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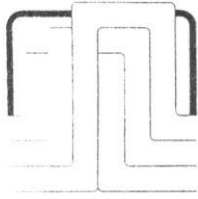
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Najbolji radovi iz Suvremenog prometa tiskaju se na engleskom jeziku u godišnjem broju časopisa pod nazivom "MODERN TRAFFIC". Članci u tom časopisu imaju po tri međunarodne recenzije.

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A SCENARIO PROPOSED FOR EIA IMPLEMENTATION IN THE REPUBLIC OF MACEDONIA

U.D.C. 656:504

1 Introduction

Environmental Impact Assessment (EIA) is a procedure to examine the beneficial and adverse environmental effects of a proposed project (development, transport, etc..), and to ensure that these effects are taken into account in project design. [2]

Environment cannot be evaluated by separating its components: on the contrary, the components must be taken as a part of the system. This concept is to be considered as a basis for understanding the humans' role within the environment. EIA should be understood as a unique tool for total and methodological identification, analysis and assessment of traffic and transport impacts on the environment. Firstly, impacts should be identified. Secondly, they have to be measured and quantified. At last, a procedure must be developed in order to avoid, decrease and compensate the negative effects as an opposite to optimization of the positive impacts.

Accorded by the opinions and aspirations of local people, the EIA process may also function as a project control mechanism. When properly designed and executed, it can be a valuable tool for project implementation. [2]

To reach this goal, EIA should be a synchronized pallet of steps, phases, and appropriate documentation on exact and well defined process. Balkan countries, including the Republic of Macedonia as well, ought to synchronize their national laws and regulations with the European ones. Particular attention has to be given to the environmental laws and regulations.

2 EIA Scenario in Macedonia

We use the term scenario because it represents an added value of the EIA. Namely, EIA should cope with large number of information. Therefore, the scenario is an effective form for coupling the information. EIA means collecting and manipulating of qualitative and quantitative data. The scenario gives opportunity for its presentation. In addition, EIA communicates with large and mixed public with different background qualification. The scenario can be written in a form of simple story, whereas the results become transparent and understandable for different auditoria.

In fact, both the scenario and EIA form a bridge between the environmental science and the policy in the respect that scientific knowledge traces the policy development.

2.1 The Scenario Team

The first step in the scenario is to choose the institution that will be a part of the team that will coordinate the goals, the tasks and the actions to be undertaken. The scenario team involves representatives from the Ministry of environment and spatial planning, independent experts, participants to model and quantify the scenario, as well as members from the discussion board. By experience, this team should consist of 3 to 6 members.

2.2 Basic Tasks of the Scenario Team

The basic task is to set up goals by consulting experts from and outside the institution. By achieving the goals, following questions are to be answered: *What do we want to accomplish with this scenario? What should this scenario have? What is the time horizon of the scenario?*

After the goal is being set, the moving forces in form of numerical values are defined. (It is not the issue of this research).

The next step is to define the character of the modelling team. It consists of experts from different areas such as an environmentalist, a land use planner, a traffic engineer, an economist, a computer scientist, a historian and so on. The data are collected and processed in order to quantify the influences such as CO and NOx concentration influence on the people's health, the level of noise, developments in the urbanization, cultural heritage devastation and so on [6].

The next task is the preparation of basic scenario based upon preliminary, agreed, and final discussions between the teams. Consequently, we get the space-time horizon [1].

Data presentation and finding new data that can be included in the scenario is the next task. If it is noticed that some meaningful increase in the period between the measurement of the impacts and their presentation is present, it is necessary to repeat some of the tasks.

At the end, a revision of the results, the scenario itself and final calculations, as well as its publication and distribution follows.

3 Development Phases of the EIA Scenario

Our proposal scenario has three development phases. There are several procedural principles when carrying out EIA such as following: [2]

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- EIAs start as early as possible in project examination;
- The subject area of EIAs should be determined early;
- Initial EIAs start no later than a feasibility study;
- Feasibility studies have at least a separate chapter on environmental and related social impacts;
- EIAs should use common practices to the effect that: EIAs are sufficiently comparable to be shared with and used by other parties;
- Similar standards should be used for the analysis, based on generally accepted levels of disturbances to ecosystems.

3.1 The First Development Phase

In this so-called early phase of the scenario, the S&S procedures and necessary documentation, which is in accordance with the EU and World Bank documentation, are presented.

3.1.1 Screening & Scoping Procedure (S&S)

Screening is a procedure that is based on information and data given. It should answer the question: "If EIA is or not a must-do process for the planned project?" We have defined it on the base of list of activities, which could be set by the Ministry of environment. If it is found that the EIA is not necessary, and the project has a negative impact on the environment, it is necessary to prepare a report titled as "Protection of the environment" [1]. Scoping is a procedure that defines all the elements in the EIA report or all the components that can have big impact on the environment. That is why it is called "grasp area". In accordance with this, we have defined the following tasks:

Task 1: Setting the grasp area.

- Environment that is directly impacted (road network, railway...)
- Environment that might be impacted
- Level of the polluting emissions
- Level and project area (the larger the project the more intensive impacts)
- Environmental sensitivity.

Task 2: Setting the impact categories and project alternatives

This is a necessary phase to minimise the number of alternatives and to choose the most attractive one. It is significant that not all the alternatives have to be valued. Nevertheless, we have to try to include the most optimal one from a technical, economical, and ecological point of view. To achieve this goal, it is necessary to:

- Consult the public and the relevant institutions
- Process the data from the preliminary evaluation
- To have constant contacts with the people responsible for the project.

Task 3: Method choice and judging criteria.

Based on our scenario, in the case of bigger project, methods and criteria for evaluation should be set either by the State Commission for Living Environment or by the Local Commission for Living Environment.

Task 4: Preparing of EIA program

Based on our analysis, we found that in the Law of Spatial Planning and Environment of R.Macedonia neither a program nor a proper documentation is present.

3.1.2 Proposed Documentation for EIA in Macedonia

1. Description of the proposed activity and its purpose
2. Description of the alternatives for the proposed activity, as an alternative to "doing nothing"
3. Description of the living environment that can be influenced by the activities for realisation of the project solution
4. Description of the potential negative impact and evaluation of its effect
5. Description of the measures for decreasing or minimizing the negative impacts
6. Description of the methods and data
7. Identifying the shortcomings and the irregularities during the data acquisition and information needed
8. Overview of the program for monitoring and control
9. Non-technical résumé and visual presentation (maps, diagrams...).

To account the project impacts that cross the borders of the state, the documentation should contain this appendix: "After the preparation of the documentation, the pollution origin side has to start consultations with the other side for the potential cross border negative impact of the proposed activity and as well as for the improvement measures to be undertaken".

3.2 The Second Development Phase

3.2.1 EIA Report

EIA report is prepared in accordance with the regulations of the Ministry, and contains the following data:

- type of the project and the time frame of the activities
- technical characteristics and construction materials data as well as the use of natural resources
- state-of-the-art and prognosis of the impacts
- description and analysis of the main alternatives, and description of the main causes for their separation; at least two or more alternatives must be analyzed
- involvement of the public
- measures for diminishing of the impacts
- monitoring plan and data
- decision making.

In the Republic of Macedonia, EIA reports can be found only on the Internet. If we know that only 4% of the population uses the Internet, it is clear that the constitutional right for free information flow is not respected. The current law also has flaws because it does not say which information by which subjects should be provided as well as the form and the frequency of informing.

Analysis of the current situation is a part of the EIA report. Its meaning and characteristics are presented in the text below.

3.2.2 State-of-the-Art Analysis

It is performed for the purpose of EIA. It assumes using data from narrower area, or if necessary to conduct research in a wider area.

In this scenario, it is assumed that state-of-art analysis includes data, which generally address:

- The population and administration
- Geographic, climate and atmosphere (air pollution) characteristics of the region
- Water (quality of surface and sub-terrain water). Terrain, Soil
- Land use (natural and protected areas, recreational areas...)
- Natural resources (flora, fauna, mineral resources...)
- Anthropogenic environment (urbane objects, cultural heritage, socio-economic conditions...).

3.2.3 Prognosis of the Planned Project Impact on the Environment

The period for impact prediction is fixed. In that period, positive and negative project impacts are established. This second development phase step is of great importance for defining impacts, which can not be decreased. Also, it can be valuable for assigning the level of data quality which on the other hand is very important for the prognosis quality.

What is important is the succession of the procedure. In our scenario, it is achieved by creating a proposal of the impact prognosis on the environment. It involves:

- Main aspects: impacts description, description of prediction methods
- Physical and natural environment: evaluating of the impacts on the quality of the soil and the erosion; evaluating of the impacts on the level and the quality of the water; impacts on the rare types of plants and flora; impacts on the rare types of fauna
- Man and socio-environment: number of people exposed to noise bigger than the normalised one; emission level and daily concentration; people exposed to certain type of pollution; social life and economic activities; land use and conflicts; cultural heritage.

3.2.4 Comparison of the Alternatives

With alternative comparison, it is possible to find the attractiveness of each category of impacts, both qualitative and quantitative information for each of the analyzed alternatives. Different methods are used (matrices, tables, maps..).

3.2.5 Public Information

Environmental information is vital for the work of the Ministry as a significant database, as well as for communication, coordination and data exchange between the institutions.

There is a significant public interest for environmental information. Finally, a need to information access is a moving force for the country on its road to EU. Public relations office formed by the Ministry in 2001 marked 264 visitors during 2001. It receives from 10 to 15 calls a week. There are approximately 50 NGO's, 20 of which are very active, and are the main users of the environmental information. Within the Ministry, the Environ-

mental information centre (since 1998) manages the environmental data. The vision of the centre is to become main data bank in the country, through making a wide base of relevant, accurate, and publicly available information for the environmental quality. But, this Info Centre works ineffectively and in a time consuming way, because of the old methodology of acquiring, processing, and analysis and presenting of the data. Our analysis shows that the main flaw is probably the non-differentiated monitoring of the traffic pollutants and the transport as a unique category.

3.2.6 Measures for Diminishing the Impacts

This part of the scenario includes description and analysis of measures that are being designed according to the principle of specific measure design for each of the component. Perceived costs as a result to the measures undertaken are to be included in the financial report of the project.

3.2.7 Monitoring Plan

With the monitoring plan, parameters for quality and characteristics of each important factor are identified (region, measuring stations, periodicity, research duration...). We cannot speak about the monitoring plan if there are no monitoring data. Unfortunately, a country program for environmental monitoring is non-existing. Until now, all monitoring activities are done independently and do not always follow the same purposes.

As the best solution for collecting the monitoring data a coordinated collaboration between the Bureau for hydro-meteorology, the Ministry of Environment and Spatial Planning, the Ministry of Health through the State directorate for health protection and the Ministry for Transportation and Telecommunications is proposed.

3.2.8 Decision Making

The decision comes from the appropriate body. Depending on the object, proposal, and the decision should be brought within 25 working days (if the planned activities and impacts are approved). This body informs the project designer via a written document. It is proposed that the positive decision ought to have 5-year validity, whereas the project designer has to take all measures for impact decreasing. If opposed, the activities are not compared.

3.3 The Third Development Phase

As a third phase, the decision implementation means that the measures for impact diminishing are to be implemented in the early phase of the project or during the supervision (project expertise, technical supervision of the building, authority supervision...).

3.3.1 After-project Monitoring

This clearly shows the need for systematic monitoring of the changes in the environment in the living area and its components, calculation and prognosis of the influences after the start of the project realization. These aspects are important: a) Objectivity, periodicity, security (monitoring and evaluating of the changes); the results and the conclusions should be given in a yearly report

b) Monitoring is conducted on the field and in laboratory approved by the researcher. This lab should have an approval for conducting eco research from the Ministry.

A proposed algorithm for three-phase implementation of the EIA scenario on a project level is shown on Fig. 1 (an example of specific road construction project is presented). The algorithm for implementation of the proposed scenario in Macedonia is shown in Fig. 2.

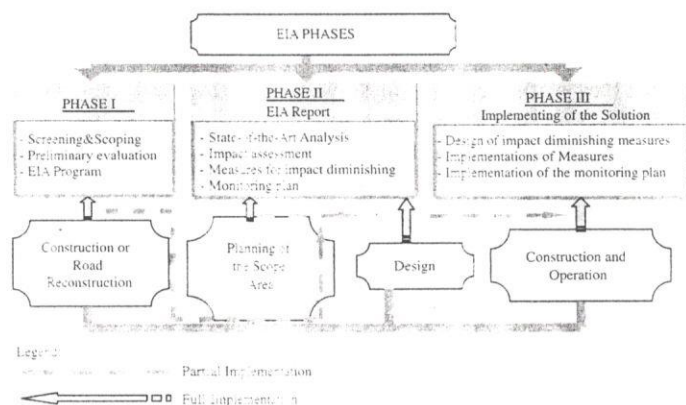


Fig. 1: Proposed algorithm for implementing of the three phases of EIA scenario on the level of road project

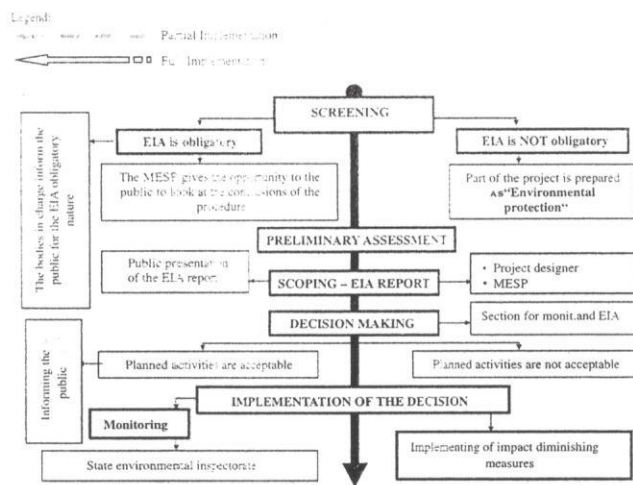


Fig. 2: Proposed algorithm for implementing of the EIA scenario in Macedonia

4 Conclusion

EIA is a process that should be included in all project phases, or for getting approval for its planning, defining the scope area, design, construction and operation. Well designed EIA process, with adequate S&S procedure and appropriate procedure for adding value to the impacts and comparing of the alternatives, and finally with defining a body that will make the study and imple-

ment it in the project, is an important tool which conclusions should be marked when reaching an end decision. Ideally, it should be followed up by monitoring and post-audit evaluation. [2]

Key things to remember are: [2]

- EIA is recognized as a tool to enhance the decision-making process, "not the decision making process itself"
- Assessment should be simple and concentrating on pertinent factors and data. The type of assessment should be relatively quick and uncomplicated.
- Most relevant matters should be focused in time
- Not too much time investing on assessment
- Secrecy to be avoided - open communication among all stakeholders throughout the assessment process produces better results, and increases the project's credibility.
- External help and advice in situations is suggested when lacked by the domestic EA team.

On the basis of the analysis and the created scenario, we give these recommendations:

- To develop centralized, strategic monitoring program, capable to harmonize different methods, standards and indicators and to make consent of the monitoring data and the purposes of the politics for environmental protection as soon as possible
- To develop methodology for identifying and categorisation of the different types of projects, different type of impacts, methods and measures for its identification, impact diminishing measures; in other words, the whole documentation system as designed before in this paper to be implemented in our National Law of Environment.

It would be ideal when this or some similar proposed scenario would be accepted for design and implementation of the process for assessing environmental impacts on the level of traffic and transport projects in Macedonia. If based on this scenario, a "Manual for EIA on the project level" could be produced.

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SUMMARY**SAŽETAK**

Jasmina Bunevska

A Scenario Proposed for EIA Implementation in the Republic of Macedonia

EIA (Environmental Impact Assessment) is a tool for evaluating the effects that a certain project has or can have on the environment. This paper is a result of a detailed analysis and comparison of the Law on protection and advancement of the environment and the nature in the Republic of Macedonia and Directive 85/337/EEC (EEC - Environment European Community) of the EU from June 1985, its amendment - Directive 97/11/EC from March 1997 -, and the World Bank documents. Based on the noted shortcomings and necessary amendments to the law in Macedonia, a scenario and an algorithm are suggested for the design and implementation of a process for assessing impacts of traffic and transport projects on the environment. All necessary elements and the proposed documentation in line with the EU Directive, World Bank and the experiences from other countries are presented.

Key words: EIA (Environmental Impact Assessment), EU Directive, Macedonia

Jasmina Bunevska

Prijedlog scenarija za primjenu ocjene utjecaja na okoliš u Republici Makedoniji

Ocjena utjecaja na okoliš (Environmental Impact Assessment - EIA) instrument je koji omogućava ocjenu efekata i raznovrsnih negativnih posljedica konkretnih projektnih rješenja na okoliš. Ovaj je rad rezultat sažete analize i usporedbe zakona i propisa za zaštitu i unaprjeđenje okoliša naše države sa smjernicom Europske zajednice - 85/337/EEC (EEC - Environment European Community), s dodatkom u ožujku 1997-97/11/EC, kao i s dokumentima Svjetske banke. Na osnovi uočenih nedostataka, nepotpunosti i potrebnih promjena i dopuna u zakonu naše zemlje, predložen je scenarij i algoritam za projektiranje i implementaciju procesa EIA za ocjenu prometno-transportnih utjecaja na okoliš. Predstavljeni su svi elementi i prijedlog dokumentacija u koordinaciji sa Smjernicom EU, Svjetskom bankom i iskustvima drugih zemalja.

Ključne riječi: EIA - ocjena utjecaja na okoliš, smjernica EZ-a, Makedonija