

APPENDICES




With the Advisory Guidelines on Transboundary and
Regional Impacts of the SIEPAC Transmission Line
Project in Central America

(appendices 1 to 9)



APPENDIX 1

Letter from the Central American Commission for Environment and Development, dated 31 October 2002, in which the Commission has been asked to submit an advisory report on the Environmental Impact Assessment for the SIEPAC project in Central America.

 <p>SECRETARIA GENERAL SICA</p>	<p>SISTEMA DE LA INTEGRACION CENTROAMERICANA</p> <p>COMISION CENTROAMERICANA DE AMBIENTE Y DESARROLLO CCAD</p>	 <p>SECRETARIA EJECUTIVA CCAD</p>
<p>San Salvador, October 31, 2002 REF.:DGMA-532-02/MC-Mese</p>		
<p>Mister Reinoud Post Commission for EIA in the Netherlands Present</p>		
<p>Dear Mr. Post:</p>		
<p>As you know, the Plan Puebla Panama (PPP) is the main project that Mesoamerica is developing. PPP includes many infrastructure activities, that cover two, three or eight countries at the same time.</p>		
<p>The CCAD has an Environmental Impact Assessment Technical Committee composed by the seven national Directors or Secretaries of EIA. In the XXXII Ordinary Meeting of the CCAD, the Council of Central American Environment Ministers gave instructions to the Executive Secretariat and the EIATC to prepare environmental Terms of Reference (TOR) for PPP's projects, as well as to request for technical assistance from the international community.</p>		
<p>In this sense and on behalf of the CCAD, I would like to request your assistance for the following:</p>		
<ul style="list-style-type: none">- Elaboration of TOR for environmental studies.- Advisory during the evaluation process.- Advisory in the monitoring and control phases.- Support, at national EIA office level, in the identification of synergies, and accumulative and boundary impacts.		
<p>We look forward to your positive and prompt response to our request,</p>		
<p>Best regards,</p>		
<p> Maurice Castro Salazar, CCAD Executive Secretary SICA General Environment Director</p>		
<hr/> <p style="text-align: center;"><i>Dirección General de Medio Ambiente</i></p> <p>Boulevard Orden de Malta No. 470 Urb. Santa Elena, Antiguo Cuscatlán, El Salvador http://www.sicanet.org.sv</p> <p style="text-align: right;">Teléfono (503) 289-6131 Fax (503) 289-6127/25 E-mail: mcastro@sigaica.org</p>		

APPENDIX 2

TERMS OF REFERENCE PREPARED BY IDB IN 2002

Part E. Minimum content of the Environmental Impact Assessment

0. Executive Summary

A synthesis document will be drafted with all the information in which the environmental viability of the project is demonstrated, in a language that allows an easy spreading to the public in general. It will contain a summary of the main characteristics of the project, the introduced description of the main impacts and co governing measures. It will be accompanied by photographic and graphical material. This chapter will be written up when the rest of the EIA is finished.

1. Introduction

The introduction will include the index of the EIA, a presentation of the proponent of the project (EPR), the objective of the EIA, the methodology of impact assessments that has been used, the content of the study and the consultations that have been made during their elaboration. Likewise all the used terms and technical abbreviations in the document will be defined. Also it will be included in this chapter the name and the professional qualification of each one of the components of the work team, specifying his qualification and experience in each environmental field as well as the participation that they have had in the different sections of the EIA.

2. General description of the project

In this chapter the antecedents of project SIEPAC, the advantages of the international interconnection, the necessity and the objectives of the installation, the justification of the proposed technical solution and the layout of SIEPAC project will be described, justifying in this last case the proposed alternative in comparison to the other options.

3. Technical description of the project

In this chapter, the general characteristics of the line and of the connections will be described to the different substations, a detailed description of the project will be made, the technical conditioners, the auxiliary description of works and facilities, the machinery and materials used in the construction, the labor costs, the crossovers and rights of passage generated, the control during works and the operation and maintenance.

4. Political, legal and administrative framework

In this chapter it will be described the environmental political framework and the institutions and organizations who develop their performance in the country and its role according to the carry out of the project. The requirements will be summarized to fulfill the applicable environmental legislation and documents of reference, including the ones referring to the operation of the environmental authorizations.

The regional and national policies will be defined in which the project is framed. It will be consulted to the interested institutions (environmental, power, regional, municipal, etc.) in order to get to know plans, programs and projects of development in the zone of the project.

5. Definition of homogenous sections

In this chapter the criteria for the division of the layout in homogenous sections will be established and also they will be defined.

6. Description of the environment

This description will be made in the zone of influence of the project (refer to the section of geographic situation) by means of explanatory texts and with the corresponding maps and plans. In the case of the maps, the degree of detail will be according to the amount of information represented in them, considering itself as general rule the scales defined in the different sections or similar considering the use of cartographic bases of each country.

6.1 Geographic situation

A brief description of the Central American area and the country will be included. The areas affected by the project will be defined and described:

For the assessment of direct impacts, the area directly affected will be the portion of land affected by the construction and the operation; and the influence area will be the portion that can receive the direct impacts of the project, defined in the 2 km on each side of the line.

For the assessment of indirect impacts, the influence area will be demonstrated an existing relation, without distance limit.

A topographic map will be enclosed that'll cover the project submitted to EIA and the maps, also topographic, that'll be necessary, on 1:100.000 or 1:200.000 scale.

6.2 Physical location

6.2.1. Geology and geomorphology

It will include data of basic regional and local geology in the area of influence of the project, a description of geologic units of rocky as well as superficial formation, an analysis of the geologic structure of the units and a basic evaluation at level of contacts, faults, folds and other structures. Also the geomorphologic formation and its dynamics will be analyzed. The geologic-geomorphologic study of the area will include individual maps based on the geologic cartography available of the area of influence of the projected line on a 1:50.000 scale and of the respective memories. In areas where singular geologic and geomorphologic formation exist, it will have to be collected more detailed information.

6.2.2 Edaphology

A characterization of the types of land present in the area of influence will be made as well as its agronomic capacity. The U.S.D.A Soil Taxonomy or the countries official will define the methodology for the classification of such. The work scale could be between 1:50.000 and 1:200.000.

6.2.3. Water

A description will be made according to the hydrology of the zone affected by the project, including the network of superficial drainage, its type and distribution, the regime of the water courses, maximum levels in avenues and patterns of flood, the quality of superficial waters, lakes and lagoons. Also it will be made a basic description of the hydrology of the zone, ground-water aquifers, their vulnerability and the variation in the water infiltration in those cases were the vegetal cover is affected. A superficial hydrological map will be enclosed with the main lotic (rivers) and lenitic (lakes and lagoons) systems of the area of influence in a 1:50.000 scale. And hydrogeology map in a scale between 1:50.000 and 1:200.000.

6.2.4. Climate

The following climatic parameters will be described at a local level: rainfall, temperature, winds, humidity and isolation. Also the key climatologic events in the regional characterization (incidence of cyclones, hurricanes, episodes of high intensity rainfall, tropical storms, etc.) will de studied. Maps of these climatic parameters will be included.

6.2.5. Vegetation

The biogeography and bioclimatic frame, and the series of potential vegetation will be described, the actual vegetal formations will be cartographed, based on the existing bibliographical sources, a general catalogue of present species in different vegetal formation will be made, emphasizing singular species, protected, rare and/or species on the way to extinction, catalogued by the national and international Legislation. The fragility of the vegetal systems according to the structure of the vegetation, functions of connectivity, degree of intervention and number of singular species will be defined. For the description of the bioclimatic frame it will be necessary to have documentation and updated cartography of the series of vegetation of the influence area. The present vegetal formation cartography in the influence area will be made by satellite images (to be georeferenced) or a similar method, these images will be interpreted and the results will be verified on the land. The catalogue of species will have a bibliographical base and it will be verified in the field by means of itineraries in the influence area. The units of present vegetation and, generalizing, the uses defined in the referenced territory, will determine homogenous units, biotopes or ecosystems. The cartography will be on a 1:400.000 scale for the potential vegetation, 1:200.000 for anthropized vegetation and 1:50.000 for the interest vegetation.

6.2.6. Fauna

The biogeography framework, defining the existing habitats, will be described. Being based on the existing bibliographical sources, a general catalogue will be made of present species in each defined habitat, describing the diversity, stability and complexity of the fauna community, the protected species according to the national legislation and international treaties, threatened, rare, endemic and on the way to extinction and defining the ecological corridors.

Special attention to the birds will be placed, identifying the existing populations, refuges, habitats, migratory routes, areas of nest building and raising. This study will be included in an independent section. The definition of the fauna communities and the catalogue of species will have support in the bibliographical base and cartography available, as well as in the specific legislation. The definition of ecological or fauna corridors will be made on the same base that the one used for the definition of vegetation units. This information will be mapped on a 1:50.000 scale.

6.2.7 Protection of the biological environment

There will be a catalogue of the Protected Natural Spaces and ecological interest that are within the zone of influence of the line. It will be studied how it affects the applicable legislation in the phases of construction and operation. This information will be complemented with a map on scale between 1:100.000 and 1:200.000.

6.3 Socio-Economic Environment

The information gathered in the following sections will be mapped on a suitable scale to visualize the information correctly.

6.3.1. Situation

The present political-administrative structure of the municipalities included in the area of direct affection of the project, the structure of the population centers, the present land use planning and infrastructures as well as communitarian services will be described.

6.3.2. Population

The density of present and foreseen population, its urban-rural distribution, the composition by age and sex, the rate of growth and migration, the degree of schooling, the economically active population, the level of income and any other pertinent demographic information for the purpose of the study.

6.3.3. Economy

The economic situation of the zone, the economic activities established in the area of influence of the project and the use and advantage of the resources will be described.

6.3.4. Uses of the land

The present uses of the land and the modifications that will be suffered by the project, the urbanized areas and the main infrastructure works that are in the area of influence of the line, indicating the applicable norms that they affect the project, will be described.

6.3.5. Indigenous communities

In the case were there are indigenous communities in the influence area, an investigation and description of their cultural characteristics, their history, traditions, monuments, holy areas, root to the zone and other aspects of interest will have to be made.

6.3.6. Historical and cultural heritage

A characterization of the historical and cultural heritage of the area of influence of the project, identifying its important elements will be made.

6.3.7. Affliction to the population

The levels of continuous and occasional noise during the phase of construction will be identified. Also the electric and magnetic fields awaited in the phase of operation of the normal line and fully charged will be described, the affliction that can have on the population and the distances allowed for the location of the houses.

6.4 Landscape

The local landscaping area, units of landscape and the predominant forms and volumes will be described. The visual river basins will be defined and maps of homogenous landscaping units will be elaborated. An initial evaluation of the units defined, as the capacity of visual absorption, the fragility, the intrinsic visual quality and the intervisibility will be made.

6.5 Picture report

Demonstrative pictures of the most relevant characteristics will be included in this section, or in each one of chapter 6.

6.6 Consulted bibliography and sources of data and information

A list of the bibliographical references and the consulted sources of information will be made in this section, or each one of the ones of chapter 6.

7. Natural risks

In the following sections the natural risks will be evaluated, as well as their effects on the facilities and the probabilities of happening. As a conclusion of each one of them, the places and aspects of the most vulnerable facilities are identified. All the elements contemplated in this chapter will be represented on the geologic map (that includes the representation of the contours) in a scale between 1:50.000 and 1:200.000.

7.1 Seismic risk

To make a general description of the seismicity and tectonics of the surroundings, the sources near the area of the project and the historical seismicity, including the awaited magnitudes and maximum intensities, the period of seismic recurrence and local accelerations peak.

7.2 Volcanic risk

In all the sections of the line located to a distance less than 30 km of an active emission volcanic center, a study shall be made of the volcanic susceptibility of the land and the facilities of the project to the piroclastic flows, avalanches, mud flows, lava outflow, opening of new volcanic cones, ash falls, volcanic gas dispersion and acid rain.

7.3 Risk of erosion

A characterization of the land within the area of influence according to their susceptibility to the erosive processes will be made, contributing the historical data available.

7.4 Risk of substrate stability

For all the sections of the line that go through lands with slopes superior to 15 % and for those located in karstic zones, a study of the susceptibility of the land to mass gravitational movements (sliding, loosening, landslides, collapses, etc.) will be made.

7.5 Risks derived from the hydrological processes

The vulnerability of the low zones to the floods, and in the case of coastal areas to Tsunamis will be studied through an historical evaluation.

7.6 Fire risk

The possibility of a fire incident and how they would affect the line will be evaluated technically and historically.

7.7 Risks resultant from the human activities

The human activities that can have any impact in the line, such as air spraying or gas sources that cause acid rain.

8. Environmental Impacts of the Project

8.1 Description of the potentially impacting activities of the project.

In this section the cause-effect relations must be identified and the magnitude and importance of the environmental impacts caused by the actions to be developed in all the phases of the project must be evaluated.

8.1.1 Potential impacts during the construction

An analysis will be made of the direct and indirect impacts (understanding by direct impact the one that has an immediate incidence in some environmental aspect, and by indirect impact the interdependences or caused by the existing interrelation between different environmental factors), for each element of the environment, geomorphology, land, water, vegetation, fauna, uses of the land, landscape and socioeconomic, that can produce the construction activities of the project:

- Opening of roads and temporary trails of access.
- Creation of auxiliary facilities (warehouses, factories, etc.).
- Tree felling.
- Foundations lying.
- Supports assembled
- Cable lying.

8.1.2 Potential impacts during the operation and the maintenance of the line

The direct and indirect impacts will be analyzed, for each element of the environment (geomorphologic, land, water, vegetation, fauna, socioeconomic and landscape), that can produce the activities of operation and maintenance of the line:

- Presence of Supports.
- Presence of conductive cable and ground lines
- Presence and Maintenance of Corridor or Road.
- Current Passing
- Presence of roads and accesses with permanent character.

8.2 Characterization and evaluation of impacts

In this section the criteria that will be used to characterize the impacts of the project on the environment will be defined. These criteria will include the magnitude of the impact, its character, the incidence on the element considered, the possibility of accumulation on the considered element, the continuity, the permanence, the moment of their appearance, the reversibility and the capacity of the element for their recovery. Also the criteria will be defined to evaluate the impacts from this characterization, within the categories of: positive, void, no significant, compatible, moderate, severe and critical impact. In both cases the direct and indirect impacts will be considered separately.

8.3 Impact Assessment by sections

For each one of the defined sections the environmental impacts of the project will be identified and they will be characterized and evaluated according to the criteria defined in point 8.2. After the description of the impacts, the information for each section will be summarized in the corresponding template of activities of the project versus will be transformed elements of the environment.

8.4 Significant impacts

Of the impacts identified in point 8.3, those that have been evaluated as moderate, severe or critical will be selected.

9. Preventive and mitigation measures

In this chapter the preventive and mitigation measures for the defined significant impacts in the point 8,4 will be described, defining in what place and in what stage of the project they will have to be applied. All these measures will have to be gathered in the plans of chapter 10 and economically evaluated in chapter 11.

9.1 Preventive measures in the design phase

The preventive measures during the design phase will consider, among others, the re-definition of the layout, the location of the supports, the increase of supports, the use of unequal legs and the time of accomplishment of the activities.

9.2 Preventive measures in the construction phase

During the phase of construction it will be considered, among others, the following preventive measures: the control of the building through the contractors, the design of the accesses, a characterized study of the bases of the supports, the preservation of the herbaceous and bushel layer, the cares in the assembly and hoisting of supports, the control of the tree fell, the elimination of the leftover materials of works, the rehabilitation of damages caused and other complementary measures.

9.3 Preventive measures in the operation and maintenance phase

During the phase of operation and maintenance it will be considered, among others, the following preventive measures: periodic visits of inspection, painting of the towers, maintenance of the streets, time of fulfillment of activities, treatment of nests, pursuit of predicted measures and relation with affected proprietors.

9.4 Mitigation measures

Additionally to the preventive measures, the mitigation measures will be studied to use in slopes and bare zones, on the fauna and according to landscape.

10. Environmental Management Plan

The Environmental Management Plan will be designed to execute throughout the stages of the project. This general Plan will consist of the following specific plans:

10.1 Plan of implantation of the environmental measures

In this section it will be described how to carry out the preventive and defined mitigation measures, specifying the environmental terms of reference to include in the conditions of the project, the concrete procedures to use in the activities and zones where the significant impacts have been identified. Different plans for the phases from design, construction and operation-maintenance will be considered.

10.2 Plan of technical-environmental training

All the participants must have the environmental knowledge identified. The formation resources will be developed as well.

10.3 Security plan

The measures of protection for the personnel will be identified and are to be considered in all the phases of the project.

10.4 Contingency Plan

It will be made written taking into consideration the identified natural risks in the corresponding chapter. It will have to contain the following basic elements at least:

- Objectives and reach of the plan
- Operative organization
- Procedures of performance, including the training of the personnel
- Programs of evaluation and follow up
- Necessary logistic inventories

10.5 Environmental follow up plan

It will be specified the form and the responsibilities to make the follow up of the environmental variables during the different phases of the project and the adopted measures in the different previous plans to verify that they have been made and which has been the effectiveness of the same ones. A chronogram of supervisions shall be enclosed.

11. Costs of the Plans

In this chapter, the costs of the carrying out of the plans in chapter 10 will be economically evaluated as a whole as well as individually, separated for the phases of design, construction and operation-maintenance. The valuation will be made in United States dollars (USD), considering the chronogram of the project and updating the numbers according to the foreseen evolution in the years of extent of the project.

12. Residual impacts

In this chapter a comparative analysis of the existing environmental quality is due to make in the area of influence of the project, considering the option without the project, with the project but without environmental measures and the project with environmental measuring. Sections will identify the environmental impacts after the adoption of Management Plans, and they will be characterized and valued with the criteria defined in section 8.2 of the EIA. The corresponding drafts will be elaborated and they will be compared with the obtained ones before the application of the preventive measures and mitigation.

13. Public information

In this chapter a Public Information Plan will be defined. It will take into account all the institutions, organizations and population interested in the project. In it, the informative actions to be carried out will be described, the objective population, the means of communication, the relevant aspects of who informs, the chronogram and the cost of them. As a part of the information that will given to the public, it will be requested that all the information, including the annexes, has to be published in the Web page of the Plan Puebla Panama of the Inter-American Development Bank and subject to comments to improve the EIA by means of an interactive process.

14. Conclusions and recommendations

The conclusions resulted after the elaboration of the EIA will be exposed taking into evaluation the environmental viability of the project. The high-level environmental recommendations considered during the design, the construction and the operation and maintenance of the line will be described.

15. Annexes

It will be enclosed as annex, the results of the public information activities and an evaluation of the opinion that the interested institutions, organizations and population have on the project, including a detailed list of the people who participated in these activities. Also it will be included as an annex, all the complementary studies made as a result of the allegations of the competent administrative agencies and the obtained ones in the proceedings of public information.

APPENDIX 2A

Suggestion by the Commission for a Phased Approach of the EIA as outlined in the Terms of Reference prepared by IDB (Appendix 2)

TOR for Phase 1: Corridor Selection

- Section 0. As in appendix 2
- Section 1. As in appendix 2
- Section 2. As in appendix 2, but focused on justification of the selected corridor
- Section 3. As in appendix 2, but only in general terms as appropriate for corridor selection.
- Section 4. As in appendix 2, but limited to regional and national aspects, consultations at (inter-)national level
- Section 5. As in the appendix 2, but in homogeneous sections at a scale of 1 : 250.000 or 1 : 500.000
- Section 6. 6.1, 6.2, and 6.3 to be rephrased to scales of 1 : 250.000 or 1 : 500.000; 6.4, 6.5 and 6.6 as in the appendix 2;
- Section 7. 7.1 and 7.2 in hazard maps at scales of 1 : 250.000 or 1 : 500.000; 7.3 and 7.4 to be presented in form of zones with high relief and strong dissection at scales of 1 : 250.000 or 1 : 500.000; 7.5 only in very general terms; 7.6 and 7.7 not to be discussed in this phase
- Section 8. 8.1 not to be discussed in this phase; 8.2, 8.3, and 8.4 to be presented for homogeneous sections at scales of 1 : 250.000 or 1 : 500.000
- Sections 9, 10, 11, 12, 13, 14 will be more generic and qualitative as they are related to homogeneous sections at scales of 1 : 250.000 or 1 : 500.000

TOR for Phase 2: Selection of detailed alignment

- Section 0. As in appendix 2
- Section 1. As in appendix 2
- Section 2. As in appendix 2
- Section 3. As in appendix 2

- Section 4. As in appendix 2, but limited to local aspects, consultations at provincial, local level
- Section 5. As in the appendix 2, but with possible alternative alignments
- Section 6. As in the appendix 2; but with possible alternative alignments, for public discussion a scale of 1 : 25.000 to 1 : 50.000 is to be preferred
- Section 7. 7.1 will not show variation in this phase; 7.2 in hazard maps at scales of 1 : 25.000 or 1 : 50.000 to show runout channels for pyroclastic flows, lahars, mudflows, etc. if a volcano is at less than 30 km distance; 7.3 and 7.4 to be presented in detailed geotechnical zoning maps; 7.5 with detailed analysis of flooding channels, supported with historical data; 7.6 and 7.7 as in appendix 2
- Section 8. 8.1, 8.2, 8.3, and 8.4 to be presented for homogeneous sections at scales of 1 : 25.000 or 1 : 50.000
- Sections 9, 10, 11, 12, 13, 14 as in appendix 2.

APPENDIX 3

Project Information

Proposed Activity: The SIEPAC (Sistema de Interconexión Eléctrica en America Central)-initiative forms part of the so-called Puebla-Panama Plan (PPP), which promotes regional development and represents the beginning of a new phase of dialogue and shared work in order to overcome poverty and increase the quality of life of the people of Mesoamerica.

The SIEPAC project includes the construction of approximately 1,830 Km of 230-kV power transmission lines and connections to substations in each country, from Panama to Guatemala, in order to integrate and strengthen the power transmission networks of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. The construction of the SIEPAC line should help attract private investment in large power plants designed to serve the regional market, using modern technologies and cheaper and more efficient fuels. EPR (Empresa Proprietaria de la Red) was established to design, construct, operate and maintain the SIEPAC network. EPR shareholders are the electricity companies of Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panamá and Spain.

Categories: DAC-CRS codes: power transmission lines 41019

Project numbers: Commission for EIA 052

Procedural information:

Request from the CCAD: 31 October 2002

Visit to Central America: 25 January – 2 February 2003

Advisory review submitted: 24 February 2003

Significant details: In 1997 an Environmental Impact Assessment (EIA)-study on regional scale was presented based on the preferred route at that date. The Interamerican Development Bank (IDB) reviewed the EIA-study and found that there was 'acceptable progress reached' on environmental matters until that date in order to start formalities in relation to project financing.

At this moment national EIA-studies have to be undertaken to obtain corresponding environmental licences, according to the legal requirements of the countries involved.

In 2002, IDB drafted Terms of Reference (ToR) with the objective of being able to give social and environmental approval for the SIEPAC project.

In October 2002, during a meeting in Costa Rica of the Technical Committee on EIA of the Central American Commission on Environment and Development (CCAD), it was agreed by all EIA directors of the Central American countries that on basis of the IDB-ToR each country would add specific requirements according to their own EIA-regulations and that these would be put together into one document with additional requirements to the IDB-ToR.

In November 2002, the CCAD invited the Netherlands Commission for EIA to assist CCAD in addressing the regional and transboundary impacts of SIEPAC.

The report prepared by the Commission is a combination of a review and a guidelines report. A review has been performed of the 1997 EIA studies for the SIEPAC project as well as of the 2002 IDB ToR for the environmental studies of SIEPAC. Supplementary guidelines are given for information, which is not yet covered by the IDB ToR, and is considered important for decision making on the project.

The 1997 EIA studies are incomplete, purely descriptive and qualitative. They form however good starting documents for the EIA-studies still to be drafted. An essential shortcoming is the lack of a clear justification of the SIEPAC project within the strategy of the PPP. The Commission recommends to clearly relate the rationale of SIEPAC to the main objectives of the PPP.

The 2002 IDB ToR represent a general and comprehensive basis to guide further EIA studies required to obtain the environmental licences. The Commission is however of the opinion that the ToR sometimes lacks focus: not all information has to be worked out with the same level of detail and not all information is relevant. For reasons of efficiency and transparency, the Commission proposes a phased approach. The first phase being the justification of a (relatively wide) corridor, the second (design) phase being the establishment of the detailed alignment. The Commission indicates in the report which part of the IDB-TOR concerns required information corresponding to the first phase and which part could receive second priority.

Supplementary guidelines to the IDB ToR address elements which are considered by the Commission as essential information for decision making. These guidelines relate to strategic considerations, to transboundary issues, to harmonisation of criteria, to impacts and public participation. The Commission suggests in which chapters of the IDB-ToR these supplementary guidelines could be inserted.

Members of the working group:

Mr. N. Rengers
Mr. A. J. van Bodegom
Mr. B. Petry
Mr. K. J. Beek (chairman)

Secretary of the working group: Mrs. I.A. Steinhauer

APPENDIX 4

Programme for Netherlands Commission for Environmental Impact Assessment 25 Jan. – 2 Feb. 2003

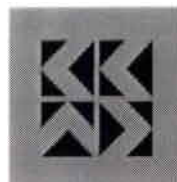
Date	Time	Activity
Sat. 25 Jan. 2003	10:15 AM – all day	Travel by part of working group to Guatemala (arrival +/- 20:25 PM)
	10:30-12:00	Meeting with mr. J. Zepeda, Director Dirección de Evaluación y Control Ambiental del SEDA, Honduras
Sun. 26 Jan.	all day	Acclimatisation / day of preparation, Guatemala
	16:30-18:30	Meeting with Mr. R. Guillén, CCAD, Mr. A. Guzman (Worldbank) and Mr. J. Cabrera (former executive secretary of CCAD)
Mon. 27 Jan.	7:30 AM – 21:00 PM	Site visit: ride past part of the proposed route in Guatemala as well as in El Salvador, together with representative of Min. of the Environment (MARN) Guatemala (ms. Ruth ...) and Mr. R. Guillén from CCAD. Stops near a central hidroeléctrica in Guatemala, a central geotérmica en El Salvador (Ahuachapan) and a central hidroeléctrica La Guija (El Salvador), personal de ICEL
Tues. 28 Jan.	7:00 AM	Travel to Costa Rica by plane; followed by meetings with:
	9:30 AM	- EPR, Empresa Proprietaria del la Red, Mr. F. Nuñez Director General and Mr. J. P. González, Environmental coordinator and three other representatives of EPR, Mr. M. Castro (Executive Secretary CCAD)
	12:15 PM	- Meeting with Mr. G.Geut and Ms. M. Danse, Netherlands Embassy San José, Costa Rica
	13:00 PM	- Lunch with Ms. C.Cortés, Directora Ejecutiva de FUNDAPEM (Fundación del servicio exterior para la paz y la democracia)
	15:00 PM	- Meeting with Mr. T. de la Torre, director de SIEPAC
	17:30PM- 19:00 PM	- Meeting with IUCN, Mr. E. Lahman, Director General, Ms. Grethel Aguilar and Ms. M. Cedeño

Wed. 29 Jan.	10:00 AM 15:00 PM- 18:00 PM 20:00 PM	Return to Guatemala Round table discussion with 15 participants from environmental NGO's and other organizations., Ms. I. Porras, Mr. F. Molino (ACOTOP), Mr. E. López (FLACSO), Mr. R. Ferber (ANG), Ms. A. Sobenes (IDEADS), Mr. A. de Bracamonte (Cámara de Comercio), Mr. H. Morjan (Cámara de Comercio), Mr. C. Soza (Propetén), Mr. J. Ruíz (Gremial Energía ANG), Ms. G. Aguilar (UICN), Ms. P Espinosa (Trópico Verde), Mr. C. Albacete (Parkswatch), Mr. J. Chacón (Colectivo Madre Selva), Mr. J. Cabrera (CCAD), Mr. I. Martinez (INDE) Travel to Antigua
Thurs. 30 Jan.	all day and evening	Writing of report by the working group, part of working group attended parts of programme of the meeting of EIA-directors, see separate programme and participants list (attached)
Fri. 31 Jan.	9:00 AM- 13:00 PM 16:00 PM 18:00 PM	Presentation of findings in meeting EIA directors, incl. Laurent Umans of Royal Netherlands Embassy in Guatemala Discussion on follow-up Travel back to Guatemala
Sat 1 Feb.	9:35 AM – all day	Travel to the Netherlands
Sun. 2 Feb.	8:15 AM	Arrival Schiphol Airport

APPENDIX 4A

Agenda Tentativa

Reunión Comité Técnico de Evaluación de Impacto Ambiental



COMISIÓN CENTROAMERICANA DE AMBIENTE Y DESARROLLO

Comisión Centroamericana de Ambiente y Desarrollo

Antigua. Guatemala

30, 31 de enero 2003

Jueves 30 de enero

- 9:00 - 9:15 Presentación Inaugural. Sr. Vladimir Bonilla. Vice Ministro. Ministerio del Ambiente y Recursos Naturales de Guatemala.
- 9:15- 9:30 Palabras de Bienvenida. Embajada de Holanda en Guatemala. Sr. Laurent Umans.
- 9:30 -10:00 Revisión y aprobación de Agenda
- Revisión de acuerdos de la reunión del Comité Técnico celebrada en San José, Costa Rica el 24 y 25 de Octubre del 2002.
- 10:00 -10:20 *Café*
- 10:20- 12:00 Informes de País
- 12:00 - 12:30 Comentarios, acciones de coordinación
- 12:30 - 2:00 Almuerzo
- 2:00 - 2:30 Informe de Actualización del Proyecto Fortalecimiento de EIA en Centroamérica.
- 2:30 - 2:45 Presentación del Manual de Participación Pública y enfoque de genero en EIA
- 2:45 - 3:00 Avances de la red Electrónica

- 3:00 - 3:30 Futuro del Proyecto-extensión y segunda fase (interactivo)
- 3:30 - 4:00 Café
- 4:00 - 4:30 Comisión Internacional de Impacto Ambiental. Situación actual y pasos a seguir
- 4:30 - 5:00 Evaluación Ambiental Estratégica el Estado del Arte (cursos de Capacitación) Ineke Steinhauer. Comisión Holandesa de EIA
- 5:00- 6:00 Acuerdo Trans-fronterizo en Evaluación Ambiental Estratégica en la Unión Europea. Alejandro Iza. Centro de Derecho Ambiental de la UICN
- 6:00 - 6:30 Preguntas y Respuestas. Agenda de Acción
- 7:30 Cena. Restaurante. Fonda de la Calle Real

Viernes 31 de enero

- 9:00 - 11:00 Propuesta de términos de Referencia Regionales para el Sistema de Interconexión Eléctrica de Centroamérica
- 11:00 - 11:30 Café
- 11:30 - 12:30 Comentarios y sesión de trabajo
- 12:30 - 2:00 Almuerzo
- 2:00 - 3:00 Situación del Proyecto Plan Puebla Panamá (Iniciativa de Desarrollo Sostenible)
- 3:00 - 4:00 Tratado de Libre Comercio con Estados Unidos ¿Cual es el Estado de la participación en la Agenda Ambiental?
- 4:00 - 4:30 Café
- 4:30 - 6:00 Actuaciones Futuras de la CTEIA. Resumen de acuerdos de la reunión
- Cierre

Lista de Participantes

Nombre	Cargo. Institución
Dr. Alejandro Iza	Experto Evaluación Ambiental Estratégica en contexto Regional. Comisión de Derecho Ambiental UICN.
Ing. Eduardo Madrigal	Director EIA Costa Rica
Ing. Francisco Perdomo	Director EIA El Salvador
Ing. Javier Zepeda	Director EIA Honduras
Lic. Hilda Espinoza Urbina	Director EIA Nicaragua
Ing. Carlos Roberto Morales Monzón	Director EIA Guatemala
Ing. Maurillys Coronado	Sub-Directora EIA Panamá
Sr. Laurent Umans	Embajada de Holanda
Dra. Grethel Aguilar Rojas	UICN Directora de Proyecto EIA
Sra. Marianela Cedeño Bonilla	UICN Abogada Proyecto EIA
Sra. Gabriela Hernández Herrera	UICN Publicaciones
Sra. Margarita Cortés H.	Cámara de Industria Centroamérica
Sra. Jackeline Siles C.	UICN Area Social
Sra. Gloria Mocker	Departamento Gestión Ambiental El Salvador
Sr. Vladimir Bonilla	Viceministro del Ambiente Guatemala
Ing. Mauricio Castro	Secretario Ejecutivo CCAD
Sr. A. Astorga	PROSIGA

APPENDIX 6

Overview of Plan Puebla-Panama

Proyecto SIEPAC/ Enero 2003

Iniciativa Mesoamericana de Desarrollo Sostenible (IMDS) y Plan Puebla-Panama (PPP)--Resumen

(con basis en la presentación Conferencia Socios y Donantes Corredor Biológico Mesoamericano, Paris 12-13 diciembre 2002.)

1. **Visión General del PPP**
 - Desarrollo integrado para Mesoamerica
 - Criterios: promover la integración y el crecimiento económico; fortalecer la gestión ambiental y el manejo sostenible de los recursos naturales; disminuir la vulnerabilidad ante desastres naturales; respetar la diversidad cultural; promover la participación social; fomentar la participación del sector privado.
2. **Estructura del PPP**
 - Cumbre de Presidentes Mesoamericana
 - Comisión Ejecutiva del PPP--Comisionados Presidenciales de los 8 países, SICA secretariado
 - Grupo Técnico Interinstitucional-- BCIE, BID; CAF; CEPAL; INCAE; PNUD; SIECA
 - Comisión de Financiamiento--Ministros de Hacienda de los 8 países y Comisionados; Coordinación BID
 - ICP--Consulta con la Sociedad Civil
 - Iniciativas del PPP
3. **Iniciativas del PPP y sus objetivos**
 - **Iniciativa Mesoamericana de Desarrollo Sustentable:** promover la conservación y el manejo sustentable de los recursos naturales, mediante mecanismos participativos de las comunidades locales.
 - **Iniciativa Mesoamericana de Prevención y Mitigación de Desastres Naturales:** promover la prevención y mitigación de desastres naturales e incorporar la consideración de gestión de riesgo en los proyectos de todos los sectores.
 - **Iniciativa Mesoamericana de Promoción de las Pequeñas y Medianas Empresas (Pymes):** promover el fortalecimiento de las Pymes mediante la creación de redes empresariales en la región mesoamericana.
 - **Iniciativa Mesoamericana de Promoción del Turismo:** promover el desarrollo del turismo ecológico, cultural e histórico.
 - **Iniciativa Mesoamericana de Facilitación del Intercambio Comercial:** fomentar el intercambio comercial en la región mediante una reducción de los costos de transacción en el comercio entre los países.
 - **Iniciativa Mesoamericana de Integración Vial:** facilitar la integración física y reducir los costos de transporte.
 - **Iniciativa Mesoamericana de Interconexión Eléctrica:** unificar e interconectar los mercados eléctricos con miras a promover una ampliación de las inversiones en el sector y una reducción del precio de la electricidad.
 - **Iniciativa Mesoamericana de Integración de Telecomunicaciones:** ampliar la oferta y promover el acceso universal a los servicios de telecomunicaciones.
 - **Iniciativa Mesoamericana de Desarrollo Social y Económico en los Municipios Fronterizos:** elevar los niveles socioeconomicos de la población en los municipios fronterizos para así reducir la pobreza.
 - **Iniciativa Mesoamericana de Desarrollo Social:** reducir la pobreza y facilitar el acceso a los servicios sociales básicos de la población vulnerable.

APPENDIX 7

Observations on review of 1997 EIA-study

1. GENERAL CONCLUSION AND RECOMMENDATIONS

The information in the 1997 EIA-study does not provide sufficient information to get a good overview of possible impacts of the project and the way the impacts are going to be mitigated and compensated for.

The information is sometimes irrelevant (not project- and site specific) for decision-making. It is strongly focused on a qualitative description of the regional environment and a description of unquantified potential impacts due to the project (see attached Indice Resumido, appendix 7.1 containing an overview of the extent of the Report on different topics). More quantitative information is needed (e.g. what does it mean that 'some access roads' have to be constructed).

2. EXECUTIVE SUMMARY

According to the IDB-ToR an executive summary is required, including photos and cartographic material. The Commission notes that this summary is lacking.

- A concise summary (max 50 pages) is needed listing major impacts and measures for their mitigation.
- Cartographic material is needed in order to make the information more accessible including maps:
 - with the whole stretch of the transmission lines, with existing power lines and the new SIEPAC-line.
 - of the existing road system and roads to be constructed by SIEPAC.
 - with the alternatives that have been studied for each country.
 - that show the Meso-American Biological Corridor and the SIEPAC line.
 - that show major migrating bird routes in Meso America and the SIEPAC line.
 - that show all protected areas in an area at a distance of 50 km or less from the SIEPAC line.
 - that show all wetland areas in an area at a distance of 50 km or less from the SIEPAC line.
 - that show indigenous territories which may be crossed.
 - of each described stretch (tramo)
 - and that need to be provided at different scales to get overview and details.

3. RATIONALE AND JUSTIFICATION OF THE PROJECT

3.1 General justification of the project

The 1997 EIA study gives raise to serious doubts. Main aspects are related to the following:

- The EIA study does not mention how the SIEPAC contributes to poverty alleviation and sustainable development, stated to be the overall goal of the Plan Puebla Panamá.
- Scenarios for Electrical Energy development in a regional context. A planning horizon 1996-1999; 2000-2007; 2008-2015 is too short to be of any relevance. In fact the so called long term is already a short term. This part needs a complete review.
- Scenarios for Electrical Energy development in the regional context. It is not clear how the final solution was composed from scenarios which are relatively contradictory on trust/distrust of the willingness to co-ordinate in a regional context. Optimisation studies should take into account the uncertainty aspects of degree of co-ordination in planning and operation. More explanation is needed about the SUPER/SIEPAC model criteria.
- It is not clear whether the feasibility studies really have been completed. There is the mention of further studies to be done by IIT Universidad de Comillas and Power Technologies Inc. (PTI). Further information is needed on this issue.
- The EIA-study does not give information on a plan or policy for expansion of the electricity sector, taking into account the sources of energy¹, constraints and priorities to be satisfied. No long term view is provided on the construction of new generation facilities including its environmental and social impacts (strategic EIA), nor is it clear which conditions these power generation facilities imply for route selection (alternatives). The Commission recommends to present (a summary of) a strategic plan with a well defined time horizon.

3.2 Justification of technical proposal

The Commission doubts whether the choice of a 230kV, single circuit line really is final. There is a mention to the fact that previous feasibility studies have identified two options: a) a simple circuit 230 kV, with possibility of a later expansion through a parallel line; b) a double circuit line with a first circuit installed in a first phase. This knowledge is relevant for EIA considerations.

¹ There is not yet a true analysis of the environmental-economic assessment on the real cost for the energy sources providing electricity to SIEPAC. On the one hand, the sources have been assessed penalising the basic costs on the hydroelectric kw-h hydro-electricity for its environmental, social, indigenous cultural and patrimonial (land, archaeology...) impact. On the other hand, there has been considered the possibility of introducing natural or LPG gas from Chiapas, Mexico. At short term estimations, gas-powered electricity is quite cheaper (US\$0.03/kw-h) than hydro (i.e. P:H: Boruca in Costa Rica; US\$0.045). However, this Boruca costs include environmental mitigation measures, but the gas doesn't. Besides, not very long from now, fossil fuels will be compelled to pay environmental mitigation services (reduction or compensation) for greenhouse emissions according to the Kyoto Protocol and other international regulations. So in the future, gas will increase its costs and perhaps become much more expensive than hydro, and if these considerations are not taken now, once the decisions are implemented, it could be too late to come back for hydro.

4. JUSTIFICATION OF PREFERRED ALTERNATIVE ROUTE

The procedure followed is not the conventional for this type of project as far as the environmental implications are concerned. The selected route is strongly conditioned by the passage through 16 compulsory points: 5 boundary crossings GUA/ES, ES/HO, HO/NI, NI/CR, CR/PA and 11 substations connecting the line to the national grids. This fact, although quite understandable from the point of view of technical functionality and political agreements between neighbouring countries requires, because of the strong limiting character of the routing options which are left (i.e a sub-optimisation of reaches), a good environmental justification of the choice of international crossings and choice of location for the substations. This is completely missing. Although the EIA-study recognises that the selection of locations and routing is the most important preventive mitigation measure, there are only some general statements of principles such as avoiding environmentally sensitive areas.

5. PROJECT DESCRIPTION

Many technical details of the transmission line are presented in the EIA-study. However no typical drawings of supporting structures and other equipments and accessories are provided. There is an absence of technical data and details of substations and control centres (as if these matters would not have been matured yet). The design was based on Spanish technical codes for transmission lines (1968), power plants and centres of transformation (1982) and other related norms. A number of questions arise:

- What criteria and studies regarding loadings such as winds, earthquakes, rainfall, have been used to design the line taking into account the location in Central America with environmental conditions which are very different from those in Spain?
- Have the basic norms applied been updated to meet present state of art? How do they compare? Norms from 1968 and 1982 are quite old.
- To what extent the technical characteristics of the project are binding since there will be a tendering process for construction, equipment and material supplies.

6. DESCRIPTION OF THE PHYSICAL ENVIRONMENT

6.1 General

The study area has been defined as an area having the total length of the transmission line and a constant width of 4km parallel to the 'corridor' axis. This choice might be quite adequate to provide a basis for more detailed topographic surveys but does not seem convincing for the study of some of the environmental implications of the project, on one side, or the effects of environment on the project, on the other side. Also, the specific studies to conclude on suitable corridors and select the best among them were not reported and would represent an important information to justify the choices made.

6.2 Description of the regional environment

The inventory of present situation of the region presents an extensive and strictly qualitative account of physical, biological, social-economic and landscape aspects of regional environment. Unfortunately this inventory, along the extent of the transmission line is not including any attempt to quantify those aspects. Such an absence of numerical information may well be the result of insufficient field campaigns. Conclusions based on strictly qualitative assessments are, of course, always quite objectionable.

6.3 Division in homogeneous stretches

The transmission line route has been divided into 48 homogeneous stretches for the purpose of investigating potential impacts. The idea is reasonable and the description of each stretch useful. Criteria used in such division are briefly stated but no further information is provided ascertaining that the homogeneous stretches are really homogeneous. In fact the report even states that in homogeneous stretches, shorter reaches of substantially different characteristics may well occur. The main advantage of the division in homogeneous stretches -which would be important to draw quantitative results on a sampling basis- was not even explored since there is no quantitative information in the EIA-study.

7. **POTENTIAL NEGATIVE IMPACTS OF THE PROJECT**

7.1 General

In a purely qualitative forecast, severe and moderately severe impacts are only expected to occur in a limited number of homogeneous stretches, affecting mainly soil, flora and vegetation² (to a minor extent water, fauna, natural spaces and landscape). The Commission's main objections to these conclusions are:

- A somewhat restricted view on the indirect potential impacts of the project (externalities), both positive and negative, in particular in the social-economic area such as further wanted and unwanted developments, boundary region problems, need to harmonise different situations and potential conflicts between neighbouring countries, etc.
- Lack of any quantified procedure for evaluation and forecasting, commonly used in similar types of projects.

² See attached matrix in 7.2 of severe and moderate negative impacts.

7.2

Flora / Protected Areas

The following information is lacking and should be supplemented:

- Description of the regional protected area network: Meso-American Biological Corridor (MBC) and the point where the transmission line touches or crosses the MBC. Just like the SIEPAC, the MBC is part of the Plan Puebla-Panamá
- Of each stretch of some 50 km (maximum) a description of the vegetation has to be made. At what distance are local, national and internationally recognised protected areas or biological corridors situated?
- Very little information is provided on National parks and protected areas: In the section on Costa Rica some parks are mentioned, but it is not clear if the power line crosses the parks. In the other countries the protected areas are not mentioned at all. Are they very distant from the transmission line?
- As to endangered species (flora and fauna): not only which endangered species are found has to be described, but also information has to be given on where the endangered species are to be found?

7.3

Fauna / Migration routes for birds

At this stage the description of bird areas and flyways is insufficient to make even a guess of possible impacts. What is needed is the following:

- A description of protected areas within a range of 50 km from the line is needed, especially in relation to bird movements. The influence on birds can be considerable in two ways: (a) seasonal migration and (b) daily migration (or travel) from sleeping area to feeding area at low altitude (max. daily flying distance approximately 50 km). RAMSAR sites, Important Bird Areas (IBA as defined by Birdlife Int.) and other important areas for birds that are found within this range of 50 km on both sides of the line have to be indicated. For Guatemala and Panamá eg. there are preliminary assessments of IBAs resp. an IBA programme ongoing.
- In Guatemala two lagoons are mentioned at 17 and 5 km distance from the line. These areas are certainly within the area of influence of SIEPAC. The information provided is insufficient. Birds busy with daily flights from feeding to sleeping place may easily fly at the altitude of the transmission lines.
- In El Salvador the line passes through 66,296 ha of lagoons, a considerable area. Probably there will be a major effect on birds. It is recognised that enormous numbers of birds migrate through the area of influence of SIEPAC, but that the migration flyways are parallel to the line and therefore do not have much influence. This is not true: even then there may be influence, but surely there will be also a lot of daily flying at low altitudes from birds that reside permanently in the area. That influence may be more important
- It is stated that there is no information available on migration routes in Nicaragua. In the US is a wealth of information on migrating routes. See e.g. www.abcbirds.org for a directory of relevant expertise. See also www.fs.fed.us/global and www.manomet.org.
- It is important that a thorough study on migrating and resident birds is being done by a qualified ornithologist as a supplement to this EIA-study.

8. IMPACTS ON THE PROJECT

Potential impacts due to geological, hydrometereological and human activity reasons are briefly described. There is no information on the relevance of the risks involved or any information on the data upon which choices of protection measures can be developed. The EIA-study describes qualitative aspects of preventive mitigation as general aspects to be taken into account when developing the detailed project.

9. MITIGATING MEASURES

The mitigation plan is basically a listing of commonly adopted mitigation measures (mainly preventive during design and construction). No quantification is given. It does not contain a budget. A mitigation plan should list the major environmental impacts plus the respective proposed mitigation measures and their costs.

Mitigation for fauna: the effects for especially migrating and residential birds are not clear, so how to define mitigation? Effects of construction of the transmission line on birds are mostly neglected. KEMA Netherlands knows about measures to make power lines more visible for birds. A monitoring programme would also be necessary (counting e.g. dead birds near power lines at strategic locations).

Socio-economic: Is there a plan for buying the land necessary for the right of way? Is there a compensation plan? What are the principles for such a plan, what are the criteria for being compensated and the norms?

10. ENVIRONMENTAL MANAGEMENT PLAN, INSTITUTIONAL ARRANGEMENTS, ENVIRONMENTAL COSTS.

These three chapters without any significant content represent an incomplete check-list of future actions.

ANNEX 7.1: INDICE RESUMIDO

Capitulos del Informe EIA	Paginas	Numero de Paginas	Porcentaje
Introduccion	1 - 12	12	1.4
Solucion Propuesta	13 - 66	54	6.1
Area del Estudio	67 - 73	7	0.8
Marco Politico, Legal y Administrativo	74 - 103	30	3.4
Descripcion del Proyecto Propuesto	104 - 140	37	4.2
Descripcion del Medio Ambiente	141 - 392	252	28.1
Definicion de Tramos Homogeneos	393 - 476	84	9.5
Impactos Ambientales del Proyecto	477 - 788	312	35.2
Impactos Ambientales sobre el Proyecto	789 - 798	10	1.1
Proposicion de Medidas Preventivas y de Mitigacion	799 - 826	28	3.2
Impactos Residuales	827 - 843	17	1.9
Planos de Seguimiento y Control Ambiental (Monitoreo)	844 - 855	12	1.4
Participacion Interinstitucional; de Organismos Regionales; de la Poblacion y de las ONG	856 - 859	4	0.5
Costos Ambientales	860 - 865	6	0.7
Conclusiones y Recomendaciones	867 - 887	21	2.4
Total del Informe	1 - 887	887	100.0

ANNEX 7.2: Tramos Homogeneos. Matriz de Impactos Ambientales Moderados y Severos

Fact.Amb.	GUA-2	GUA-4	GUA-5 GUA-8	ES-1	ES-3	ES-9	NI-5	CR-2	CR-5	CVR-6	CR-7 CR-8
Suelo	M	M	M	S	S	M					M
Agua	M			M							
Atmosfera											
Flora				S			S	S	S	M	M
Fauna		M		M	M						
Poblacion											
Economia											
Agr.+Gan.											
Selvi.+Cult.											
Infra.+Serv.											
Esp. Natur.				S				S	M		
Patrimonio											
Paisaje									M		M

APPENDIX 8

Broader transboundary issues, not directly related to SIEPAC

It would be wrong to assume that the SIEPAC project alone has the potential to transform the situation along boundary regions of the 6 countries. A broader context is required to achieve this. Existing problems and conflicts in boundary regions (boundary demarcation, shared rivers, water rights among others) require a special treatment and co-operation effort which is to be seen as an on-going process where success or failure would be a clear indicator of the willingness and ability to co-operate. Although not directly a task of the Commission, it would like to draw the attention to the importance of integrating the different initiatives of PPP to achieve desired objectives. In other words, SIEPAC should be completed by other planned and co-ordinated actions and bi-lateral projects needed to achieve an appropriate development framework.

The Commission recommends that emphasis is given to the on-going process of bi-lateral (in a few cases more than bi-lateral) co-operation agreements solving problems such as boundary demarcation and shared watersheds. Some examples relate to:

Positive and negative socio-economic and environmental impacts on the boundary regions with Mexico and Belize, where connecting lines between these countries and SIEPAC are going to be constructed soon. It is recommended that the EIA studies for these initiatives are started soon and that co-ordination is sought with the EIA study for SIEPAC.

Because of construction of SIEPAC, hydropower generation may have additional potential to grow. Management of hydropower generation also implies watershed management of the river that feeds the hydropower installation. Not seldom watersheds are located in two (or even more) countries. In Honduras and El Salvador the Rio Lempa is a conspicuous example. Downstream the river is already used for power generation. In order to further use its hydropower potential, there is an obvious need for co-ordinated watershed management and an agreement on benefit sharing. This means bilateral co-operation on a case-by-case basis. The Commission recommends that the countries of Meso-America stimulate such bilateral co-operation.

APPENDIX 9

Public participation in EIA

Public participation is an integral part of EA, leading to more effective design, implementation, operation and management. Early recognition of constraints to public involvement will help to formulate effective participation programmes, and more effective EA. The constraints include poverty, gender inaccessibility, illiteracy and levels of education, political and cultural contexts, language barriers, legal systems and confidentiality requirements.

Public involvement is central to improving the accountability of government, and to assuring sustained and poverty-focused development. *Box 1* presents some common objections to public participation in EA and some suggested remedies.

Box 1: Common arguments against public participation and counter-arguments	
Arguments used	Counter-arguments
<ul style="list-style-type: none">• It's too early, we haven't yet got a proposal	<ul style="list-style-type: none">• Early PP will avoid rumours and build trust
<ul style="list-style-type: none">• It will take too long and will cost too much	<ul style="list-style-type: none">• Cost of not involving people can be higher
<ul style="list-style-type: none">• It will stir up opposition and activists will take over the process	<ul style="list-style-type: none">• This will happen anyway. PP can deal with issues before the opposition raises them.
<ul style="list-style-type: none">• Only the articulate will participate	<ul style="list-style-type: none">• Focus on the 'silent majority'
<ul style="list-style-type: none">• We will raise expectations we can't satisfy	<ul style="list-style-type: none">• Make very clear what already has been decided and on which issues PP is desired
<ul style="list-style-type: none">• The local community won't understand the issues involved	<ul style="list-style-type: none">• They will if you keep it simple• Locals have a better understanding of their own surroundings

Main methods for communicating with affected groups throughout the EIA process (i) Involving them directly (ii) Approach them via their local representatives (leaders) (iii) Approach them via their representatives at national level (NGOs) (iv) Approach them via the government agencies who represent their interests.

The public participation plan: 7 steps

- 1) Set objectives (what do you want to achieve)
- 2) Identify interested and affected parties
- 3) Identify budgetary/time constraints and opportunities
- 4) Identify appropriate techniques
- 5) Identify traditional authority structures and decision making process
- 6) Ensure sufficient feedback
- 7) Set mechanisms to consider outcomes of public participation

Some of these steps are explained below:

Step 1: Set objectives

- Give information
- Identify problems
- Get ideas or solve problems
- Get feedback on existing ideas
- Obtain local knowledge (corrective/creative)
- Increase public confidence (voters)
- Evaluate ideas
- Reach consensus
- Avoid conflicts (less delay)
- Valuing of impacts (beneficiaries and non-beneficiaries)

Step 3: Budget/Time/Organisation

- Are people informed about the possibility of public participation?
- Are they willing to make use of it?
- Is sufficient time available for reading, discussion?
- Is there sufficient local knowledge and comprehension about the scale and nature of project impacts for local people?

- Is sufficient time available to enable views and opinions?
- Is selection and timing of venues or contexts thought of which encourage maximum attendance and free exchange of views?
- Are extra costs reserved for e.g. hiring of a social scientist and travel costs to attend public hearings?

Step 4: Identify appropriate techniques

Public meetings/hearings, advisory panels/committees, open house, interviews, questionnaires, PRA-techniques, structured small groups discussions, (mass) media, printed materials, opinion survey, seminars, workshops, display/exhibition materials, internet web-sites, telephone hot lines, alternative dispute resolution, citizen juries, specific mailbox, scenario simulations, referendum.

Step 4 continued: How to find the appropriate technique

- Give information
 - General public information meetings, use of mass media, brochures and pamphlets
- Get ideas
 - Written comments
- Identify problems and get feedback
 - Public hearings
- Give information and identify problems
 - Field trips and site visits
- Identify problems, get ideas, get feedback and evaluate ideas
 - Advisory committees, field offices
- Identify problems, get ideas, get feedback and evaluate ideas, including consensus building
 - Ombudsman, workshops
- All goals at the same time
 - Informal small group meetings