



IMPERIA,
LIFE11 ENV/
FI/905

Improving the quality of Environmental Impact Assessments

Layman's Report on the IMPERIA project

The IMPERIA logo, consisting of a stylized sun with rays and the word "IMPERIA" in a bold, black, sans-serif font.

IMPERIA



Environmental Impact Assessment

The assessment of environmental impacts is an essential part of good quality land-use planning. The aim of impact assessment is to diminish or prevent harmful environmental effects potentially caused by development projects and plans.

In Europe, assessment of the potential impacts of large-scale developments is regulated by the EIA Directive. EIA is mandatory in all projects listed in Annex I of the Directive, because they can have significant effects on the environment (e.g. long-distance railway lines, motorways and large waste water treatment plants). Additionally, a national screening procedure is conducted to decide whether an EIA is needed for other developments with potentially significant effects on the environment.

Environmental assessment of a wide range of public plans and programmes is regulated by the Strategic

Environmental Assessment (SEA) Directive (2001/42/EC). Plans and programmes must include SEA when they are prepared, for instance, for agriculture, forestry, fisheries, energy, industry, transport, waste or water management or land use. SEA is also mandatory if the plans include a framework for the future development of projects listed in the EIA Directive or if they require an assessment under the Habitats Directive.

The initial EIA Directive (85/337/EEC) has been amended three times, and the latest amendment (2014/52/EU) must be implemented in the national legislation of the Member States by 16 May 2017. The recent changes raise high hopes for the quality and usefulness of assessments in the future. These expectations include the simplification and speeding up of assessment procedures, together with more understandable and higher quality assessment reports.

IMPERIA project

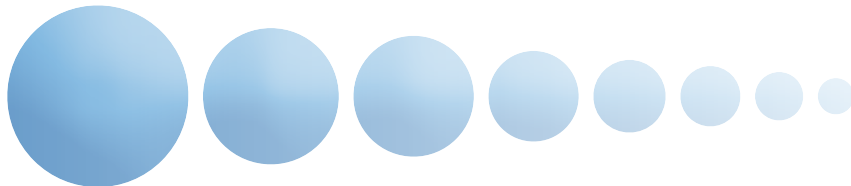
Aims and methods

The IMPERIA project, partially financed by the EU LIFE+ programme, has taken versatile actions in improving environmental impact assessment procedures. The aim was to determine how separate assessment approaches from different planning paradigms can be applied to environmental impact assessments in a complementary way. The IMPERIA project acted in close cooperation with experts working in the field of environmental assessment (consultants, authorities and developers) in order to ensure that the results will fulfil the practical needs.

Good practices were identified, and new structured approaches and tools were developed to improve the quality and effectiveness of impact assessments. Tools and practices were tested and further developed in eight different types of pilot projects, four of which were related to EIA projects. Additionally, the results can be applied to SEA projects and other environmental impact assessments.

Questions addressed by IMPERIA

- How can the cost effectiveness of impact assessments be improved?
- How can the participation of public and stakeholder groups be enhanced in the assessment process?
- How can the significance of impacts be assessed, and how can the new approaches be applied in different phases of impact assessment?
- How can the assessment be focused mainly on the most significant impacts?
- How can the assessment reports be prepared to increase their clarity and comprehensibility?



Results

The following methods and tools were developed in the IMPERIA project:

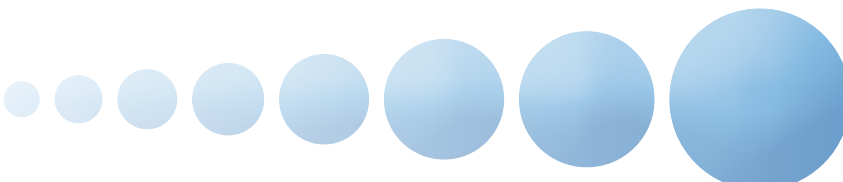
- 1. Practices for improving public participation:** guidelines for carrying out stakeholder analysis and for establishing and working with a stakeholder group, questionnaire templates and application guidelines for a map-based Internet questionnaire tool, HARAVA.
- 2. Methods for sketching and structuring the planning situations:** summary of methods applicable in complex and ill-structured situations and examples of application of the methods (e.g. influence diagrams, objectives hierarchies, SWOT analysis and strategy generation table).
- 3. The ARVI approach to impact significance assessment:** development of a structured approach, the ARVI tool, to support the operationalization of the approach and guidelines. These are the most important outputs of the IMPERIA project.
- 4. Multi-criteria decision analysis (MCDA) for supporting interactive environmental planning and comparison of the alternatives:** practices for systematically comparing the alternatives in terms of the objectives that are important for different stakeholders. The application opportunities of MCDA were demonstrated in four pilot projects.

The report **“Good practices in environmental impact assessment”** summarizes the main results of the project. The report includes advice and practical examples for planning the assessment, interaction with the stakeholders, impact significance assessment, comparison of the alternatives and reporting of the results. The focus is on the EIA procedure, but the results can be applied in all types of environmental assessment. The report is aimed for people taking part in EIA procedures, as well as for people interested in developing the assessment practices in general.

The report **“Utilizing multi-criteria decision analysis and problem structuring methods in environmental impact assessment”** describes the principles and application opportunities of these methods in EIA and SEA, and presents examples of their application in past environmental assessment projects.

The results of the project can be found on the Internet:

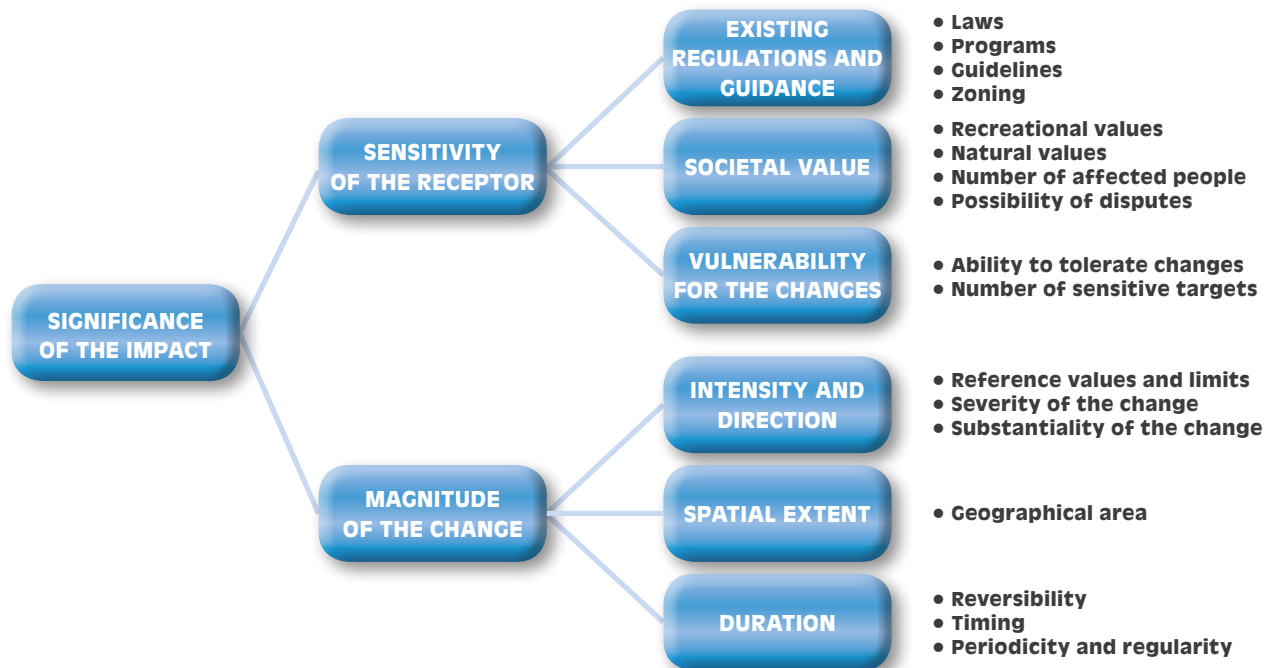
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Structured approaches to impact significance assessment

Impact significance assessment is one of the most important, but also one of the most difficult phases of EIA. The objective is to understand the scales of the impacts and to identify the most important impacts. However, the practices have been diverse, and the principles of the assessment have not always been very clear to the readers of the reports.

In the ARVI approach developed in the IMPERIA project, impact significance assessment is based on the sensitivity of the receptor and the magnitude of the change, as well as the characteristics of these. The approach has already been applied in numerous Finnish EIAs, and it has attracted interest elsewhere in the Europe, too.



The components of impact significance assessment in the ARVI approach developed in the IMPERIA project.



Good practices in environmental impact assessment recognized in IMPERIA

Participation of stakeholder groups

- A comprehensive stakeholder analysis to enable the identification of the groups probably affected by the planned development or programme.
- A detailed interaction plan that presents interaction methods best suited for different stakeholders.
- Establishment of the assessment group in the early phase of the assessment process. Members of the group must be carefully selected so that they cover different stakeholder groups and bring their valuable knowledge of local conditions and views to the discussions. It is important that the assessment group has meetings regularly throughout the assessment and preferably also after it.
- Participation of the stakeholder representatives in the assessment of impact significance in the assessment group, group interviews or workshops.
- The use of map-based questionnaires and other opportunities enabled by the Internet.

Impact significance assessment

- Active interaction between the project owner and the authority. Agreement, for example, on the extent of application of the ARVI approach.
- Early identification of the impacts that are expected to be the most essential, explaining the grounds for these, and focusing the impact assessment on them.
- Clear determination of the measures for estimating the impacts. These will have an effect on how detailed the assessment should be, and they should therefore be discussed together with stakeholders.
- The use of charts and hierarchies to support the identification and visualization of the impacts, as well as the interaction with and learning of stakeholders.

Comparison of the alternatives

- Phased comparison of the alternatives. Based on a rough analysis of the alternatives, further evaluation can be focused on those that are found to be most feasible to implement.

- Identification and illustration of the focal differences in the viewpoints and preferences of the stakeholders. These can be illustrated, for example, with conditional clauses such as: “if your viewpoint is A, then the best alternative is X”.
- Avoiding the summing of the plus and minus signs describing the positive and negative impacts of the alternatives in the summary tables. The assessments of various impacts are not commensurable with each other and thus cannot be directly compared.

Writing assessment reports

- Placing a good-quality summary of the assessment in the report. The summary should be compact, easy to read and present the assessed impacts and their significance for all alternatives together with a clear comparison of alternatives.
- Focusing on the most significant impacts. Presenting less significant effects briefly after giving an explanation for the choice of the impacts with more detailed assessment.
- Using different ways to visualize the results of the impact assessment. Carefully prepared pictures, charts and tables enable the reader to better understand the consequences of environmental change than long and complicated text.

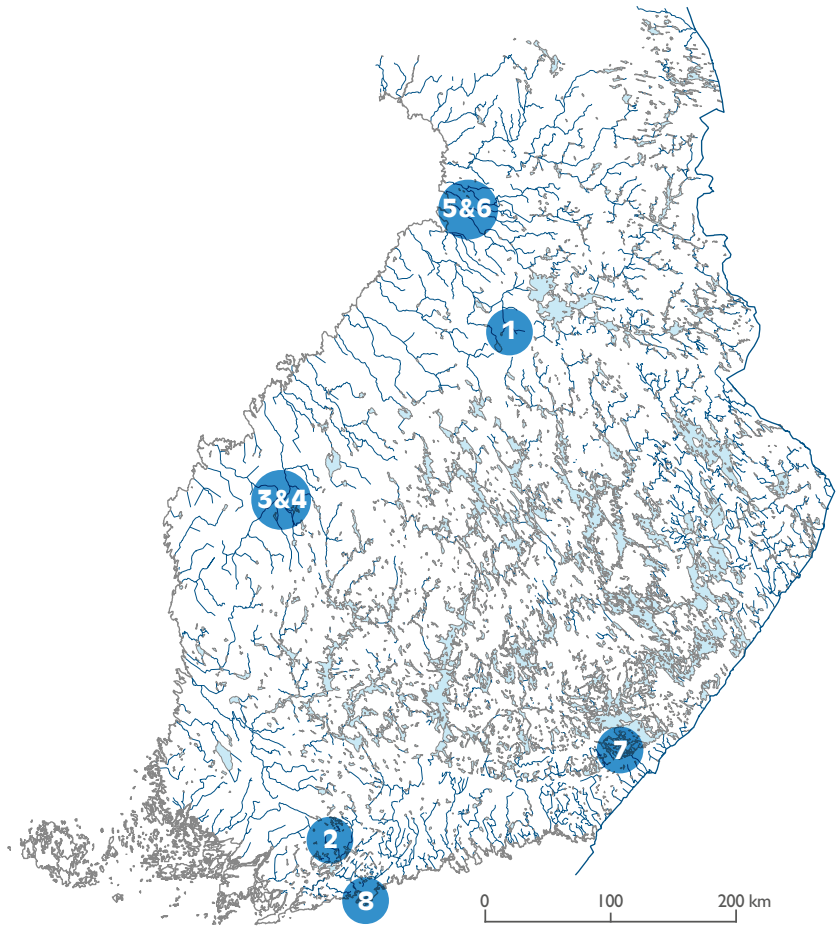


The role of IMPERIA in the pilot projects

- 1. In the EIA for Piiparinmäki-Lammaslamminkangas wind farm,** a thorough stakeholder analysis was conducted and new ways to improve the co-operation between assessment experts and stakeholders were explored. During this pilot project, the ARVI tool for impact significance assessment was developed. Local knowledge essential for the impact assessment was collected using a map-based Internet questionnaire (HARAVA).
- 2. In the EIA for wastewater management of Vihti commune,** the comparison of alternatives was supported by using an influence diagram visualizing direct and indirect water quality impacts. Additionally, the ARVI tool was tested.
- 3. In the SEA for flood risk management plan for the River Lapuanjoki,** an example report for the environmental impacts of a flood protection plan was compiled by exploiting the results of the comparison of alternatives accomplished with multi-criteria decision analysis.
- 4. In the watercourse risk assessment of new peat extraction areas in Southern Ostrobothnia,** regional planning was supported by applying the methods of participatory multi-criteria decision analysis for collecting information about stakeholder opinions and preferences.
- 5. In the evaluation of the drinking water supply options for the City of Oulu,** a comparison of alternatives was supported by using multi-criteria decision analysis. Additionally, the ARVI tool was tested.
- 6. In the SEA for regional programme 2014–2017 of Northern Ostrobothnia,** the systematic impact significance assessment process was supported by applying a systematic and structured approach.
- 7. In the EIA for wastewater management of the City of Lappeenranta,** the map-based Internet questionnaire HARAVA was implemented to gather information on the stakeholder views and opinions.
- 8. In the EIA for the Balticconnector gas pipeline between Finland and Estonia,** the impact significance assessment was supported by using the ARVI approach and testing the ARVI tool. In addition, material in English was produced to enable the use of the ARVI approach in international assessments.

Pilot project sites of IMPERIA

1. EIA for Piiparinmäki-Lammaslamminkangas wind farm
2. EIA for wastewater management of Vihti commune
3. SEA for flood risk management plan for the River Lapuanjoki
4. The watercourse risk assessment of new peat extraction areas in Southern Ostrobothnia
5. The evaluation of the drinking water supply options for the City of Oulu
6. SEA for regional programme 2014–2017 of Northern Ostrobothnia
7. EIA for wastewater management of the City of Lappeenranta
8. EIA for the Balticconnector gas pipeline between Finland and Estonia



The IMPERIA project in a nutshell

Duration:

- 3.5 years, 1.8.2012 – 31.12.2015

Financing:

- 1.3 million euros
- Financiers: European Union (40%), Ministry of the Environment and Ministry of Agriculture and Forestry (10%), partners (40%)

Project manager:

Leading expert Mika Marttunen,
Finnish Environment Institute (SYKE).
mika.marttunen@environment.fi

Partners:

Finnish Environment Institute (SYKE),
the Thule Institute of the University of Oulu,
the University of Jyväskylä,
Ramboll Finland Ltd, SITO Ltd

Produced reports, guidelines and thesis: 25

Produced scientific and professional articles: 10

Seminars:

- 5 seminars organized
- Participation to the 15 seminars
- 5 conferences (e.g. IAIA 2013–2015)

Education:

- Consultants and authorities: 4 events
- Courses in 5 Universities

Media:

- Press releases, newsletters and social media: 10 times
- 1 Radio interview



Further information at IMPERIA website:
imperia.jyu.fi/english



PHOTOS: ESA AHDEVAARA/PLUGI, IMAGE BANK OF THE ENVIRONMENTAL ADMINISTRATION OF FINLAND/ FEODOR CURVITS, EERO SAARELA, TOIVO LAPINLAPI, PENTTI HOKKANEN/FLAMING STAR, JANI KETOLA/PLUGI. LAYOUT: ERIKA VÄRKÖNYI/SYKE. PRINT JYVÄSKYLÄN YLIOPISTOPAINO. 12/2015.