SECTORAL ENVIRONMENTAL ASSESSMENT IN MEXICO: A METHODOLOGICAL APPROACH

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Abstract

Strategic Environmental Assessment (SEA) has been presented in several countries since 1992 as a tool for policy, planning and overall program analysis. One of its main forms is the Sectoral Environmental Assessment which includes the evaluation of sector investment programs involving multiple sub-projects; integration of environmental concerns into long-term development; and investment planning or the evaluation of sector policies (World Bank).

Mexican Environmental Law and Environmental Impact Assessment Regulations do not contemplate specifically SEA. However, certain strategies and programs such as urban development plans or ecological ordinances of the country's territory should prepare a Regional Environmental Impact Statement of the works and activities considered in the plan or program as a whole. It includes the types of works regularly submitted to the Federal Environmental Impact Assessment Proceedings.

In spite of the lack of specific regulations related to SEA, some of these assessments have been done in Mexico due to requirements established by international banks, which finance projects of different economic sectors in the country.

The main purpose of this paper is to present the experiences, results and conclusions obtained by using a methodology designed for a sectoral environmental assessment in Mexico. Mexican Environmental Law and Regulations, internal organization of environmental authorities, as well as some external requirements from international financial agencies are briefly analyzed as part of the methodology.

Introduction

Environmental impact assessment began in the 70s as a result of the potential effects that development projects might cause to the environment. A few years later, however, the depth of analysis of this procedure had to be expanded to various sectors of the economy, policy and programs.

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Thus, at the beginning of the 90s, the so-called Strategic Environmental Assessment (SEA) was defined by Therivel et al in 1992 as "the formalized, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or program and its alternatives, the preparation of a written report on the findings, and the use of the findings in publicly-accountable decision making".

Various authors have written to this respect and have proposed definitions in which the central concepts of Therivel et al prevail. At the same time, according to Maria do Rosario Partidario (2001), SEA has emerged due to the growing complexity behind current development, while the practice of environmental impact assessment of projects, has been insufficient to provide for sustained and trustworthy global decision making.

The same author mentions various historic initiatives for development of SEA at global level, among which may be quoted the National Environmental Policy Act (NEPA) of the United States of America, the US Council for Environmental Quality, the World Bank, the European Economic Community and the OECD Development Assistance Committee, just to mention a few. The need for performing sectoral and regional assessments and the application of environmental assessment for policies, plans and programs, may be appreciated.

According to Robert Goodland (1998), "reactive project-level environmental assessment must be transformed into proactive or strategic environmental assessment", and it "improves investments over the long term and should be fed by long-term projections. Strategic environmental assessment is a process by which environmental implications are integrated into decision making above the project level".

This author also considers that project-level environmental assessment as well as regional environmental assessment and cumulative environmental assessment are reactive, while environmental assessment of sectors, programs, policies, international treaties and national budgets is proactive.

For R. Goodland, "Sectoral EA, the most common form of Strategic EA, is the process of examining potential environmental and social implications of all or most of the potential projects proposed for the same sector". It "influences project selection, which project-level EA almost entirely cannot, provide an environmental ranking of all proposed projects in one sector before pre-feasibility, and helps decide in project selection. Sectoral EA begins with a development objective or goal and then evaluates the numerous possibilities of meeting agreed on results".

Some sectoral environmental assessments have been performed in Mexico, although there is still no specific legislation or regulation to carry them out. They are not made proactively but rather reactively like project-level environmental impact assessment.

Environmental legislation and regulation in Mexico

Mexico has various environmental policy instruments among which are the creation, financing and administration of natural protected areas, urban development programs and the so-called ecological territorial ordinances. All these are considered first level instruments. Ecological territorial ordinance is a planning process whose goal is to perform environmental management at regional level. Federal, state and municipal governments may participate as well as universities, private sectors and social organizations, to plan land use and ecosystems and natural resources exploitation at local level.

Second level environmental policy instruments include project environmental impact assessment, Mexican official standards, and land use changes in forestry areas, among others.

Mexican Environmental Law and Environmental Impact Assessment Regulation do not contemplate specifically SEA. However, certain strategies and programs such as urban development plans or ecological ordinances of the country's territory should prepare a Regional Environmental Impact Statement of the works and activities considered in the plan or program as a whole. It includes the types of works regularly submitted to the Federal Environmental Impact Assessment Proceedings (Article 32 of the General Ecological Equilibrium and Environmental Protection Act).

The Regional Environmental Impact Statement is a complex document. According to the Mexican Environmental Impact Regulation, it should include information such as:

- Description of the works or activities and, if applicable, development plans and programs.
- Link with planning instruments and applicable juridical ordinances.
- Description of the regional environmental system and the region's development and deterioration trends.
- Identification, description and assessment of cumulative and residual environmental impacts on the regional environmental system.
- Prevention and mitigation strategies for potential environmental impacts.
- Regional environmental forecasts.
- The methodology employed to perform the study and the source of the results obtained.

This type of evaluation could, in a certain way, be compared to regional strategic assessment, although it is not contemplated the same way in the Mexican environmental legislation in force.

To date, Regional Environmental Impact Statements have been ruled by the Impact and Environmental Risk office within the Environment and Natural Resources Secretariat. This Federal office also issues resolutions of project-level environmental

impact statements; its official functions are limited to those established in the Law, the Environmental Impact Regulation and the Secretariat's internal bylaws.

As to sectoral environmental assessment, its performance is not explicitly contemplated in Mexican environmental law. However, some evaluations of this type have been made for hydraulic, tourist and urban development programs. In other cases, international financial institutions like the World Bank have requested them as part of the requirements to grant loans for the development of sector programs and to build infrastructure works.

From the operational standpoint, government agencies that request economic support to execute their sector programs, most comply with Mexican environmental law and proceed with negotiations with the bank for the incorporation of environmental covenants into agreement.

It is important to mention that at present time, no single government agency as well as state and municipal governments, are required to submit their sectoral programs to the Impact and Environmental Risk office for their review and approval.

There are no guidelines to perform sectoral environmental assessments either. Therefore, government offices heading a certain sector have been performing some evaluations according to the requirements established by financial institutions and creating work methodologies adequate for each case. For these circumstances, like in those previously described (hydraulic, tourist, and urban programs), assessments are conducted reactively and not proactively as a consequence of the inexistence of official rules to approach Sectoral EA.

Finally, it should be mentioned that environmental authorities within the Mexican Government are interested in performing the necessary changes to present law and regulation, in order to adequate them to the challenges imposed by strategic environmental evaluation new practices. To that end, the corresponding actions must be initiated through the General Judicial Coordination and the Area of Parliamentary Link of the Environment and Natural Resources Secretariat along with the Senate and House of Representatives.

Requirements established by the World Bank

As an international financial institution, the World Bank requires an environmental review for most of the loans and credits granted to borrowing countries. Environmental assessment and project cycle comprise various stages that include identification, preparation, detailed design and project evaluation, negotiations, loan approval, implementation, supervision and conclusion. The process of environmental assessment may be applied not only to projects but can be adapted to regional and sectoral scale and may be used to evaluate impact of sectoral programs, plans and development policies (Environmental Assessment Sourcebook, Vol. I, 1991).

The goals of the environmental assessment policy of the World Bank ensure that projects financed by this organism will be environmentally safe and sustainable and will support in the decision making process.

Staff of the Bank reviews the documents presented by a certain sector of the borrowing country and classifies –from the environmental and social point of view– the sectoral projects on the basis of certain categories and assignation criteria. Based on information published by the World Bank, if the projects foreseen within a sectoral program are of great magnitude and their potential to generate environmental and social impact is high, the assigned category is different from that of lower risk projects.

The assigned category and the criteria applied to projects foreseen for a specific sector determine the environmental and social safeguards designated by the Bank. The safeguards that may be applied are the following: environmental assessment, forestry, involuntary resettlement, indigenous peoples, safety of dams, pest management, physical cultural resources, natural habitats, projects in disputed areas, projects on international waterways and public information.

As for Mexico, the country has proved itself to have the laws, regulations, official standards, government agencies and administrative proceedings to attend the matters foreseen in the Bank's safeguards, regardless of the requirements established by the financial institution.

Thus, for instance, if a certain sectoral program seeks to carry out projects in some of the country's regions where areas with proven or potential archeological monuments have been identified, compliance with the respective Physical Cultural Resources safeguard of the Bank is guaranteed. This happens due to the fact that within the Mexican Government an agency called Archeological Safeguard Direction has the attribute of saving the cultural and paleontological treasures of the country. The administrative process applies to this type of circumstances even if there is no requirement from the Bank.

In relation to natural habitats, Mexico has a legal, regulatory and administrative framework encompassed by several federal agencies. The Ministry of the Environment and Natural Resources, the National System of Protected Natural Areas, the National Commission of Protected Natural Areas (CONANP) and the National Council of Protected Natural Areas, develop various functions related to the establishment, administration and management of federal areas. The country also has protected natural areas under state decrees.

Similarly, if a sectoral program has contemplated works that directly or indirectly imply pest management, Mexican environmental legislation includes provisions related to several aspects of this activity. These include application of pesticides and other agrochemicals, prevention and control of water and soil pollution and the requirements related to granting authorization for the manufacture, importation, use,

transport and final disposal of packaging, containers and residues generated by this industry. There is also the so-called Intersecretarial Commission for the Control of the Process and Use of Pesticides and Toxic Substances (CICOPLAFEST), which regulates and controls chemical risks.

Another example refers to potential impacts on international waterways. In this case, Mexico participates on international treaties with the United States, Guatemala and Belize and has a Border Affairs Unit at the National Water Commission to follow-up on international commitments at the borders. The International Boundary and Water Commission is the bi-national organization responsible for watching and applying international treaties of limits and water, regulating the rights and obligations allowed by the treaties and solving the differences arising as a result of its application.

Methodology used to prepare a sectoral environmental assessment

A sectoral environmental assessment for a national rehabilitation program of existing irrigation constructions throughout the country to be financed by the World Bank, was recently applied in Mexico.

Although the existing works are scattered in almost every state of the country and most of them were built many years ago, the main goal of this sectoral environmental assessment was to analyze the program as a whole and the general actions needed to have a better performance in terms of sustainable water resources management.

It was previously mentioned that there is an explicit lack of regulation, administrative proceedings and guidelines to prepare this type of assessments. For that reason a special work methodology was needed to analyze the sector in question as well as the program to be financed in terms of environmental requirements by the country and the financial institution at the same time.

As part of the methodology used, the following activities were executed:

Gathering and analysis of bibliographic and cartographic information.-

The first step was the location and gathering of the necessary data through various information sources such as government agencies related to the irrigation sector, the Ministry of the Environment and Natural Resources and the Water Technology Research Institute in Mexico.

Among the basic documents reviewed were laws, regulations and Mexican official standards in force in environmental and water affairs. The proposed rehabilitation program and the results obtained of similar programs implemented earlier were also analyzed.

Although it was known beforehand that sectoral environmental assessment was not contemplated in the Federal Environmental Impact Regulation, a thorough review of

the Handbook of Environmental Impact Assessment Administrative Proceedings from the government agency promoting the program, as well as the World Bank's safeguards established for the program, was carried out.

The National Development Plan and the National Hydraulic Program for the period 2001-2006, in addition to the administrative process established by those areas which the irrigation sector might be related to that program in particular, were also analyzed.

The cartographic analysis was of vital importance to locate the irrigation areas of the country with potential rehabilitation activities, along with their possible correlation with protected natural areas under federal competence.

Questionnaires preparation and interviews fulfillment.-

Before executing interviews to key informants, special questionnaires to be applied to each one of them were prepared in order to obtain the necessary information. The questions were edited according to the terms of reference for the sectoral environmental assessment issued by the World Bank and also associated with the informant's working place.

Map overlay.-

An important part of work methodology was the overlay of various thematic maps, whose goal was to determine if the rehabilitation operations to be executed in some of the irrigation areas of the country might generate impacts over protected natural areas or critical forestry zones. The exploitation degree of the aquifers of the country was also analyzed.

Detailed maps of the irrigation zones, federal natural protected areas and critical regions of the whole country were used. Map overlays for each one of the Mexican states where prepared. The main goal of this activity was to determine if the irrigation zones are near or adjacent to critical or protected areas.

Partial reports preparation.-

Partial progress reports were prepared and discussed during periodic meetings with members of the program proponent. Feedback from the staff that would perform the national environmental protection actions and the safeguards requested by the financing institution was obtained.

Through these meetings, the potential operational difficulties due to the lack of legal and regulatory specifications and administrative process for sectoral environmental assessment were detected, while options feasible of being performed were proposed in order to achieve both, the rehabilitation program goals, and the environmental protection actions.

Integration of the final report based on bibliographic and cartographic information; answers to questions.-

Once the analysis of bibliographic reviews, cartographic overlays and interviews to key informants was concluded, a selection of the most relevant data to be included in the sectoral environmental assessment report was performed.

The chapters of the report were directly related to the terms-of-reference (TOR) established by the World Bank as well as to the results obtained through different tasks and activities executed for the rehabilitation program assessment. These chapters were:

1.- Description of the irrigation works rehabilitation program.

2.- Previous experiences with other irrigation works rehabilitation programs.

3.- Mexican legal and institutional framework of the irrigation sector's environmental aspects.

4.- Mexican environmental impact assessment administrative procedures applicable to the irrigation sector and the financial institution's environmental safeguards.

5.- The sector's institutional capacity to perform the program.

6.- Water resources, protected natural areas and irrigation zones in the country.

7.- Characteristics and problems of the hydrological regions in Mexico.

8.- Existing hydraulic and agricultural infrastructure in the irrigation areas, possible rehabilitation actions and potential environmental impacts.

9.- Proposed environmental assessment checklists and questionnaires for future rehabilitation works.

10.- Environmental procedures and environmental flow control of projects that could be included in the rehabilitation program.

Conclusions

Bibliography

Annexes

Most of the information used to correlate different subjects was integrated in data concentration tables. The main purpose was to facilitate reading and to provide the rehabilitation program promoter with elements to support future environmental

protection activities. Among these were: water management of overexploited aquifers and critical rivers, key elements to develop a pesticide and agrochemical management plan in the irrigation areas to be rehabilitated.

Results

The methodology developed to prepare the sectoral environmental assessment of the rehabilitation program allowed to analyze the irrigation sector and the problems currently existing in relation to availability of water for irrigation. Moreover, it proved real possibilities of the sector in terms of institutional capacity to comply with the requirements established by the Bank when compared to national requirements and the real commitments it could assume should the loan be granted. Besides that, it also helped to comply with the terms-of-reference established for this case.

Once the study was concluded, the corresponding negotiations between Mexico and the Bank started reaching the approval of the loan to the former, and thus setting the final conditions to give the program a green light.

Conclusions

- In terms of environmental regulations, Mexico has a General Law, state laws, rulings, administrative proceedings and guides for evaluating projects and the impacts that these might cause on the environment.

- Regional environmental impact assessments of large projects, ecological ordinances and urban development plans can be compared with regional strategic environmental assessment.

- Sectoral environmental assessment is not yet contemplated in Mexican environmental law nor in the environmental impact regulation, although it has been executed in the country in various scenarios at the request of international financial institutions.

- Mexican environmental authorities have foreseen the need to promote modifications to the law and the impact assessment regulation so as to have Strategic Environmental Assessment form part of the environmental policy instruments.

- Today, it is considered necessary to have the appropriate methodology that will allow analysis of development plans and programs through the Sectoral Environmental Assessment, as well as to comply with Mexican legal requirements and, at the same time, those established by international financial institutions.

- Mexico has the government agencies and administrative procedures that can focus their efforts on attending matters foreseen in the environmental and social safeguards of the World Bank. Yet, many of these functions are carried out regardless of any particular requirement established by the Bank.

- A sectoral environmental assessment was applied to a national rehabilitation program of existing irrigation constructions throughout the country, which are to be financed by the World Bank. The activities included a thorough work of reviewing national environmental requirements, comparing them with the safeguards of the Bank, adapting the methodology employed for project environmental analysis, identifying current existing gaps, and establishing the actions that can be performed within the existing legal framework while complying with the specific requirements foreseen by the Bank for this particular case.

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