

CONCLUSIONS

Despite the considerable experience and progress gained in the implementation of EIA procedures in Sri Lanka there is a continuing challenge before the public and private sectors and civil society to improve the process in order to enhance the national effort to anticipate and avoid or mitigate environmental problems The Sri Lankan experience in implementing EIA clearly indicates the following lessons in improving the quality of future investment decisions

The current list of prescribed projects must be amended to exclude development activities that generate non-point source type of pollution Such activities are best handled through management plans and other methods of environmental appraisal

The data base has to be strengthened to provide comprehensive information that will enable better informed project formulation by project proponents, improved appraisal by the Project Approving Authorities and more useful comments by the public

The traditional development planning project cycle and the more recent statutory EIA system needs to be fully integrated through an iterative project cycle to include environmental considerations in public and private investment decisions

Finally, in addition to resolving the many difficulties encountered in project EIA, the system needs to expand to the more strategic levels of decision-making that involve the environmental assessment of policies, plans and programmes

ENDNOTES

[1] The Coast Conservation Act No 57 of 1971 stipulates that a permit must be obtained from the Director of Coast Conservation to engage in any development activity within the coastal zone The Act defines the Coastal Zone as the area lying within a limit of 300 meters landward of the mean high water line and a limit of two kilometers seaward of the mean low water line and in the case of rivers streams and lagoons or any other body of water connected to the sea either permanently or periodically The landward boundary extends to a limit of two kilometers perpendicular to the straight base line drawn between the natural entrance points thereof and includes the waters of such rivers streams and lagoons or any other body of water so connected to the sea Fishing is the only prescribed activity in the coastal zone permitted without an EIA

[2] Dr H N S Karunatilake "Clarifying the economic and environmental aspects of the Kalu Ganga Mining Project' **Sunday Observer,** December 19, 1993

[3] These observations are based on the writer s interviews with several chief decision makers in a number of Project Approving Agencies

[4] Suriyakumaran argues that an Integrated Environment/Economic Cost Benefit system should replace the EIA The four components of his environment management package comprise Resource balance sheets Integrated Environment Economic Cost Benefit presentation Economic cum Environmental National Accounts and Environmental Audits Suriyakumaran C (1993) **Methodology of Environment and Development** Colombo Centre for Regional Development Studies

[5] **Sri Lanka Forestry Sector Master Plan** Ministry of Agriculture Lands and Forestry Battaramulla 1995

EPILOGUE

Development projects undertaken to relieve the pressing problem of poverty in many developing countries including Sri Lanka have sometimes led to a number of environmental problems in these countries Action is now being initiated at various levels to address these problems Development projects are now screened for compliance with environmental norms through a process of project approval Such screening requires an estimate of potential impacts on environment through Environmental Impact Assessment (EIA) If significant environmental impacts are uncovered during the EIA process, the project is modified at this (planning) stage to avoid or minimize adverse environmental impacts Introducing modifications to already established projects is very costly and much less effective than their early incorporation into the planning process

The National Environmental Act (NEA) No 47 of 1980 makes no mention of EIA or even of project approval EIA was first mandated in Sri Lanka by the Coast Conservation Act No 57 of 1981 This Act however covers only the Coastal Zone as defined in the Act EIA was made a requirement in the approval of all prescribed development projects by an administrative decision of the Cabinet of Ministers in 1984 and legally mandated only by the NEA Amendment Act No 56 of 1988 The Orders and Regulations needed to implement the EIA requirements of the NEA were however published in the Government Gazette only in June 1993

The Coast Conservation Act is administered by the Director of Coast Conservation assisted by the Coast Conservation Advisory Council The Central Environmental Authority is the principal government agency administering the EIA procedures under the NEA, while several line ministries and other government agencies have been designated as Project Approving Agencies (PAA) The PAA decisions on EIA have generally followed the recommendations of Technical Evaluation Committees (TECs) appointed by them to assist in decision making

A large number of EIAs have been completed under the requirements of the Coast Conservation Act during its fifteen years of operation CEA has been conducting EIAs as an administrative measure since 1984 (following the Cabinet of Ministers' decision) and as a legal requirement since 1993 During the 42 months following June 1993 over one hundred EIAs/IEEs have been conducted on development projects

The present exercise attempts to record the experience of the EIA process in Sri Lanka during the short period of its existence The contributors have examined various aspects of the EIA process from different points of view As the reader may have discovered a number of agreements and disagreements can be found in the viewpoints of the contributors This shows the dynamism of the evolving EIA process in Sri Lanka

Previous Page Blank

EIA regulations have placed heavy responsibilities on the CEA as the lead agency and on other PAAs for conducting with their limited resource as far as possible unbiased examination and evaluation of the impact of development activities It is to their credit, particularly of CEA, that they have by and large carried out these responsibilities with a commendable degree of success

The problems faced by these institutions are detailed in the chapter on the "EIA Process in Sri Lanka" The strengths and weaknesses of the legal framework are described in the chapter on "Legal Framework on EIA"

A superficial reading of the viewpoints expressed by the concerned parties as recorded in this publication could give the impression that the whole exercise of conducting EIAs is a running battle between three groups The first group is perceived to be the developers in both the public and private sectors supported by the "economic growth lobby" The CEA, Coast Conservation Department (CCD), Project Approving Agencies (PAAs) and their Technical Evaluation Committees constitute the second group NGOs and affected and concerned communities form the third group The situation is however neither simple nor static It is complex and dynamic

Unfortunately, interaction among these three groups has been inadequate It is heartening that some softening is clearly visible in more recent days as a result of better understand of the EIA process Any discussion of claims and counterclaims should be made in the light of the fact that EIA has only a short history in Sri Lanka

Admittedly, there are shortcomings in the EIA process as chapter authors have pointed out A significant statement in the chapter on "Developers' View of EIA" is "In general, developers endorse the concept of EIA and feel that environmental considerations must be an essential component of development decision making" This trend of developers accepting environment as an integral component of the development process is an encouraging sign However the developers / project proponents have identified the following as the major concerns

- delays in the EIA process
- scope of issues to be raised at EIA evaluations not being clearly defined and
- the lack of the needed vision and skills in the persons who administer and evaluate EIAs

CEA and other government agencies however deny sole responsibility for such problems in the approval of project proposals They attribute much of the delay in project approval to the developer failing to submit a comprehensive EIA report within a short period of time and then taking more time to supply the additional information required by the Project Approving Agency

Another shortcoming identified in the Chapter on Social Impact Assessment is that while the physical and biological impacts of development projects receives adequate attention in EIAs conducted in Sri Lanka, SIA is still to be treated on an equal level The chapter stresses the pressing need for "professionally trained sociologists or social scientists who understand EIA"

The chapter on "The Role of Consultants in EIA", points out the important role that consultants play in the EIA process The lack of an adequate number of trained consultants is highlighted here The author discusses a major problem faced by consultants who are hired by the project proponent On the one hand they have to provide factual and objective analysis of the impacts of the project and on the other to ensure the proponent of the long term benefit of adding sustainability to the project

The chapter on "Role of Economic Valuation of Environmental Impacts" discusses the difficulties of carrying out economic valuation of environmental impacts in preparing EIA reports The chapter reviews the theoretical foundation of such valuation and its application in Sri Lanka, and examines procedural and institutional reforms required to conduct extended cost-benefit analysis

Notwithstanding the problems mentioned, it is generally agreed that the EIA process has made significant progress during its short period of operation in Sri Lanka One author points out that " EIA has clearly served its purpose EIA in Sri Lanka is still being discussed, modified and refined in scope and procedure " The acrimonious debates on the EIAs already carried out have themselves contributed to sustain public interest in the process They have also made both proponents and critics of the projects recognize that there is some merit in the opponent's point of view

A major factor in the accommodation of opposing views has been the comprehensive training in all aspects of EIA that many stakeholders have received during the past five years under the USAID Natural Resources and Environment Policy Project (NAREPP) Earlier only a few officials in government agencies had been invited to attend the occasional overseas EIA training courses These were however few and far between Since mid-1992 NAREPP has supported masters degree programs at several universities EIA has been included as a major component in all of these courses

NAREPP has developed an elaborate intensive EIA training program now widely known as "Ten day EIA Intensive Course" mainly to train local professionals involved in the EIA process The EIA training program was initiated with a view to developing the local EIA capabilities, NAREPP organized the first three "Ten Day EIA Intensive Courses" with the assistance of foreign consultants

The Centre for Environmental Studies (CES) established under NAREPP auspices as a multi-faculty institution at the University of Peradeniya, conducted the fourth and succeeding ten-day intensive EIA courses in collaboration with CEA A total of 341 participants drawn from the public and private sectors, the university faculties and NGOs attended the eight ten-day intensive courses in EIA

Several short EIA training programs have also been conducted by the Central Environmental Authority (CEA) They include separate courses designed specially for Project Approving Agencies, private sector project proponents, consultants preparing EIA reports and NGOs

The Coast Conservation Department, the Sri Lanka Institute for Development Administration, and several NGOs have also organized a number of awareness programs on EIA Since EIA is now legally mandated, steps must be taken to acquaint judges, lawyers and police officers in the basic features of environmental conservation and EIA

All these training courses have helped to create a clearer understanding of the all-round benefits of EIA among all the involved parties - project proponents, project approving agencies (PAAs), government policy planners and members of the public, particularly those whose lives are affected by development projects Having followed the training courses together , public officers, project proponents, and NGO members have a much greater appreciation of the contrary points of view USAID's Natural Resources and Environmental Policy Project (NAREPP) has been responsible to a great extent for this achievement

It is now being increasingly recognized that Environmental Impact Assessment benefits the project proponents as well as the community by avoiding conflicts between them As is pointed out in the chapter on 'Sri Lanka's EIA Process in Retrospect Lessons Learned and Future Prospects', "Not withstanding criticism from the "economic growth" lobby that the EIA procedures are cumbersome and cause delays in investment and counter-arguments from the conservation lobby that the EIA/IEE procedure do not go far enough to protect the environment, EIA has clearly served its purpose" The important point is made that though the present system helps to resolve "many difficulties encountered in project EIA, the system needs to expand to the more strategic levels of decision-making that involve the environmental assessment of policies, plans and programs"

The benefits of EIA are however currently appreciated only by small segments of the population, a few government agencies and some NGOs However, awareness on the benefits associated with the process is clearly growing It remains the responsibility of the government, the project proponents, the Universities, the NGOs and the people to promote the use of Environmental Impact Assessment in order to ensure sustainable economic and environmental development in Sri Lanka

Appendix I

PROJECT APPROVING AGENCIES

(Sri Lanka Government Gazette Extraordinary 859/14 - 1995-02-23)

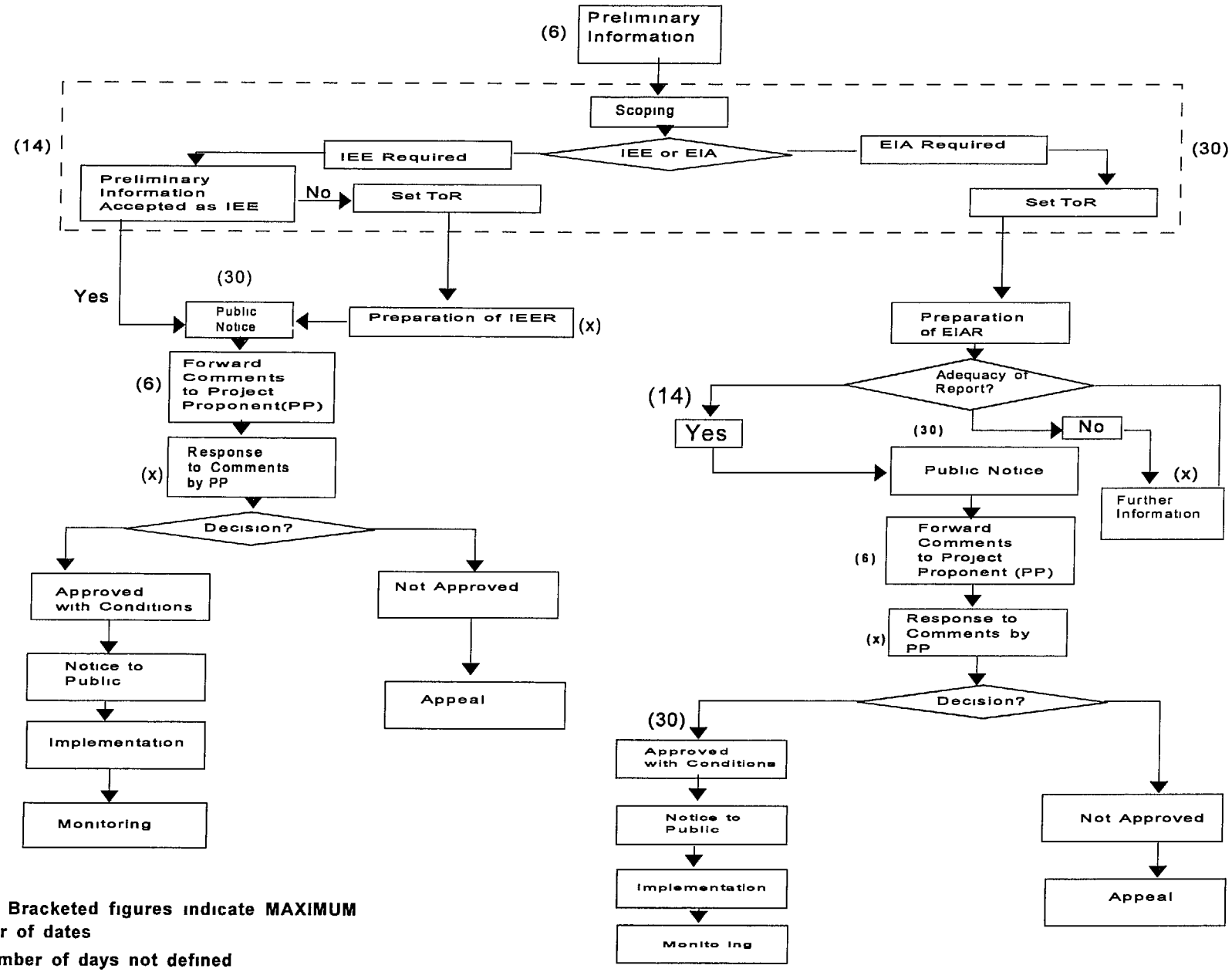
1 The respective Ministries to which the following subjects are assigned -

a National Planning
b Irrigations
c Energy
d Agriculture
e Lands
f Forests
g Industries
h Housing
I Construction
j Transport
k Highways
l Fisheries
m Aquatic Resources
n Plantation Industries

2 The Department of Coast Conservation
3 The Department of Wildlife Conservation
4 The Urban Development Authority established by the Urban Development Law, No 41 of 1978
5 The Central Environmental Authority established by the National Environmental Act, No 47 of 1980
6 The Geological Survey and Mines Bureau established by the Mines and Minerals Act, No 33 of 1992
7 The Ceylon Tourist Board established by the Ceylon Tourist Board Act, No 10 of 1966
8 The Mahaweli Authority of Sri Lanka established by the Mahaweli Authority of Sri Lanka Act No 23 of 1979
9 The Board of Investment of Sri Lanka Established by the Greater Colombo Economic Commission Law, No 4 of 1978 as amended interalia by Act, No 49 of 1992

Appendix II

Sequential steps of IEE/EIA



NOTE Bracketed figures indicate MAXIMUM number of dates

X Number of days not defined

APPENDIX III

PROJECTS PROCESSED UNDER EIA REGULATIONS DURING THE YEAR 1996 (STATUS AS AT 31/12/ 1996)

Name of Project	IEE/ EIA	PAA	STATUS				
			Scoping / ToR setting	EIA / IEE under preparation	Public Review	Evaluation	Decision
Power and Energy							
1 Upper Kotmale Hydro power Project (Addendum)	EIA	CEA					Not Approved
2 Combined Cycle Power Plant (120 / 165 MW) at Kelanitissa	EIA	I,P&E					Approved
3 Installation of 115 MW Gas Turbine at Kelanitissa	IEE	I,P&E					
4 220 KV Transmission line Anuradhapura to Kotmale	IEE	I P&E					Approved
5 Integrated Petroleum Refinery and Power Plant - Hambantota	EIA	I,P&E					
6 Sapugaskanda Power Station Extension II (40 MW)	EIA	I,P&E					
7 Broadlands Mini Hydro Power Project	IEE	I,P&E					
Tourism							
8 Aqua Pearl Villa -Bolgoda	EIA	UDA					Approved
Mining							
9 Granite Quarrying Project AKDA (pvt) Ltd Udamapitigama, Dompe	IEE	GSMB					Approved
10 Sunbee Granite Project (Pvt) Ltd -Dodangoda	IEE	GSMB					Approved
11 ICC Metal Quarry, Olaboduwa watte, Horana	IEE	GSMB					Approved
12 Metal Quarry by Ceylon Fishery Harbour Coop, Rittrite Estate	IEE	GSMB					Approved

Name of Project	IEE/ EIA	PAA	STATUS				
			Scoping / ToR setting	EIA / IEE under preparation	Public Review	Evaluation	Decision
13 Industrial Mineral Project General Metal Limited Galaha	IEE	GSMB					Approved
14 Metal Quarry by RCDC, Wake - Krindiwela	IEE	GSMB					
15 Metal Quarry at Sankapala - Embilipitiya	IEE	GSMB					
16 Industrial Mining Quarry,Homagama, Keangnam Enterprise Ltd	IEE	GSMB					Approved
17 Dolomite Processing Project, Digana	IEE	MASL					
Aquatic Resources							
18 Aqua Star (Pvt) Ltd Shrimp Culture Project at Lewagangoda	EIA	CEA					
19 Integrated Prawn Farming Complex at Koholankala by DFCC	EIA	DWLC					
20 Madeen Aqua Farm (pvt) Ltd Pumbativu	IEE	F&AR					Approved
21 Pallivasthurai Prawn Culture Project Pallivasthurai	IEE	F&AR					Approved
22 Ywenn Aqua Farm (pvt) Ltd Pludivayal	IEE	F&AR					Approved
23 Hassen Gaate Aqua Products Kangkeyan Odai Batticaloa	IEE	F&AR					Not Approved
24 Rowen Aquaculture (pvt) Ltd, Palavi	IEE	F&AR					Approved
25 Shrimp Culture Project , Multibrcedels (pvt) Ltd	IEE	F&AR					Approved
26 Shrimp Culture Project , Ruby International Associated	IEE	F&AR					Approved
27 Shrimp Culture Project, Quality Expo Marine (Pvt) Ltd	IEE	F&AR					Approved
Highways							
28 Colombo Katunayake Express Highway (Alternate Proposal)	EIA	CEA					
29 Alternate Southern Highway	EIA	CEA					

APPENDIX III

PROJECTS PROCESSED UNDER EIA REGULATIONS DURING THE YEAR 1996 (STATUS AS AT 31/12/ 1996)

Name of Project	IEE/ EIA	PAA	STATUS				
			Scoping / ToR setting	EIA / IEE under preparation	Public Review	Evaluation	Decision
Power and Energy							
1 Upper Kotmale Hydro power Project (Addendum)	EIA	CEA					Not Approved
2 Combined Cycle Power Plant (120 / 165 MW) at Kelanitissa	EIA	I,P&E					Approved
3 Installation of 115 MW Gas Turbine at Kelanitissa	IEE	I,P&E					
4 220 KV Transmission line Anuradhapura to Kotmale	IEE	I,P&E					Approved
5 Integrated Petroleum Refinery and Power Plant - Hambantota	EIA	I,P&E					
6 Sapugaskanda Power Station Extension II (40 MW)	EIA	I,P&E					
7 Broadlands Mini Hydro Power Project	IEE	I,P&E					
Tourism							
8 Aqua Pearl Villa -Bolgoda	EIA	UDA					Approved
Mining							
9 Granite Quarrying Project AKDA (pvt) Ltd Udamapitigama, Dompe	IEE	GSMB					Approved
10 Sunbee Granite Project (Pvt) Ltd -Dodangoda	IEE	GSMB					Approved
11 ICC Metal Quarry, Olaboduwa watte, Horana	IEE	GSMB					Approved
12 Metal Quarry by Ceylon Fishery Harbour Coop, Rittrite Estate	IEE	GSMB					Approved

Name of Project	IEE/ EIA	PAA	STATUS				
			Scoping / ToR setting	EIA / IEE under preparation	Public Review	Evaluation	Decision
47 Extraction of Timber Kolonna	IEE	AL&F					
48 Extraction of Timber Kalupahana watta	EIA	AL&F					
49 Extraction of Timber Kebithigollewa	IEE	AL&F					
50 Clearing of natural forest for Rubber cultivation Hamapola	IEE	AL&F					Approved
51 Clearing of eucalyptus forest - Heel Oya	IEE	AL&F					
52 Extraction of Timber Embilipitiya	IEE	AL&F					
53 Extraction of Timber Kostota Arachchihena	IEE	AL&F					
54 Extraction of Timber Ramboda Tea Estate	EIA	AL&F					
55 Timber Extraction / Eucalyptus plantation Kelabokka Estate	EIA	AL&F					
Industry							
56 Bata Atha Industrial Estate	EIA	CEA					Approved
57 LPG Import Gas Terminal at Kerawalapitiya	EIA	CEA					Approved
58 Industrial Estate at Dankotuwa	IEE	CEA					Approved
59 Industrial Estate at Uragasmanhandiya, Yatagala	IEE	CEA					Approved
60 Cement Grinding Mill Peliyagoda	IEE	BOI					
61 Cement Grinding, Blending Plant Dompe	EIA	BOI					
62 Clinker Grinding Plant Ahangama Midigama	IEE	UDA					
63 Cement Grinding, Blending Plant Galle	EIA	UDA					
64 Clinker Grinding Plant Ekala, JaEla	IEE	UDA					
65 Safety Fuse factoryAluthwatte Digana	IEE	MASL					
66 Wax Match Industry Nawimana, Matara	IEE	CEA					
67 Common Waste Treatment Plant and collection system for Moratuwa/ Ratmalana & Ekala / Ja Ela	EIA	UDA					

Name of Project	IEE/ EIA	PAA	STATUS				
			Scoping / ToR setting	EIA / IEE under preparation	Public Review	Evaluation	Decision
68 Industrial Estate at Thambuthegama	IEE	CEA					
69. Proposed Storage Terminal Site at Sapugaskanda for CPC	IEE	CEA					
Agriculture							
70 Sun flower Seed Oil Project - Karuwalagaswewa	IEE	AL&F					Approved

Status

10

Appendix IV

MANUALS/GUIDELINES ON EIA PUBLISHED BY CENTRAL ENVIRONMENTAL AUTHORITY

A Guide for implementing the EIA process, No 1, 1995
- A General Guide for Project Approving Agencies

A Guide for implementing the EIA process, No 2, 1995
- A General Guide for Conducting Environmental Scoping

A Guide for implementing the EIA process
- A General Guide on Social Impact Assessment (under Publication)

A Guide for implementing the EIA process
- A General Guide for Public Participation (under Publication)

A Guide for implementing the EIA process
- EIA Methodologies Applicable to Sri Lanka (under Publication)

An environmental Manual for Agriculture development (under Publication)

An Environmental Manual for Tourism Development (under Publication)

An Environmental Manual for Irrigation Development (under Publication)

An Environmental Manual for Road & Rail Development (under Publication)

An Environmental Manual for Energy Sector Projects (under Publication)

Appendix V

PRESCRIBED PROJECTS
(Sri Lanka Government Gazette Extraordinary - 772/22 - 1993-06-24)

PART I

PROJECTS AND UNDERTAKINGS IF LOCATED WHOLLY OR PARTLY *OUTSIDE THE COASTAL ZONE AS DEFINED BY COAST CONSERVATION ACT NO 57 OF 1981*

1 All river basin development and irrigation projects excluding minor irrigation works (as defined by Irrigation Ordnance chapter 453)
2 Reclamation of Land, wetlands area exceeding 4 hectares
3 Extraction of timber covering land area exceeding 5 hectares
4 Conversion of forests covering an area exceeding 1 hectare in to non-forest users
5 Clearing of land areas exceeding 50 hectares

6 ***Mining and Mineral Extraction***
Inland deep mining and mineral extraction involving a depth exceeding 25 meters
Inland surface mining of cumulative areas exceeding 10 hectares
All off shore mining and mineral extractions

Mechanized mining and quarrying operations of aggregate, marble, limestone, silica, quartz, and decorative stone within 1 kilometer of any residential or commercial areas

7 ***Transportation Systems***
Construction of national and provincial highways involving a length exceeding 10 kilometers
Construction of railway lines
Construction of airports
Construction of airstrips
Expansion of airports or airstrips that increase capcity by 50 percent or more

8 ***Port and Harbour Development***
Construction of ports
Construction of harbours
Port expansion involving an annual increase of 50 percent or more in handling capacity per annum

9 ***Power Generation and Transmission***
Construction of hydroelectric power stations exceeding 50 Megawatts
Construction of thermal power plants having generation capacity exceeding 25 Megawatts at a single location or capacity addition exceeding 25 Megawatts to existing plants
Construction of nuclear power plants
All renewable energy based electricity generating stations exceeding 50 Megawatts

10 ***Transmission Lines***
Installation of overhead transmission lines of length exceeding 10 Kilometres and voltage above 50 Kilovolts

11 ***Housing and Building***
Construction of dwelling housing units exceeding 1000 units
Construction of all commercial buildings as defined by Urban Development Authority established by Urban Development Authority Law, No 41 of 1978 having built up area exceeding 10,000 square meters
Integrated multi-development activities consisting of housing, industry, commercial infrastructure covering a land area exceeding 10 hectares

12 ***Resettlement***
Involuntary resettlement exceeding 100 families other than resettlement effected under emergency situations

13 ***Water Supply***
All ground water extraction projects of capacity exceeding ½ million cubic meters per day
Construction of water treatment plants of capacity exceeding ½ million cubic meters

14 ***Pipelines***
Laying of gas and liquid (excluding water) transfer pipelines of length exceeding 1 Kilometer

15 ***Hotels***
Construction of Hotels or holiday resorts or projects which provide recreational facilities exceeding 99 rooms or 40 Hectares, as the case may be

16 ***Fisheries***
Aquaculture development projects of extent exceeding 4 hectares
Construction of fisheries harbours
Fisheries harbour expansion projects involving an increase of 50 percent or more in fish handling capacity per annum

17 ***All tunnelling projects***

18 ***Disposal of waste***
Construction of any solid waste disposal facility having a capacity exceeding 100 tons per day
Construction of waste treatment plants treating toxic or hazardous waste

19 Development of all Industrial Estates and Parks exceeding an area of 10 hectares

20 ***Iron and Steel Industries***
Mnaufacture of iron and steel products of production capacity exceeding 100 tons per day using iron ore as raw material

Manufacture of iron and steel products of production capacity exceeding 100 tons per day using scrap iron as raw material

21 *Non-Ferrous Basic Metal Industries*
Smelting of aluminium or copper or lead of production capacity exceeding 25 tons per day

22 *Basic Industrial Chemicals*
Formulation of toxic chemicals of production capacity exceeding 50 tons per day
Manufacture of toxic chemicals of production capacity exceeding 25 tons per day

23 *Pesticides and Fertilizer*
Formulation of pesticides of combined production capacity exceeding 50 tons per day
Manufacture of pesticides of combined production capacity exceeding 25 tons per day

24 *Petroleum and Petrochemicals*
Petroleum refineries producing gasoline, fuel oils, illuminating oils, lubricating oils and grease, aviation and marine fuel and liquified petroleum gas from crude petroleum
Manufacture of petro-chemicals of combined production capacity exceeding 100 tons per day from raw materials obtained from production process of oil refinery or natural gas separation

25 *Tyre and Tube Industries*
Manufacture of tyres and tubes of combined production capacity exceeding 100 tons per day from natural or synthetic rubber

26 *Sugar Factories*
Manufacture of refined sugar of combined production capacity exceeding 50 tons per day

27 *Cement and Lime*
Manufacture of Cement
Manufacture of lime employing kiln capacity exceeding 50 tons per day

28 *Paper and Pulp*
Manufacture of paper or pulp of combined production capacity exceeding 50 tons per day

29 *Spinning, Weaving and Finishing of Textiles*
Integrated cotton or synthetic textile mills employing spinning, weaving , dyeing and printing operations together, of combined production capacity exceeding 50 tons per day

30 *Tanneries and Leather Finishing*
Chrome tanneries of combined production capacity exceeding 25 tons per day

Vegetable (bark) tanneries of combined production capacity exceeding 50 tons per day

Provided however, where the projects and undertakings set out in items 23 to 30 are located within Industrial Estates and Parks as described at (19) above, approval shall not be necessary under provisions of Part IVC of the Act

31 Industries which involve the manufacture, storage or use of Radio Active Materials as defined in the Atomic Energy Authority Act, No 19 of 1969 or Explosives as defined in the Explosives Act, No 21 of 1956, excluding for national security reasons

PART II

32 All projects and undertakings listed in Part I irrespective of their magnitudes and irrespective of whether they are located in the coastal zone or not, if located wholly or partly within the areas specified in Part III of the schedule

The following industries if located wholly or partly within the areas specified in part III in the schedule

33 Iron and Steel

34 Non-Ferrous Basic Metal

35 Basic Industrial Chemicals

36 Pesticides and Fertilizers

37 Synthetic Resins, Plastic materials and Man- made Fibres

38 Other Chemical Products

39 Petroleum and Petro-chemical Products

40 Tyres and Tubes

41 Manufacturing and Refining of sugar

42 Alcoholic Sprits

43 Malt Liquors and Malt

44 Cement and Lime

45 Non-metallic Mineral Products

46 Paper, Pulp, and Paperboard

47 Spinning, Weaving and Finishing of Textiles

48 Tanneries and Leather Finishing

49 Shipbuilding and Repairs

50 Railroad Equipment

51 Motor Vehicles

52 Air Craft

PART III

1 Within 100m from the boundaries of or within any area declared under -
The National Heritage Wilderness Act No 3 of 1988
The Forest Ordinance (Chapter 451)
Whether or not such areas are wholly or partly within the Coastal Zone as defined in the Coast Conservation Act, No 57 of 1981

2 Within the following areas whether or not the areas are wholly or partly within the Coastal Zone
any erodible area declared under the Soil Conservation Act (Chapter 450)
any Flood Area declared under the Flood Protection Ordinance (chapter 449) and any flood protection area declared under the Sri Lanka Land Reclamation and Development Corporation Act, No 15 of 1968 as amended by Act, No 52 of 1982

60 meters from the bank of a public stream as defined in the Crown Lands Ordinance (Chapter 454) and having a width of more than 25 meters at any point of its course

any reservation beyond the full supply level of a reservoir

any archaeological reserve, ancient or protected monument as defined or declared under the Antiquities Ordinance (Chapter 188)

any area declared under the Botanic Gardens Ordinance (Chapter 446)

In these regulations unless the context otherwise requires -
"hazardous waste" means any waste which has toxic, corrosive, flammable, reactive, radio active or infectious characteristics

"reservoir" means an expanse of water resulting from man made constructionsacrosss a river or a stream to store or regulate water Its "environs" will include that area extending up to a distance of 100 meters from full supply level of the reservoir inclusive of all islands falling within the reservoir

Appendix VI

National Environmental (Procedure for Approval of Projects) Regulations

(Sri Lanka Government Gazette Extraordinary 772/22 - 1993-06-24)

1 These Regulations may be cited as the National Environmental (Procedure for approval of projects) Regulations, No 1 of 1993

2 (i) A project proponent shall not perform the functions and duties of a Project Approving Agency In the event of a Project Approving Agency becoming a project proponent, the Authority shall designate an appropriate Project Approving Agency

(ii) The Authority shall determine the Project Approving Agency in case where more than one Project Approving Agency is involved

3 In respect of any prescribed project for which an Environmental Impact Assessment Report is required the Project Approving Agency shall grant its approval only with the concurrence of the Authority

4 Any devolution of the functions of a Project Approving Agency to a Provincial Council, relating to the approval of projects shall be done only with the written concurrence of the Minister

5 A project proponent of any proposed prescribed project shall as early as possible submit to the Project Approving Agency preliminary information on the project requested by the appropriate Project Approving Agency

6 (i) The Project Approving Agency shall acknowledge in writing receipt of such preliminary information within six days

(ii) The Project Approving Agency shall in consultation with the Authority subject such preliminary information to environmental scoping, in order to set the Terms of Reference for the Initial Environmental Examination Report or Environmental Impact Assessment Report, as the case may be, and in doing so the Project Approving Agency may take into consideration the views of state agencies and the public

(iii) The Project Approving Agency shall convey in writing to the project proponent the Terms of Reference referred to in paragraph(ii) above within fourteen days in the case of an Initial Environmental Examination Report and thirty days in the case of an Environmental Impact Assessment Report from the date of acknowledging receipt of the preliminarily information

(iv) Where, if on environmental scoping the project Approving Agency considers that the preliminary information submitted by the project proponent as required in regulation 5 above, is adequate to be an Initial Environmental Examination Report , the Project Approving Agency shall proceed as specified hereinafter

7 (i) Every project proponent shall submit to the Project Approving Agency such number of copies of the Initial Environmental Examination Report as required by the Project Approving Agency

(ii) Upon receipt of an Initial Environmental Examination Report the Project Approving Agency shall submit a copy thereof to the Authority and by prompt notice published in the *Gazette* and in one national newspaper published daily in the Sinhala, Tamil and English languages, invite the public to make written comments, if any, thereon, to the Project Approving Agency, within thirty days from the date of first appearance of the notice, either in the *Gazette* or in the newspaper

(iii) The Notice referred to in paragraph (ii) above shall specify the times and places at which the report shall be made available for public inspection

(iv) The Project Approving Agency shall make available copies of the report to any person interested to enable him to make copies thereof

8 (i) It shall be the duty of the Project Approving Agency, upon completion of the period of public inspection to forward to the project proponent the comments received from public, for review and response, within six days from the date of completion of the period of public inspection

(ii) The project proponent shall in writing respond to such comments to the Project Approving Agency

9 Upon receipt of such responses referred to in regulation 8 (ii) above, the Project Approving Agency shall within a period of six days either

(i) grant approval for the implementation of the proposed project subject to specified conditions, or
(ii) refuse approval for the implementation of the proposed project with reasons for doing so

10 Upon receipt of an Environmental Impact Assessment Report the Project Approving Agency shall, within fourteen days, determine whether the matters referred to by the Terms of Reference as set out in regulation 6 (ii) above are addressed, and if the Report is determined to be inadequate the Project Approving Agency shall require the project proponent to make necessary amendments and re-submit the report, together with the required number of copies

11 (i) Upon receipt of the Report, as specified in regulation 10 above, the Project Approving Agency shall submit a copy thereof to the Authority and by prompt notice published in the *Gazette* and in one national newspaper published daily in the Sinhala, Tamil and English languages invite the public to make written comments, if any, thereon to the Project Approving Agency within thirty days from the date of the first appearance of the notice, either in the *Gazette* or in the newspaper

(ii) The notification shall specify the times and places at which the Report shall be made available for public inspection

(iii) The Project Approving Agency shall make available copies of the Report to any person interested to enable him to make copies thereof

12 It shall be the duty of a Project Approving Agency, upon completion of the period of public inspection or public hearing, if held, to forward to the project proponent comments received for review and response, within six days The project proponent shall respond to such comments in writing to the Project Approving Agency

13 Upon receipt of such responses as referred to in regulation 12 above, the Project Approving Agency shall with the concurrence of the Authority, within thirty days either -

(i) grant approval for the implementation of the proposed project subject to specified conditions, or

(ii) refuse approval for the implementation of the proposed project, with reasons for doing so

14 It shall be the duty of all Project Approving Agencies to forward to the Authority a report which contains a plan to monitor the implementation of every approved project, within thirty days from granting of approval under regulations 9 (I) and 13 (I) by such agencies

15 The Project Approving Agency shall publish in the Gazette and in one national newspaper published daily in Sinhala, Tamil and English languages the approval of any project as determined under regulations 9 (i) and 13 (ii) hereto

16 (i) The Project Approving Agency shall specify a period within which the approved project shall be completed

(ii) A project proponent may, within thirty days prior to the expiry of such period, make an application in writing to the Project Approving Agency for an extension of time for the completion of the proposed prescribed project

17 (i) A project proponent shall inform the appropriate Project Approving Agency of -

(a) any alteration to a prescribed project approved under regulations 9 (i), and 13 (ii) , and /or

(b) the abandonment of such approved project

(ii) The project proponent shall where necessary obtain fresh approval in respect of any such alterations that are intended to be made to such project The Project Approving Agency shall in consultation with the Authority determine the scope and format of the supplemental report required to be submitted for such alterations

(iii) The project proponent shall, where a project is abandoned, restore the project site to a condition as specified by the Project Approving Agency

18 The Project Approving Agency shall communicate to the Project Proponent the administrative charges to be levied by the Project Approving Agency for the purposes of

the approval of projects The Project Approving Agency shall follow the procedure set out in guidelines prepared by the Authority

19 In these regulations-

"Authority" means the Central Environmental Authority,

"Project Proponent" means any Government Department, Corporation, Statutory Board, Local Authority, Company, Firm or Individual who submits any prescribed project for approval,

"Project" means any undertaking, scheme or plan where commitment of resources, time and funds are envisaged and which comes into existence at the stage where the project proponent has a goal and is actively preparing to make a decision in achieving that goal

"Preliminary information" shall include a description of the nature, scope and location of the proposed project accompanied by location maps and any other details as may be requested for by the Project Approving Agency,

"environmental scoping" means determining the range and scope of proposed actions, alternatives, and impacts to be discussed in an Initial Environmental Examination Report or Environmental Impact Assessment Report,

"Report" means an Initial Environmental Examination Report or an Environmental Impact Assessment Report as the case may be, and

"days" means any day other than a public holiday as defined by the Holidays Act, No 29 of 1971

NAREPP
NATURAL RESOURCES AND ENVIRONMENTAL POLICY PROJECT

NAREPP is a six-year (1991 - 1997) co-operative effort between the Governments of Sri Lanka and the United States (US - $25 million, Sri Lanka $6 million) Project activities are coordinated by the Ministry of Transport, Environment and Women's Affairs (M/TEWA) and the U S Agency for International Development (USAID) on behalf of their respective governments NAREPP, which serves as an umbrella project for most U S environmentally-related assistance to Sri Lanka, comprises of six component sets of activities

- **Policy and Institutional Development** Under this component, three types of activities are conducted assistance to M/TEWA, the Central Environmental Authority (CEA), and other government agencies to develop environmental policies and programs, training and technical support to improve the environmental management capacities of government institutions, universities, private sector, and NGOs, and project-wide monitoring and coordination This component is implemented by International Resources Group, Ltd (IRG), Washington, D C

- **Biodiversity Conservation** Sri Lanka's rich heritage of unique biological resources is of global significance, but it is subject to a widening array of threats NAREPP is supporting development of Sri Lanka's first Biodiversity Action Plan in order to facilitate the wise management of these resources and has supported the establishment of a Biodiversity Cell at M/TEWA to coordinate its preparation This component is implemented by IRG with assistance from the U S Fish and Wildlife Service

- **Urban and Industrial Environmental Management** In order to ensure that the economic gains from rapid industrial growth are not undermined by declining environmental quality, NAREPP assists M/TEWA, CEA, the Ministry of Industrial Development (M/ID), and others with the formulation of policies and programs to improve pollution prevention and control This component is implemented by IRG in cooperation with the U S - Asia Environmental Partnership

- **Coastal Resources Management** This component supports field and policy studies to improve management of Sri Lanka's valuable coastal and marine resources This program is implemented under M/TEWA coordination by the Coast Conservation Department, with the active participation of the National Aquatic Resources Agency and the Department of Wildlife Conservation The University of Rhode Island's Coastal Resources Centre provides technical expertise for this component

- **Participatory Watershed Resources Management** The Shared Control of Natural Resources (SCOR) activity is developing improved approaches for land and water management through participatory rural development programs in two pilot watersheds The SCOR activity has been led by the Ministry of Agriculture, Lands & Forestry, with technical support provided by the International Irrigation Management Institute

- **Public Participation in Environmental Management** There is a clear need for improved public involvement in both the planning and implementation of environmental programs NGOs play a crucial role in organizing such participation In cooperation with the Asia Foundation, NAREPP provides small grants to support a range of environmental NGOs to assist their institutional development and to carry out pilot activities demonstrating community-based approaches to environmental management

CENTRE FOR ENVIRONMENTAL STUDIES

University of Peradeniya

The Centre for Environmental Studies (CES) was established in 1992 by the University of Peradeniya to promote and implement programs in environmental education, research and consultancy The CES Board of Management comprises the Vice-Chancellor of the University, the Deans of all seven faculties, and the Director of the Post-Graduate Institute of Agriculture The administration and activities of the CES are managed by a coordinator and five deputy coordinators

The CES differs from the traditional university departments in having a mandate to generate its own resources through external assistance and consultancies

During its short period of existence the CES has matured into an important interdisciplinary training and research institute It has emerged as the premier institution in the country in Environmental Impact Assessment (EIA) training

Being dedicated to the national goal of achieving sustainable development, the CES has established close links with the Ministry of Transport, Environment and Women's Affairs, the Central Environmental Authority and other government institutions By linking the resources of the universities with those of government institutions, the CES is making every effort to expand these linkages