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REPORT OF THE SEMINAR-WORKSHOP ON THE ANALYSIS OF THE
POLLUTION FROM THE ESMERALDAS STATE REFINERY
IN THE ESMERALDAS AND TEAONE RIVERS

(Esmeraldas, Ecuador, 17-19 April 1989)

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Foreword

This report contains the conclusions and recommendations of the seminar-workshop on the Analysis of the pollution from the Esmeraldas State Refinery in the Esmeraldas and Teaone Rivers in Ecuador.

The meeting was held within the framework of the ECLAC/UNEP project "Technical co-operation for integration of environmental considerations in development planning - Phase II" (FP/9101-87-93), assigned to the Joint ECLAC/UNEP Development and Environment Unit.

The overall objective of the seminar-workshop was to analyse the productive, economic and social aspects of the water pollution from the refinery in the context of the Pre-feasibility study for improving the quality of the Esmeraldas and Teaone Rivers, carried out by the Environmental Advisory Unit of the Ecuadorean State Petroleum Corporation (CEPE), in co-operation with the Joint ECLAC/UNEP Development and Environment Unit.

The specific objectives of the meeting can be outlined as follows:

a) Learn the opinion of State directors, authorities, technicians and public relations personnel regarding the damage caused by the petroleum industry to different components of the ecology, especially those affecting water and those of a socioeconomic character, as well as to examine the pre-feasibility studies drawn up by the consultants of the Joint ECLAC/UNEP Development and Environment Unit in collaboration with CEPE.

b) Present a technical and economic analysis of refining processes and point out their impact on the water quality of the Esmeraldas and Teaone Rivers and possible solutions, according to the technicians from the refinery and ECLAC.

c) Engage the direct participation of those involved in the problem and underline the need to develop an integral plan for prevention, control and efficient rehabilitation of the environment, in which both public and private sectors would participate.

I. ORGANIZATION OF THE SEMINAR-WORKSHOP

Place and date

1. The seminar-workshop on the Analysis of the pollution from the Esmeraldas State Refinery in the Esmeraldas and Teacone Rivers was held in the Training Building of the Esmeraldas State Refinery of CEPE, in Esmeraldas, Ecuador, between 17-19 April 1989 (see the map of the zone in annex 1).

Attendance

2. Fifty-one persons participated in the meeting, among them technicians from the different operating areas of CEPE, Quito, technicians from the Esmeraldas State Refinery, authorities and representatives of public and private institutions and from ECLAC.*/

Opening and closing meetings

3. The speakers at the opening session were Mr. Pablo Almeida, head official of the refinery, and Mrs. María Inés Bustamante, of the Joint ECLAC/UNEP Development and Environment Unit.

4. The meeting closed on 19 April with the statements of Messrs. Pablo Almeida, Fabián Sandoval, Head of the Environmental Advisory Unit of CEPE and Hernán Durán de la Fuente, representing the Joint ECLAC/UNEP Development and Advisory Unit.

Agenda

5. The debate adhered to the following agenda:

a) Socioeconomic and environmental aspects of the pollution from the Esmeraldas State Refinery:

*/ See the list of participants in annex III.

- Petroleum and regional development in Esmeraldas
- Analysis of the environmental impact of petroleum activity in Esmeraldas
- Health and the environment in Esmeraldas and in the refinery.

b) Technological aspects of the pollution from the refinery (first part):

- Refinery operations and their incidence on pollution
- Description of the sampling method and analysis of pollution in Esmeraldas.

c) Technological aspects of the pollution from the Esmeraldas State Refinery (conclusion):

- Industrial security and pollution
- Analysis of the mechanisms and instruments for measuring pollution in refineries
- Analysis of the information needed to prevent water pollution.

d) Pollution control in Esmeraldas:

- Pre-feasibility analysis aimed at diminishing the pollution of the Esmeraldas and Teacone Rivers
- Analysis of the present methods of decontamination used in the Esmeraldas State Refinery.

e) Conclusions.

Documentation

6. The participants were provided with the following documents:

- Jorge Jurado (consultant), Análisis de los procesos de descontaminación de la Refinería Estatal de Esmeraldas (Analysis of the decontamination processes of the Esmeraldas State Refinery) (LC/R.748), Santiago, Chile, April 1989.
- Hernan Durán (consultant), Antecedentes para el estudio de prefactibilidad acerca de la contaminación de la Refinería de Esmeraldas en los ríos Teacone y Esmeraldas (background for the pre-feasibility study of the pollution of the Teacone and Esmeraldas Rivers by the Esmeraldas Refinery) (LC/R.750), Santiago, Chile, April 1989.

The rest of the studies, which were presented verbally, are found in annex II.

Method of work

7. Explanations of each of the points of the agenda were given by specialists in plenary sessions and commented on by previously designated persons. This was followed by analysis and discussion.

8. The debates were co-ordinated by different people, according to the agenda. The names and positions of the participants in the seminar-workshop are indicated in annex III.

Preliminary steps in preparation for the seminar-workshop

9. Before the meeting, a series of activities needed to be carried out, organized in the following fashion:

a) Compile information about the hydrocarbon projects located in Esmeraldas: the Esmeraldas State Refinery, the Balao Petroleum Terminal, the Provisional Terminal for Clean Products, and the Trans-Ecuador Oil Pipeline Terminal; and information about other existing projects that will be developed in the study area by public and private agencies.

b) Meet with different authorities to obtain information about specific projects and past activities related to the problem of pollution and environmental control in general, within their areas of respective competence.

c) Record the activities carried out in order to obtain a preliminary diagnostic analysis of the environmental impacts in the study area.

d) Meet with authorities and directors of institutions to make the project known to them and invite them to participate in the seminar-workshop. Of special mention were the meetings with the President of the Committee on the Environment of the National Congress, the Secretary-General of the National Development Council (CONADE), the Director of the Ecuadorean Institute for Water Resources (INHERI), the Director of the Ecuadorean Institute for Standardization, the National Director of Tourism, the National Director for the Environment of the Ecuadorean Institute of Sanitary Works, the Assistant Director of the National Polytechnic School, and the Governor of the Province of Esmeraldas.

e) Observe environmental impacts in the field. For this purpose, visits were made to the refinery and the Provisional Terminal for Clean Products, and their functioning was analysed with the aid and participation of the technicians from the Esmeraldas State Refinery.

f) Prepare and present studies and commentaries concerning the theme of the seminar-workshop.

II. CONCLUSIONS

10. The seminar-workshop was a valuable contribution for emphasizing the importance and need to study the environmental impact of development projects. In the case of the petroleum complex at Esmeraldas, such studies should have an environmental management plan and a description of the measures that should be adopted in order to put the plan into effect.

11. In addition, the meeting provided the opportunity to demonstrate to the participants from the different institutions that solutions for environmental problems should be formulated after an inter-disciplinary study which, in the case of Esmeraldas, had interinstitutional participation.

12. The presentations made it possible to articulate a set of criteria and positive concepts which could be applied in order to carry out the protection of the environment in the sector under study, thanks to the professional experience of the presenters and the participants.

13. The debates clarified the limits that exist for executing the project of pollution control, especially due to a lack of adequate interinstitutional co-ordination and the absence of a specific budget.

14. A consciousness was created about the need to introduce environmental measures in all development activities. In this respect, the participants shared their knowledge and experience by actively participating in the discussions, which allowed for pointing out different environmental problems and for proposing solutions.

15. The importance of educational programmes concerning the environment was emphasized; these should be incorporated permanently on all levels and in all areas, and should be accompanied by dissemination programmes on the environment.

16. Socioeconomic and environmental aspects of pollution in the refinery.

a) The problems caused by the refinery were analysed and the observation was made that no environmental-impact studies were made when it was constructed.

b) It was also observed that no integral epidemiological studies were made of the impact on the health of the refinery workers and the population of Esmeraldas.

17. Technological aspects related to pollution in the refinery.

a) It became clear that internal and external methods of relative efficiency for controlling pollution do exist.

b) Constraints on the management of the process were observed; these impede a more efficient operation for reducing the loss of material and inputs that saturate the treatment of the effluents.

18. Pollution control in Esmeraldas.

a) The law of prevention and control of environmental pollution is not being enforced.

b) There are operating and maintenance problems in the refinery that generate a higher degree of pollution and less productivity.

c) The Provisional Terminal for Clean Products has design and operational problems which place the ocean ecosystem of the zone in jeopardy.

d) In general, the effluent-treatment system functions poorly.

III. RECOMMENDATIONS

19. With respect to the socioeconomic and environmental aspects of pollution in the refinery, it was recommended that:

a) An environmental-impact study be done which would make possible the design of a management plan for the refinery and for its zone of influence, with the participation of the competent agencies, workers and the populace in general.

b) An interinstitutional project be formulated to control the levels of pollution and rehabilitation of the sectors affected, emphasizing dissemination, education and consciousness-raising regarding environmental problems.

c) A study be done on the impact of pollution on the health of the refinery workers and of the City of Esmeraldas, under the responsibility of CEPE and with the support of agencies from the health sector.

20. Regarding the technological aspects related to pollution in the refinery, it was recommended that:

a) The enforcement of the pertinent laws and regulations be encouraged, and that any necessary modifications be promoted.

b) Supply be improved in order to implement completely operational and maintenance programmes.

c) The effluent-treatment systems be redesigned and, if necessary, an evaluation be made of the overall requisites that the present effluent-treatment system should have.

d) Preferential attention be given to the equipment for controlling internal problems of pollution.

e) A definitive solution be found for the Provisional Terminal for Clean Products.

f) The authorities of CEPE be encouraged to approve the project to enlarge the laboratory.

21. For pollution control in Esmeraldas, it was recommended that:

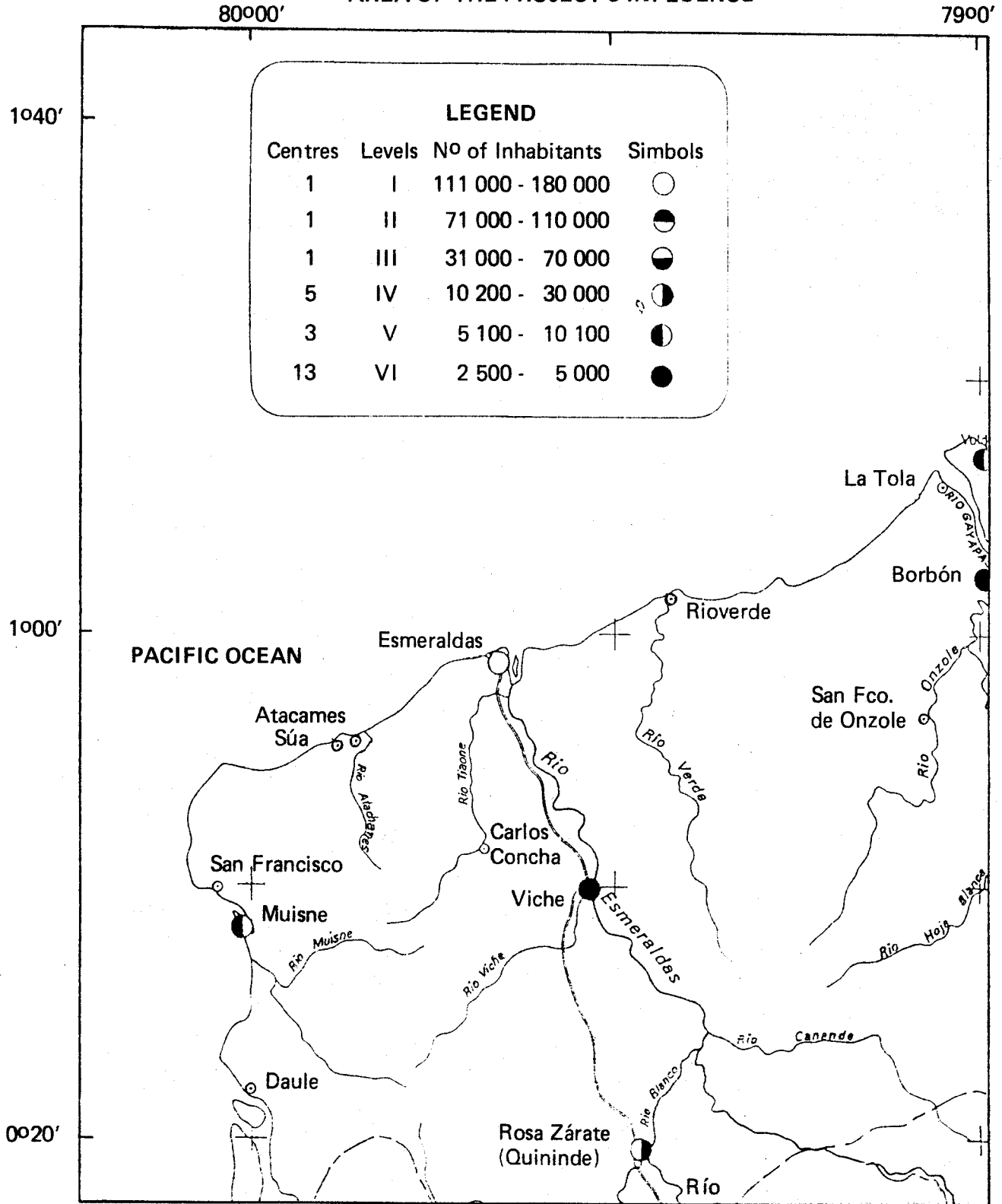
a) Further use and interpretation be given to the integral analyses for better control of operations in the refinery.

b) A method of sampling and analysis be elaborated which would allow for knowing the area of influence and the type of pollutants.

22. Because of the positive results of this meeting regarding the environmental management of the Esmeraldas petroleum complex, it is recommended that a second part be gone ahead with, as an environmental project to control pollution, to be co-ordinated by the Environmental Advisory Unit of CEPE, with the collaboration of the Joint ECLAC/UNEP Development and Environment Unit. The direct responsibility for executing the project would fall to the Administration of the Esmeraldas State Refinery.

Annex I

AREA OF THE PROJECT'S INFLUENCE



Annex II

STUDIES PRESENTED IN THE SEMINAR-WORKSHOP

The following are the titles of the papers and the names of those who presented them.

Javier Bernal, "Seguridad industrial y contaminación".

José Casares, "Operaciones de la Refinería Estatal Esmeraldas y su incidencia en la contaminación".

Hernán Durán (consultor), Antecedentes para el estudio de prefactibilidad acerca de la contaminación de la refinería de Esmeraldas en los ríos Teaone y Esmeraldas (LC/R.750), Santiago, Chile.

Arturo Hernández, "Análisis del impacto ambiental de la actividad petrolera en Esmeraldas".

Bolívar Herrera, "Salud y medio ambiente en Esmeraldas y la Refinería".

Jorge Jurado (consultor), Análisis de los procesos de descontaminación de la Refinería Estatal Esmeraldas (LC/R.748), CEPAL, Santiago, Chile.

Melio Sáenz, "Análisis de la información necesaria para el control de la contaminación hídrica".

Fabián Sandoval, "Petróleo y desarrollo regional en Esmeraldas".

Miguel Vélez, "Análisis de los mecanismos e instrumentos del control de la contaminación en refinerías".

Richard Villacís, "Comentarios del método de muestreo y análisis de la contaminación de Esmeraldas".

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