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ФЕДЕРАЛЬНОЕ ВЕДОМСТВО ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ ГЕРМАНИИ

ФЕДЕРАЛЬНОЕ ВЕДОМСТВО ОХРАНЫ ПРИРОДЫ ГЕРМАНИИ

Российская Академия наук
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ИНСТИТУТ ЭКОЛОГИЧЕСКОГО РАЗВИТИЯ ТЕРРИТОРИИ ИМ. ЛЕЙБНИЦА

Assessment of Environmental Impacts and Ecological Expertise

Professional experience of EIA issues in Russia and Germany

Оценка воздействия на окружающую среду и экологическая экспертиза

Методический опыт Германии и России

Переработанное и дополненное издание

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PREFACE

No other country on earth has such vast land resources as Russia. Moreover, the major part of it can still be considered untouched, or at least a minimally impacted natural landscape. Precisely this wealth of biodiversity, and not the non-renewable extractable resources, is the true value of the land, and the foundation of life for coming generations. However, the development of new areas, especially in the Asian part of Russia, is gradually increasing the pollution level, and reducing the quality of life of people. This takes place in particular in the context of such major projects as the development of gigantic hydrocarbon resource reserves, the creation of energy centres, increased wood production, and many other projects. All this is necessarily of concern to experts and to the public, especially considering that in recent years, in the context of the many-year administrative reform and other actions, not only the institutions but also the legal foundations of the procedures of ecological accompaniment of project planning in Russia have been reduced.

In 1992, the German Russian Agreement on Cooperation in Environmental Protection was signed, and has been implemented through a large number of measures. One example is that, based on the German model of landscape planning, environmental planning instruments adapted to Russian conditions have been developed. It became clear very early that these instruments were well suited to be incorporated in the environmental impact assessment procedure. They constitute the ideal basis for the selection of environmentally appropriate site alternatives for projects, and for the evaluation of the environment in accordance with an environmental impact prognosis. For this reason, the transition from landscape planning to the establishment of the methodological foundations for ecological expertises and the environmental impact assessment is a must. This view was shared by both the German Federal Agency for Nature Conservation and the Ministry of Natural Resources of the Russian Federation.

The German-Russian consultations for exchanges of experience and for the adaptation and ultimately the translation of the legal foundations of the procedural regulations and substantive methodological aspects continued for more than five years. At the same time, the Sochava Institute of Geography of the Siberian section of the Russian Academy of Sciences drafted a large number of expert papers on the ecological accompaniment of major projects in the Asiatic section of Russia: the *Vostochnaya Sibir'-Tikhy Okean* (East Siberian-Pacific/ VSTO) oil pipeline from Tayshet in Eastern Siberia to Nakhodka on the Pacific coast, the development of the Kovytkinsk condensed gas storage facility, and many others. The experience gained, and the numerous fruitful consultations with the Russian and German experts led to the creation of the present compendium.

In the transfer of the German experience, including the translation into both languages, considerable terminological difficulties and difficulties of understanding emerged which demanded great effort from the authors, especially from the staff of the Institute for Geography of the SB RAS. Unlike in Russia, Germany has tried and true instruments for the investigation and assessment of environmental impacts. They are based on specialised laws, extensive legal and methodological literature, and clearly established procedures which cause the environmental statements for development planning to be transparent, objective and above all efficient.

What goals have the author set for themselves? The aim is certainly not simply the direct copying of experience, but rather the comparison of all components of ecological accompaniment in Russia with environmental impact assessment procedure (EIA) in Germany. Moreover, we seek to analyse procedural and methodological weaknesses, and to develop recommendations to minimise them, and also to

demonstrate a variety of possibilities for how to make use of the many years of experience in both countries.

In terms of content, the book has two parts. In the first part, Sections 2 through 5, procedural issues are examined, from planning intent through the granting of permission for a project. The second part, Sections 6 through 8, addresses the methodological questions of environmental impact assessment. Structurally, the book is divided into a text section and the annex. The text gives a general overview of special features of the processes of ecological accompaniment of project based development planning in Russia and of the EIA in Germany. Building on these experiences, possible paths to optimise procedures and methods are recommended. The annex is designed for a deeper study of environmental assessment. It provides details and illustrations of the methods described in the text, using numerous examples.

The target groups of this compendium are especially those involved with ecological accompaniment of project planning: investors, private developers, the authors of project documentation (application documents) and of the environmental relevant part of that documentation, experts from the administrative and investigative authorities, environmental organizations, and the interested public. Even taking into account the fact that Russia is now starting to re-examine the previously implemented reforms of the organization of ecological accompaniment of project planning, the compendium will be of interest to those experts who are developing the legal foundations, general official standards and rules for ecological expertises and the environmental impact assessment. A further target group includes the growing number of European and especially German investors and their planning experts who are pursuing projects in the Russian Federation. Finally, the book is also directed to Russia's neighbours, who share both common linguistic background and similar planning systems.

Russia is a member of the Council of Europe and a G8 participant. Political and economic integration processes have been initiated in these contexts. Clearly, such processes will be incomplete and inefficient if they fail to take social and ecological interests into account. In order for integration in the area of the environment to work, the foundations for mutual understanding have to be created, so as to enable the development of a consistent environmental policy. Both foreign investors in Russia and Russian investors in Europe need knowledge about the rules and requirements of environmental protection. We hope this book can make its contribution.

1. INTRODUCTION

On December 18, 2006, Russia passed Federal Law Number 232, which governs changes in the Urban Planning Code and other legislative acts of the Russian Federation. It considerably affects the Federal Law on Ecological Assessment, which had hitherto governed the goals and procedures of projects requiring examination (Law No. 174 of November 23, 1995). After the new law came into force, the importance of the ecological assessment was diminished. In most projects, the project documentation[1] is subject to a general examination in the context of the state assessment, i.e., the documents are checked to ensure that they meet the general technical requirements. The most important goal of the new law was to reduce the administrative and procedural effort required for the approval of construction projects, e.g., the number of assessment authorities, and the time required for granting of permission; in fact, the permission procedure has become considerably more complicated since the law came into force. New authorities have been established to examine projects which have hardly any experience in the environmental sector. A small number of project types is still being examined in the context of ecological assessments, by the previously responsible authorities. Currently, the environmental impacts of projects at the federal level are examined by four authorities at the federal level and two at the regional level. The splitting up of expert authority creates uncertainty regarding what is actually being examined, since the requirements regarding the content of an examination of environmental impacts generally are not cohesive in the different authorities. There is no uniform series of regulations in the area of environmental impact assessment. The only document that currently regulates its procedure and content is the "Regulation on the Assessment of Environmental Impacts of Economic Activities and Other Activities in the Russian Federation" [17]. It was drafted by the State Committee for Ecology of the Russian Federation, which no longer exists. Of course, the authorities who are today responsible for environmental investigation can simply ignore this document. Recently, the discussion regarding a new reorganisation of the environmental administration has sparked up in the media once more. Considering the existing conditions, it would appear very necessary to draft guiding documentations on ecological accompaniment of project planning with the character of recommendations not tied to the ever-changing administrative system.

The bilateral cooperation of Germany and Russia in the area of environmental conservation reaches back more than fifteen years. The central point of departure was the agreement regarding that cooperation between the Federal Republic of Germany and the Russian Federation concluded in 1992. In the context of this agreement, experts in Germany and Russia have already carried out a large number of scientific and practice-oriented projects.

Based on these experiences, it is the goal of the current project to draft the compendium for the assessment of environmental impacts, and the drafting of ecological expertises. For this purpose, the basic foundations for the essential legal, methodological and procedural aspects of the environmental components of project planning in Russia, Germany and Europe are to be presented. We hope that the recommendations, suggestions and supports can provide a contribution to optimising the toolkit of environmental impact assessment in Russia as well.

The present project is supported by the Ministry of Natural Resources of the Russian Federation and the German Federal Ministry for the Environment, Conservation and Reactor Safety. The present compendium is oriented toward the conceptual, subordinate legal and expert methodological level of ecological project accompaniment. It is designed to help set expert standards and minimum require-

[1] Comparable with the application documentation in Germany.

ments practice of the valuation of environmental impacts, and to formulate them in terms of the assessment. For this purpose, we seek to both compile and harmonise existing Russian standards, and to present the German and European stipulations as possible instruments for the solution of similar tasks in Russia.

The present compendium does not claim to provide answers to all questions which might arise in the context of ecological accompaniment. Rather it is designed to help participants in the procedure to orient themselves more quickly to a concrete situation to correctly select the applicable standards, to find the required information and to select or develop the suitable methods for finding solutions.

This book is the result of many years of cooperation between German and Russian experts in environmental planning. The idea and content of the book was raised at common seminars and meetings during the period from 2003 to 2007 in Moscow, Berlin, Irkutsk, Leipzig and on Lake Baikal. The state of the observations is mid-2008. Later developments have not been taken into account. The following consultants have contributed considerably to the creation of this book: on the German side, Arnd Winkelbrandt, Matthias Herbert, Thomas Bunge, Matthias Sauer, and Brigitte Ruppenthal-von Radetzky; and on the Russian side, A.M. Amirkhanov, G.N. Talalaychenko, S.S. Imeshkenova, N. Yu. Ryabukhina, K.G. Selyanchev, N.I. Onishchenko, and S.G. Golubeva. The direct publication of the Compendium is carried out by the Sochava Institute of Geography of the Siberian Section of the Russian Academy of Sciences, under the responsibility of V.V. Kravchenko, A.V. Ignatov and V.R. Venchikova; and the Technische Universität Berlin under the responsibility of Anja May, Wolfgang Wende and Adrian Hoppenstedt. The authors would like to thank the above mentioned consultants and everyone who was involved in the creation of this book for their appreciated advice and their information provided.

2. THE LEGAL FOUNDATIONS OF THE ASSESSMENT OF ENVIRONMENTAL IMPACTS

2.1. The main principles of the ecological accompaniment of project planning in Russia

The ecological accompaniment of project planning is a process involving several phases, and encompasses the assessment of environmental impacts of a project, the drafting and implementation of appropriate environmental protection and compensation measures, the ecological expertise on project solutions, and project implementation monitoring.

Project planning is designed to achieve certain results which are of interest to the project developer. However, the goal of the *ecological accompaniment of project planning* is to create conditions under which, ideally, no negative environmental impacts of a planned project will arise at all, or that such impacts will in practice be reduced to the point where the project can be considered ecologically acceptable. That involves a conflict of goals that is not always easy to solve.

On the basis of the interactive relationships between man and the environment and also of the ethical and moral ideas as to the character of these interactive relationships, which have, to a greater or lesser degree, been adopted into the law of various countries, the ecological accompaniment of project planning is based on the following principles:

- Compliance with the human right to an intact environment and safeguarding of the necessary conditions of life
- The scientifically grounded interaction of the ecological, economic and social interests of people and society with the objective of sustainable development, as well as the preservation and improvement of the environment
- The assumption of potential environmental risks with regard to a proposed project
- The conservation, to the extent possible, of natural ecosystems, of natural landscapes and spaces, and of biological diversity
- Compensation for environmental damage, in order to guarantee a healthy environment and environmental safety
- Compliance with the right of every individual to access to environmental information, as well as to participation in discussions involving project-related environmental changes
- The responsibility of all state authorities to guarantee a healthy environment.

All tasks to be solved in the context of an ecological project accompaniment can be assigned to one of two fundamentally different groups. The first group of tasks aims to compile records and documents with information on the type and scope of impacts, on the resulting environmental damage, and on appropriate measures to limit that damage. The tasks in the second group are directed towards the practical realisation of the environmental protection measures which emerge from the first group.

The negative environmental effects of a planned project can be reduced by means of the following procedures:

- Abandonment of the project
- Appropriate site selection
- The use of environmentally benign production technologies
- The implementation of specific environmental protection measures.

The three last-named options can be applied in combination.

As compensation for damages which cannot be offset, a variety of material or financial conditions are imposed on the parties causing the damage. That can involve specific measures mandating substitution measures, such as new afforestation or substitute-housing. Another form of compensation consists of the stipulation of monetary payment for damages caused directly by the project, which project developers must provide once or on a multiple basis over an extended period. Moreover, the company in-

volved must regularly pay for its resource consumption and environmental pollution (discharge into waters, pollutant emissions, waste disposal).

The work scope of an ecological project accompaniment should generally be adequate to the scope and complexity of the environment effects of a planned project. However, the task is hampered by the fact that the complexity only becomes concretely apparent during the treatment. This circumstance determines the iterative character of the ecological project accompaniment, i. e. during the process, both the scope of the environmental effects and the contents of their assessment are specified successively. When establishing the contents for the environmental impact statement (Russian: OVOS – assessment of environmental impacts), a necessary minimum of reliability and substance of the results must be guaranteed.

The costs of an ecological accompaniment should be determined by the scope and complexity of the tasks, and not correspond directly with the costs of the project. The costs must primarily be borne by the project developer, who is to pay for the planning and realisation of the project. The state too makes a considerable contribution by having the necessary environmental information compiled, and monitoring the environmental effects of projects. Ultimately, natural or legal persons too could bear certain costs. Legally, they may participate voluntarily in certain procedural-steps of the ecological accompaniment, or present their interests as affected parties.

Often, the interests of the project developer do not correspond with those of environmental protection. The examination of the environmental impact and the implementation of the planned project should therefore be subject to independent external review, while any conflicts which may emerge between the participants during the procedure should be arbitrated.

The planning and implementation of a project, as well as the assessment of its environmental effects, are assumed by the project developer or by its assigned experts. Not only the specifically designated authorities, but also the local population and interested public organizations are responsible for monitoring. The records of the project developer, the statements of supervisory authorities, expert opinions etc. must address the following questions:

- Is the project fundamentally permissible?
- At which location should the project be realized?
- Do the proposed project solutions correspond to the established standards and technical regulations?
- Is the project permissible considering the selected site, the project solutions and the planned avoidance and compensation measures?
- Does the actual project realization correspond to the approved and mutually coordinated project solutions?

Do the actual environmental changes correspond to the prognoses of the OVOS?

2.2. Russian Legislation

The essential legal foundations in the area of state ecological expertises and the assessments of environmental impacts include:

- The Federal Law “On Ecological Expertise” of November 23, 1995 (Law No. 174);
- The regulation on the procedure for the implementation of the state ecological expertise, which was confirmed by the Russian government on June 11, 1996 (Government Decree No. 698);
- The regulation on the assessment of environmental impacts of a planned project in the Russian Federation, which was confirmed by the State Commission for Ecology on May 16, 2000 (Regulation No. 372);
- The Federal Environmental Law of January 10, 2002 (Law No.7).

In the draft of these laws and regulations, the conventions of the European Economic Commission of the United Nations on environmental impact assessment procedure in transboundary contexts, espe-

cially the Espoo Convention, were taken into account. The USSR signed the Convention on February 25, 1991, which action has been confirmed by the government of the Russian Federation.

Until January 1, 2007, the Russian procedure consisted of the Environmental Impact Statement of Project Planning (Russian: OVOS – assessment of environmental impacts), and the Environmental Impact Assessment of project documentation (Russian: Ecological Expertise)[2]. The OVOS is organised and implemented by the project developer, the ecological expertise by the state executive authorities at the federal level, and at the level of the subjects of the Russian Federation (RF).

Subject to the OVOS and the State Ecological Expertise are the project documentations of planned activities with direct or indirect environmental impact. The following types of documents are distinguishable:

- Strategic Environmental Assessment documents: Legislative drafts of the RF and its subjects; technical specifications and methodological instructions on the regulation of the use of natural resources; socio-economic prognoses on the development and distribution of the productive resources on the territory of the RF and its subjects; Feasibility studies on the certification of protected areas; all types of urban planning documents for spatial planning; international agreements and programmes on resource extraction;
- Pre-planning documents: documents with declarations of intent on site selection (plots of land) for the construction of buildings and facilities; Project statements of explanatory statement;
- Planning documents: Construction, reconstruction, and expansion projects; technical re-equipment records; documents regarding the maintenance or dissolution of companies and other facilities;
- Documents on new process technologies, substances, goods and services subject to authorization and;
- Other records regarding the statement of explanatory statement of projects, the implementation of which could lead to direct or indirect environmental impacts.

In 2003, an administrative reform was initiated in Russia with the goal of increasing the efficiency of the federal executive authorities, and creating favourable conditions for the rights and interests of entrepreneurs. The priority tasks of this reform included:

- The termination of state overregulation of companies and their economic activities
- The avoidance of competency overlaps between federal executive authorities
- The competency distribution between the executive authorities at the federal and regional levels, and the optimisation of their activities.

This Russian legislation caused crucial changes in the organisation and realisation of the ecological expertise, i.e. the assessment of the project documentation regarding the environmental compatibility of projects:

On January 1, 2007, the federal laws “On the Amendment of Certain Legislative Acts of the Russian Federation for Improved Distribution of Competency”, of December 31, 2005 (Law No. 199), and “On the Amendment of the Urban Planning Code and Other Legislative Acts of the RF”, of December 18, 2006 (Law No. 232) came into force: they considerably changed the provisions of the Federal Law “On Ecological Expertise”.

With entry into force of Federal Law No. 199 of December 31, 2005, the organisation and implementation of the State Ecological Expertise was distributed among the Federal Service for Supervising Natural Resources (*Rosprirodnadzor*) in the Ministry of Natural Resources of Russia, and the Federal Service for Ecological, Technological and Nuclear Supervision (*Rostekhnadzor*) of the government of the RF, and the executive authorities of the subjects [i.e., regional territories] of the RF.

The *Rosprirodnadzor* is responsible for federal projects with potential negative environmental impacts which are subject to mandatory examination; the *Rostekhnadzor* for those federal projects with potential negative technical environmental impacts; and the executive authorities of the subjects of the RF for regional projects.

[2] Comparable with the application documentation in Germany.

In order to implement Article 49 of the Urban Planning Code of the RF, the Federal Law "On Ecological Expertise" of November 23, 1995 (Law No. 174), and other legislative acts regarding projects subject to mandatory assessment were changed. Since January 1, 2007, the following projects are to be subjected to a state ecological expertise:

- Drafts of technical specifications and methodological instructions on environmental protection
- Federal target programmes and target programmes of the subjects of the RF
- Documents for obtaining authorisation for projects with potential environmental impacts
- Technical documents on new processes and substances which could enter the environment
- Documents for the examination of areas of federal or regional importance with respect to their certification as protected areas, or as ecological emergency areas.

Moreover, projects at the federal level specified in the federal laws "On the Mainland Shelf of the Russian Federation" of November 30, 1995 (Law No. 187), "On the Exclusive Economic Zone of the Russian Federation" of December 17, 1998 (Law No. 191), and "On the Inland Waters, the Territorial Waters and the Adjacent Zone of the Russian Federation" of July 31, 1998 (Law No. 155), are subject to state ecological expertise. These laws stipulate that all projects on the mainland shelf, the inland waters, the territorial waters and the exclusive economic zones are to be subjected to a state ecological expertise, regardless of the projected costs. Subject to the state ecological expertise are federal plans or programmes, pre-planning, and planning documents on regional geological exploration of the mainland shelf, mineral resources and the search, discovery and exploitation for them, on the utilisation of aquatic bio-resources, artificial islands, buildings and facilities, underwater cables and pipelines, as well as waste disposal.

With adoption of Law No. 232 of December 18, 2006, all official assessments of project documentations on the construction, reconstruction and repair of buildings were abolished. These included the Epidemiological Expertise, the Fire-Safety Expertise, the Historic-Cultural Expertise, the State Expertise of Working Conditions, the State Expertise for the Protection of the Population and Concerned Areas in Emergency Situations, the State Expertise of Project Planning, the State Expertise of Industrial Safety, the State Expertise of Security Certifications for Aquatic Facilities, the Expertise of Nuclear Facilities, and also the State Ecological Expertise.

Instead of these assessments, a uniform state expertise is to be carried out in accordance with the Urban Planning Code of the RF [7], in which the documents are to be examined to ensure that they meet the technical requirements, including epidemiological and ecological requirements, the requirements for the protection of the cultural heritage and the requirements for industrial, nuclear, radiological, and fire safety, etc.

This procedure is stipulated in the Regulation on the Organisation and Implementation of State Expertises, which was confirmed by the Russian government on March 5, 2007 (Government Decree No. 145). However, no technical specifications for the assessment of environmental impacts have yet been drafted. At the same time, Article 27 specifies that until technical specifications come into effect, particularly in the environmental area, the project documentation is to be examined to ensure that it meets the legal requirements and the technical specifications under Federal Law "On Technical Regulation" [4] and the Urban Planning Code of the RF [7]. The key regulation for the environmental impact statement is currently the "Regulation on the Assessment of the Environmental Impacts of Planned Projects in the Russian Federation", which was confirmed by the State Commission for Ecology on May 16, 2000, (Regulation No. 372). It regulates the contents and procedures of such an assessment. The examination of the project documentation to ensure that it meets environmental requirements is carried out in the framework of a state expertise, in the form of an environmental assessment (sees Section 3.1).

Under the currently applicable law of the Russian Federation, two forms exist for the assessment of project documentations for compliance with environmental and nature conservation laws:

- The state ecological expertise for Projects under the RF Urban Planning Code, and
- The environmental assessment in the context of the state expertise for all other projects.

It should be noted that in the Federal Environmental Protection Law of January 10, 2002 (Law No. 7), the provisions which stipulate a mandatory assessment during the decision-making on projects with direct or indirect environmental impacts remains in effect (Articles 3 and 32). The recently promulgated Government Regulation No. 87 of February 16, 2008 [13, 14] also provides for a mandatory environmental section in the project documentation. The Regulation on the Assessment of the Environmental Impacts of a Planned Project in the Russian Federation, which was confirmed by the State Commission for Ecology in 2000, [17] is still the only document which regulates the contents of such an assessment.

2.3. The Directives of the European Union and International Agreements

Implementation of legal standards at the European level is usually carried out via directives. The basis for the EIA in the EU is the Directive on the Assessment of the Effects of Certain Public and Private Projects upon the Environment (Directive 85/337/EEC). Since 1985, it has constituted the framework for the structuring of the EIA in the member states. In 1997, it was modified by Directive 97/11/EC, and significantly expanded. Another amendment was made in 2003 (2003/35/EC). The essential principle of the Directive is that public and private projects which have a good chance of having considerable effects on the environment are to be approved only after an appropriate assessment. The projects to be examined are listed in Appendices I and II of the Directive. A distinction is made between projects which are mandatory to undergo an investigation and those for which the member states decide whether an investigation is to be required or not. In exceptional cases, the member states can exempt particular projects, but not entire project categories, from the mandatory investigation. The Environmental Impact Assessment procedure ascertains, describes and assesses the immediate and indirect impacts of a project on each protected asset, and the interaction of these impacts, according to the specifics of each case. The project developer must submit the information on the project required in Appendix IV of the Directive and about the environment, in suitable form. The authorities and the public are to have the opportunity to make statements. In addition, the Directive regulates the procedure for projects with transboundary impacts.

In order to extend the scope of the EIA Directive to all planning and decision-making, the European Union adopted the Directive on the Assessment of the Effects of Certain Public and Private Projects (2001/42/EC). The early environmental assessment at the level of plans and projects contributes to an early assurance of the protection of the environment, and supports sustainable development. Plans and projects developed for specific sectors (agriculture, forestry, energy, water, etc.), and which often involve key decisions for the granting of permission for projects, are subject to mandatory assessment (Appendices I and II, Environmental Impact Assessment Act). In addition, a Strategic Environmental Assessment is carried out if significant impact is anticipated on protected areas under the Habitats Directive (92/43/EEC). The only optional example is the assessment of plans and projects which stipulate the use of small areas at the local level, or minor modifications to existing plans and projects. Moreover, this applies to other plans and projects not covered by the mandatory assessment requirement, but which also provide a framework for the future authorisation of projects. In such cases, the question of the requirement for examination must be settled during the screening process. The environmental assessment involves the preparation of an environmental report, the conduct of consultations, and the consideration of the results during the decision-making process, as well as a follow-up (monitoring). The environmental report ascertains the likely significant effects on the environment, and describes and assesses reasonable alternatives. Both the authorities and the public have an opportunity to comment.

At the international level, the Aarhus Convention was signed at the Fourth Ministerial Conference on the Environment for Europe in 1998, and came into force in 2001. The agreement establishes minimum international standards for access to information for public participation in decision-making processes, and for access to the courts in environmental matters. It is named after the Danish city where it was signed. The Directive on Public Access to Environmental Information implements the stipulations of the Convention as EU law (2003/4/EC). The goal of the Directive is to guarantee the right to access

to environmentally relevant information which is either in the possession of state authorities, or more is available to them, and the specification of the basic prerequisites for this. Furthermore, the Directive is to ensure that environmental information be made public and disseminated on request, so as to achieve as comprehensive and systematic an availability and distribution of environmental information to the public as possible. Moreover, it is to enable a free exchange of views and more effective participation of the public in decision-making proceedings on environmental issues.

Also contributing to the fulfilment of these obligations under the Aarhus Convention is the "Directive Providing for Public Participation in Respect to the Drawing up of Certain Plans and Programmes Relating to the Environment, and Amending with Regard to Public Participation and Access to Courts of Justice the Directives 85/337/EEC and 96/61/EC" (2003/35/EC). The member states are to ensure that the public be informed about plans and programmes or their amendment, by public announcement or other means, and that the information be made accessible to the public. The public has the right to take positions, to have the results of the public participation taken into account in the decision-making process, and to have the relevant authority inform the public about the decisions taken. To ensure full compliance with the provisions of the Aarhus Convention, the EIA Directive (85/337/EEC) and Directive on Integrated Pollution Prevention and Control (96/61/EC) have been changed.

Another important international agreement was approved by the Economic Commission of the United Nations for Europe in Espoo, Finland, in 1991, and took effect in 1997. The Convention on Environmental Impact Assessment in a Transboundary Context (E/ECE/1250), the so-called Espoo Convention, obligates the contracting countries to undertake environmental impact assessments in cases of projects listed in Appendix I which are most likely to have a considerable unfavourable transboundary impact on the environment, and to involve the authorities and the public in this process. At a minimum, environmental impact assessment procedures must be carried out during the project planning phase, and the principles of the environmental impact assessment procedure are also to be applied to plans and projects, to an appropriate extent. The documentation on environmental impact assessment procedure must contain the information on the project, the environment, the environmental impacts, alternatives, and reduction measures stipulated in Appendix II. Thereafter, the contracting countries concerned are to discuss the possible transboundary implications of the project, the reduction or elimination of such impacts, and also possible alternatives, including abandonment of the project, as well as reduction measures and the monitoring of the results of such measures. The contracting countries are to guarantee that at the time of the definitive decision, the result of the environmental impact assessment procedure, including the documentation, the statements of the authorities, and the public as well as the result of the consultations, are adequately taken into account. After the realisation of the project, it can be assessed and ascertained which unfavourable transboundary impacts have in fact occurred.

2.4. The Legal Foundations of the EIA in Germany

The most important basis of EIA law in Germany is the Federal Environmental Impact Assessment Act (German: UVPG) of June 25, 2005. The act applies to the projects listed in Annex 1, and mandates implementation of an EIA based on the type, scope and effect of the project in the particular case, or according to the law of a German state (Art. 3 UVPG). It determines which documents and environmental information have to be prepared by the project developer in the respective planning case. The authority informs the project developer of this in the context of a scoping procedure (Art. 5 UVPG). The act stipulates the type and content of the application documents of the project developer (Art. 6 UVPG), who has to submit his application, including the Environmental Impact Statement (EIS, German: UVS), to the competent authority. In articles 7-9b of the UVPG, the regulations on participation by authorities and the public, including transboundary participation, are stated. In the EIA proceedings, the approval authority has the task of compiling all environmental information, both from the EIS and from the statements of the other authorities and the objections of the public (Art. 11 UVPG), and then evaluating them (Art. 12 UVPG). Moreover, the act includes additional sections on special cases, and for the clarification of official responsibilities. The articles 15-19 of the UVPG con-

tain specific statements on certain types of project or procedures, e.g. a route determination for a federal road or waterways, or for spatial planning procedures and urban land-use plans.

There is no special law for the Strategic Environmental Assessment (SEA); instead, the implementation of EU Directive 2001/42/EC was adopted by the integration of the SEA requirements into the UVPG. In articles 14a-14o, the requirements for an SEA and each procedural step are described (see Section 5.2). Annex 3 of the UVPG contains a list of mandatory SEA plans and projects. However, the special legal requirements of the SEA for the establishment of urban land-use and spatial development plans are stipulated separately in the Federal Building Code (German: BauGB) and the Federal Regional Planning Act (German: ROG).

The General Administrative Regulation for the Practical Implementation of the Environmental Impact Assessment Act (German: UVPVwV) of September 18, 1995 was to contribute to the concretisation of the UVPG. In a general section of that regulation, the scope, the environmental impacts, the scoping process and the principles for the comprehensive presentation and the assessment by the authority are stipulated. The Administrative Regulation makes detailed statements on a few protected assets (streams and the soil) and project types (such as pipelines which require permission for the long distance transport of oil and gas under the Water Law, or major tourist facilities and hotel complexes, for which development plans or statutes on project and development plans are established). Orientation guides for the assessment of environmental impacts as well as information for Environmental Impact Statements (EIS) can be found in the annexes.

The implementation of Article 9 UVPG also requires compliance with the Federal Environmental Information Act (German: UIG) of December 22, 2004. It creates the legal framework for the free access to environmental information from authorities required to provide information, as well as for its distribution. Authorities required to provide information include the government and other public administrative offices, the highest level federal authorities, federal courts, and legal or natural persons under civil law who perform public duties or provide services in connection with the environment. Environmental information is made accessible on application in the form of an information release, a grant of inspection of records, or some other manner. Moreover, authorities required to provide information are to actively inform the public adequately and systematically regarding the environment. That includes the Report on the State of the Environment, which the Federal Government publishes at regular intervals, with information about the quality of the environment and existing environmental damage. The presentation is to be comprehensible for the public, and be provided in easily accessible formats. To the extent possible, electronic means of communication are to be used.

The Federal Administrative Procedures Act (German: VwVfG) of January 23, 2003, stipulates the rights and duties of the administration, but also the regulations for the participation of the public, as well as the general course of the process of participation. In the special types of proceedings, a distinction is made between formal administrative proceedings and the plan approval procedure. In the latter, an authority ultimately reaches a decision regarding a variety of interests which would otherwise have to be handled in other specialised proceedings, and by other specialised authorities. To this end, a hearing under Article 73 is to be carried out, at which, authorities, public interest stakeholders and the public are to be involved, and which incorporates the public presentation of the plan, a period for objections and statements, a discussion date, and the decision on objections and statements by the project approval authority.

Since the EIA procedure is not independent, but rather integrated into existing proceedings, EIA law too is more or less integrated into existing specialised laws. Examples of such specialised laws are the Federal Nature Conservation Act (German: BNatSchG), the Federal Regional Planning Act (German: ROG), and the Federal Building Code (German: BauGB). The Act on Nature Conservation and Landscape Management (Federal Nature Conservation Act, German: BNatSchG) of June 24, 2004, contains two additional instruments for the assessment of environmental impacts, which are not the subject of the present manual, but which should be mentioned to provide a complete picture: the Impact Mitigation Regulation (German: Eingriffsregelung) and the Habitat Directive Assessment (HAD). The former regulates avoidance, and the strict compensation for the impacts caused by a project. The goal of the latter is the protection of the NATURA 2000 network of the European Union. It provides for the

investigation of projects for whether the specific preservation goals of an area could be considerably impaired. If the impact is a plan subject to an environmental impact assessment under the UVPG, the proceedings must meet the requirements of this law. Under Article 14 Sect. 2, BNatSchG, the assessment of the environmental compatibility of a project must take into account the contents of the landscape plan. In this context, the landscape plan has the task of providing substantive information which describes and justifies the requirements and measures of nature conservation and landscape management.

Another specialised law is the Federal Regional Planning Act (German: ROG) of June 25, 2005, which covers spatially significant projects, plans and measures which will require space or affect the spatial development or function of an area. The goals of spatial planning, i.e. mandatory specifications in the form of spatial or material specifications, have to be taken into account by public authorities in official decisions regarding the permissibility of spatially significant measures by public offices or of persons as per civil law. Plans and measures which contravene the Regional Planning Act can be forbidden temporarily or for an indefinite period. If the spatially significant plans and measures concerned may have a considerable effects on neighbouring states, they must be coordinated with those states under the principles of reciprocity and equivalence. If the implementation of a plan will have considerable effects on the environment of another state, that state must be involved via the principles of the UVPG. In the drafting and modification of the spatial plans, an SEA must be carried out, an environmental report submitted, as per EU Directive 2001/42/EC. In that report, the expected considerable effects which the implementation of the development plan will have on the environment must be ascertained, described and evaluated, and stipulations for an environmental monitoring process drafted. Public authorities and the general public must have an early and effective opportunity to comment on both the spatial plan and the environmental report.

The Federal Building Code (German: BauGB) of September 23, 2004 also adopts EU Directives 2001/42/EC (SUP) and 2003/35/EC (public participation) into national legislation. For matters of environmental protection, an environmental assessment is to be carried out, in which the expected considerable environmental impacts are to be ascertained and described in an environmental report. The result of the environmental assessment has to be taken into account in the balancing of costs and benefits. The BauGB also includes statements concerning participation by the public and the authorities. Particularly in uncomplicated cases, the environmental assessment, the environmental report and the monitoring of environmental impacts can be dispensed with in certain cases. In areas with a legally binding land-use plan, a project will generally be permitted if the participation by the public and the authorities has been carried out, and it can be assumed that the project will not contravene the future stipulations of the development plan. Legally binding land-use plans with an authorised lot area of less than 20,000 sqm which serve the development of the inner areas of cities and municipalities can, as per the 2006 amendment to the BauGB, can be implemented without an environmental assessment. In outer areas, projects are only permitted, if they do not contravene any public interests, if e.g. they serve to ensure public provision with electricity, gas … [or] water…, or the exploration, development or use of wind or water power. An impairment of the public interest will be present if the plan contradicts e.g. the representations of a land-use plan, landscape or other plan, may cause or be affected by harmful environmental effects, the detrimental to the interests of the protection of nature, soil or historical monuments, or to the natural features of the landscape and its recreational value. The permissibility of projects is determined by the construction permit authority in agreement with the municipality.

3. ECOLOGICAL ACCOMPANIMENT OF PROJECT PLANNING IN RUSSIA AND ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURE IN GERMANY

3.1. Ecological accompaniment of project planning in Russia

In Russia, the planning, coordination and practical implementation of a project are usually referred to as the investment process. The technical and economic aspects of this process and its ecological accompaniment are closely linked via the environmental impact assessment of the project planning process. In recent years, the procedure involved with a project planning process has undergone drastic changes (cf. Section 2.2). Therefore, when in the following, reference is made to the process of ecological accompaniment; this will generally mean the procedure for the assessment of environmental impacts. In this context, the "procedure of ecological accompaniment" means the sequence of specific steps to assess environmental impacts, and the development of environmental protection measures during the various steps of project planning. The procedure also provides specific rules for mutual agreement between the parties. Despite constant changes in legislation and the reform of the administrative structures in Russia, the methods of the ecological accompaniment of procedural steps, as well as the participants, have remained virtually unchanged. Some of the key participants in the project planning and ecological accompaniment process include:

- *The Investor*: An individual or group of persons which funds a project, with a view toward making a profit.
- *The Project Manager*: An individual or group of persons which has assumed the duties of implementation of a project. The Investor and the Project Manager are often referred to collectively as the *Project Developer*.
- *The Contracting Entity of the Ecological Accompaniment Process*: The Investor, the Project Manager or the Project Developer, who issues the contract for implementation of the planning and ecological accompaniment process of a proposed project.
- *The Technical Planner*: The person or entity which drafts the technical and economic project documents; this is usually a professional institution, which is assigned by the Contracting Entity to carry out the planning process.
- *The Author of the OVOS*: A specialised branch of project planning, another organisation or a temporary team. The author must be able to resolve the multiple functions of environmental assessment in the preparation of project documentation[3] (for the requirements upon the EIS developers in Germany, see Annex 1).
- *The Competent Authority*: Depending on the location and the importance of the facility, this may be the administration at the local, district, city, or regional level, or any other administrative body, up to the RF Government.
- *The Supervisory Authorities*: These are usually governmental organisations that have access to certain technical and spatial information, and employ qualified professionals whose obligations include verifying the conformity of a project with the legal stipulations – State Standards (GOST), building codes (SNIP), technical rules, and who or any other specific restrictions.
- *The State Ecological Expertise Commission*: A group of independent experts, including an employee of the nature conservation authority (the relevant sub-department of the Federal Service for Supervising Natural Resources *Rosprirodnadzor*, the Federal Service for Ecological, Technological and Nuclear Supervision *Rostekhnadzor,* or the local administration) and of experts (independent reporting experts), who are called upon to perform a comprehensive examination of project documentation and make a decision on the permissibility of the environmental impacts of the project.
- *The Environmental Auditors*: A professional organisation with the appropriate certificates which reviews the project documentation for compliance with nature conservation and environmental

[3] Comparable with the application documentation in Germany.

regulations. This organisation is entrusted by the Contracting Entity with the environmental review of the documents.
- *The Affected Population*: The people who live in the impact area of the project.
- *The Public:* All private individuals, public organisations, the media, etc., which have an interest in the planned project, but do not belong to any of the above groups.

By way of comparison, Annex 1 provides a summary of the EIA stakeholders in the EIA process in Germany (Table 3.1).

The ecological accompaniment of a project planning process consists of four main phases, which can be divided into several relatively isolated consecutive stages (Table 3.1).

Table 3.1

The Procedural Steps of the Ecological Accompaniment of a Project Planning Process

<table>
<tr><th>The course of a project planning process</th><th colspan="2">The course of an ecological accompaniment process</th></tr>
<tr><td rowspan="7">1. Planning intent of an investment activity</td><td colspan="2">1.1. Planning projection of investing activities</td></tr>
<tr><td colspan="2">1.2. Screening of environmental impacts</td></tr>
<tr><td colspan="2">1.3. Preparation and submission of a Statement of Intent to the authority</td></tr>
<tr><td colspan="2">1.4. Preliminary assessment of the Statement of Intent by the authority</td></tr>
<tr><td colspan="2">1.5. Coordination of the Statement of Intent with the control authorities, informing the public and the local population</td></tr>
<tr><td colspan="2">1.6. Decision on the fundamental permissibility or impermissibility of a project, and determination of the subsequent procedure</td></tr>
<tr><td colspan="2">1.7. Development of a technical task definition (investigation framework) for the OVOS in the project explanatory statement and/or in the Technical and Economic Feasibility Study (TEO)</td></tr>
<tr><td rowspan="3">2. Implementation of the specific steps for an OVOS required for site selection and the identification of environmental restrictions</td><td colspan="2">2.1. Implementation of the technical and environmental investigations, and preparation of the OVOS</td></tr>
<tr><td colspan="2">2.2. Coordination on the project and after implementation of the OVOS and site selection</td></tr>
<tr><td colspan="2">2.3. Preliminary agreement on the plot of land for the project</td></tr>
<tr><td rowspan="5">3. Preparation and consideration of project documentation</td><td colspan="2">3.1. Assessment of the environmental impact, given the project solutions and the planned environmental measures in the Feasibility Study (TEO), or the project part subject to approval</td></tr>
<tr><td colspan="2">3.2. State expertise of the project documentation</td></tr>
<tr><td>For projects subject to state ecological expertise</td><td>For projects not subject to state ecological expertise, i.e. not included in the list of projects subject to mandatory inspection</td></tr>
<tr><td>3.2.1. State ecological expertise on project documentation</td><td>3.2.2. Environmental review of project documentation</td></tr>
<tr><td colspan="2">3.3. Provision of plot of land for project implementation</td></tr>
<tr><td rowspan="2">4. Project implementation</td><td colspan="2">4.1. Implementation of all procedural requirements and special protective and rehabilitation measures for the environment</td></tr>
<tr><td colspan="2">4.2. Environmental monitoring during construction and operation of the system</td></tr>
</table>

The main content of each process step is described below.

1.1. Planning concept and Statement of Intent for an investment activity

In this step, the project developer drafts a planning concept and defines its essential parameters:

- The project goal and the basic principles for the achievement of that goal
- Estimate/ evaluation of the anticipated scope/magnitude of the project
- Necessary costs and funding sources
- Desired results.

Using this information, the *Project Developer* formulates his "planning intent" in a document. The approximate contents of such a document are described in some detail in the recommendations for the

design of a Letter of Planning Intent [20]. This primarily includes the technical and economic characteristics of the proposed project. The *Investor* decides on the basis of the Letter of Planning Intent whether financing the project would make sense. The result of this phase is a concrete document with the main technical and economic parameters of the proposed project, as well as the details for its financing.

1.2. Screening of environmental impacts

Based on the general technical and economic parameters of a project, the *Project Developer* then independently or with the help of the *Author of the OVOS*, evaluates the following information:

- the expected resource consumption
- the approximate volume of solid, liquid and gaseous wastes
- the approximate list of pollutants
- other impact factors, such as noise, radiation, landscape deterioration, and
- preliminary site alternatives.

Whether a requirement for a screening of the environmental impact exists or not is stipulated in the Regulation on the Assessment of Environmental Impact [17] and in the Building Code SP 11-101-95 [24]. Usually, no special investigations are carried out for this purpose, but rather, already existing information on the current state of the environment and the impact factors of the proposed project in the anticipated project area are used. In particular, federal and regional territorial development programmes, plans for the use of natural resources, land information data for similar projects etc. will be used. The results of this process step are a risk assessment of the likely effects, a map of the site alternatives and the approximate areas of influence, as well as a listing and brief description of the protected assets involved.

1.3. Preparation and submission of a Statement of Intent to the competent authority

Based on the results of the assessment in the first two steps, the *Project Developer,* either himself or with the support of the *Author of the OVOS,* drafts a Statement of Intent as per the regulations [21, 24]. This is the main document for preliminary assessment of the proposed project. If rules exist at the regional level under which the form or content of the Statement of Intent must be concretised to meet local conditions, these particularities must be adequately described. The Statement of Intent is submitted to the authority responsible for the selection of project site and the establishment of the project monitoring structure at the future site. At this point, it makes sense for the *Competent Authority* to determine a person responsible for the further procedure. The result of this step of the procedure is Statement of Intent, written in the stipulated form and submitted to the *Competent Authority* for review.

1.4. Preliminary assessment of the Statement of Intent by the Authority

The *Competent Authority* examines the contents of the Statement of Intent. If there are no obvious reasons not to implement the project, the *Competent Authority* in the jurisdiction of which the project is located, informs the *Project Developer* of the stipulations and the sequence of their implementation. If in the view of authority there are obvious reasons against implementation, the authority may prohibit the proposed project and inform the *Project Developer* of the decision. Such a decision can – if it is correct – significantly reduce the time and expense to the parties for a proposed project that cannot be implemented in any case. If the *Project Developer* does not agree on the Authority's decision, he may appeal against it in court. The result of this process step is a decision by the Authority on the fundamental permissibility (with reasons) of a project in the area under its jurisdiction, or the decision for further consideration of the Statement of Intent, with the participation of the *Supervisory Authorities*.

1.5. Coordination of the Statement of Intent with the Supervisory Authorities, Informing the public and the local population

In accordance with the legal stipulations [5, 17], the *Competent Authority* grants the right of inspection of the Statement of Intent to the *Supervisory Authorities*, the *Affected Population* and the *Public*. The *Supervisory Authorities* acquire information regarding the contents of the Statement and formulate specific requirements for the permissibility, or specific reasons for the impermissibility, of the project,

each with regard to his own area of assessment. If necessary, the *Supervisory Authority* can demand additional research. The Authority is required to make all relevant information on the project in its possession available to the *Project Developer*. The results of the analysis of the Statement of Intent, the conclusions and the proposals are officially compiled by the *Supervisory Authority* and submitted to the *Competent Authority*.

In this process step, the *Affected Population* and the *Public* have the right of inspection of the contents of the Statement of Intent, and to express their views on the proposed project. The records of the opinions expressed are also to be submitted to the *Competent Authority*. The results of this process step are the documents collected by the *Competent Authority*, with the opinions and objections of all sides affected by the project planning process. A copy of these documents must be handed over to the *Project Developer*.

1.6. Decision on the fundamental permissibility or impermissibility of a project

The *Competent Authority* analyses the content of the Statement of Intent, any statements from the *Supervisory Authorities* on the project, and of the *Affected Population* and the *Public*. Based on the entirety of data collected, it decides on the fundamental permissibility or impermissibility of a project plan in the jurisdiction under its control. This decision can be taken at the local or the next higher level. If the proposed project is deemed fundamentally permissible by the competent authority, two options are possible for the further procedure.

A On the basis of existing documents, the *Competent Authority* decides on the project site and approves the start of the preliminary coordination regarding the plot of land for the project. With such a decision, the contents of the second step of a project planning process (Table 3.1) are limited to the documentation on the preliminary agreement on the project site. In that case, the usual project decisions must be made regarding the ecological accompaniment of a project plan in accordance with existing regulations (technical regulations, building stipulations, government standards, etc.) for that project type concerned. In this case, that part of the documents which reflects the specific features of the project, the conditions of the *Supervisory Authority* confirmed by the *Competent Authority,* and the opinion of the *Affected Population* and the *Public* must be considered.

B The *Competent Authority* proposes the possible site options to the *Project Developer* and assigns him to carry out the necessary steps
- To justify the selection of a specific project site,
- To define and detail the environmental impact assessment according to the comments from the *Supervisory Authorities*, and
- To ascertain the general conditions (special provisions) for project decisions.

In this case, the decision on the permissibility of the project is provisional or restricted. The permissibility can only be finally resolved with additional information from the above tasks.

If the project is declared impermissible, the *Project Developer* may appeal to the court against the decision of the *Competent Authority*. If however it is declared permissible even though opposing views of *Supervisory Authorities* or documented negative opinions of the *Affected Population* or the *Public* have been submitted, those parties also have the right to challenge the decision of the *Competent Authority* in court. The result of this process step is the decision of the *Competent Authority* for prohibition, or further proceedings in the preparation of the project documentation.

Depending on the specifics of a project, such proceedings may provide for the drafting first of a project explanatory statement and then of the project documentation (the technical and economic explanatory statements on the project, and the project work documentation/ records), or the direct transition to the preparation of the Feasibility Study (TEO). In either case, these tasks must be preceded by technical and environmental studies, and the environmental impact assessments (see Section 2.1).

1.7. Developing a technical task definition (investigation framework) for the OVOS

After the *Project Developer* has received the agreement in principle of the *Competent Authority* for the implementation of the project, he develops a technical task definition for further investigations and assessments of environmental impact [17].

Since the decision on additional investigations is taken by the *Competent Authority* on the basis of the Statement of Intent and the opinions and objections of other parties, the content of such investigations must be coordinated between the *Project Developer* and all interested parties (the *Supervisory Authorities,* the *Affected Populations and* the *Public*). Basically, they jointly commission the OVOS, and the *Competent Authority* must act as their spokesperson.

The result of this process step is an agreed-upon technical task definition, which is submitted to the *Author of the OVOS*. Projects expected to have significant impact should be made public.

2.1. Implementation of the OVOS

According to the technical task definition in the previous step and the prescribed legal stipulations, the *Contracting Entity,* with the help of the *Technical Planner* and the *Author of the OVOS,* organises the implementation of the work on project explanatory statement [17, 18, 24]. In certain cases of simple projects, it is possible to dispense with the project explanatory statement. In this case, the OVOS is directly followed by the technical and economic feasibility studies.

The environmental impact assessment is carried out for all site options. Then, the *Author of the OVOS* compiles the assessment results and documents stated in the legal stipulations [17, 18, 24] to a document package, which generally contains the following information:

- The explanatory statement for the site selection (from among the alternative proposals made to the *Competent Authority*)
- The determination or specification of the nature of the protected asset referenced effects as per the agreed-upon proposals of the *Supervisory Authorities*
- The establishment of permissible limits for environmental impacts
- The opinions of the *Affected Population* and the *Public* regarding the project.

The result of this process step is an informational document or package, which is often referred to as the OVOS study of the project documentation. It defines the individual case-specific conditions for the planning of the project, taking into account the local nature of the prospective project site.

2.2. Coordination of the project after implementation of the OVOS and site selection

The *Contracting Entity* submits the documents to the *Competent Authority* and grants the *Affected Population* and the *Public* the right of inspection of the documents. The *Competent Authority*, with the participation of the *Supervisory Authorities*, examines the documents presented for compliance with the task definition stated in the examination framework. If noncompliance is ascertained, the documents must be returned for revision. However, if all tasks stated in the task definition have been fulfilled, the inspection authorities are required to make a final decision on the fundamental permissibility of the proposed project, and on the desired project site, taking the additional information into consideration. On the basis of all documents submitted, the *Competent Authority* decides on the rejection or the acceptance of the project, and the selection of the project site. That decision is the result of this process step. If the *Contracting Entity* considers the rejection unfounded, it has the right to challenge the decision in court.

2.3. Preliminary agreement on the project site

The presence of a decision in principle on the permissibility of the project and well-founded selection of a project site enable a preliminary agreement on the project site. That procedure is stipulated in the Land Code of RF [5]. The preliminary agreement is carried out by selecting the plot of land for the project, which the *Competent Authority* awards to the *Contracting Entity*. The selection of the plot of land for the project is the result of this stage.

3.1. Environmental impact assessment, taking into account the project solutions and the planned environmental protection measures in the feasibility study, or the part of the project to be approved

In this step, the Technical and Economic Feasibility Study (TEO) is drafted. It also includes the documents coordinated with other parts of the project for the OVOS. Usually, these documents are called “Environmental Protection” (OOS), and should contain:

- The project-related environmental impacts
- The prognosis of the development of the environment as a result of the effects
- Environmental protection measures to mitigate adverse environmental changes, and
- An economic estimate of the anticipated damage, and possibilities of compensation.

The content of the above steps is defined in the Building Stipulation SNiP 11-01-95 [23] and its annex. The application forms are provided in the required number of copies to the *Competent Authority* and the appropriate *Supervisory Authorities*. Moreover, the *Project Developer* also grants access to the documents to the *Affected Population* and the *Public*. The result of this process step is the completion of documents, and their submission to the *State Expertise Commission*.

3.2. The State Expertise of Project Documentation

The documents completed in the previous procedural steps are submitted for examination by the *Contracting Entity* to the *State Expertise Commission* of Project Documentation and Survey Results. The activities in the context of an assessment are stipulated in the Urban Development Code of the RF [7], and regulated by the Regulation on the Organisation and Implementation of State Expertises of Project Documentation and Survey Results [16]. Depending on the particular type of project under the Urban Development Code of the RF, there are two possibilities for examination for compliance of the project documentation with the environmental protection requirements:

- The projects are subject to the state ecological expertise, or
- The projects are not subject to state ecological expertise, i.e., they are not included in the list of projects requiring assessment.

3.2.1. State ecological expertise of project documentation

The state ecological expertise is carried out by the relevant management authority at the federal level, or at the level of subjects of the RF. This is done at the request of the *Contracting Entity* before submitting the documents to the state expertise.

The types of projects subject to a state ecological expertise are described in Section 2.2. In an ecological expertise, the compliance of the project documentation with environmental requirements, technical standards and the applicable environmental legislation is examined to avoid negative project impacts on the environment.

Under the Federal Law “On Ecological Expertise” [10], the appropriate law enforcement authority creates a *Commission of Experts,* which examines all project-related environmental impacts described in the documents. The *Commission* also takes into account:

- All vital agreements and opinions of *Supervisory Authorities*
- The results of the socio-ecological expertise (if one has been carried out), the documented opinions, and the objections of the *Affected Population* and the *Public*
- The calculations or expert’s reports presented on the expected environmental impacts of the project
- A description of the proposed environmental protection and rehabilitation measures
- The ecological and economic assessment of the proposed project, and the amount of compensation payments which will have to be paid by the *Contracting Entity* for damages to the affected persons, or to the corresponding budget.

It then decides on the permissibility or impermissibility of a project. In case of impermissibility, the Commission usually recommends that the project draft be supplemented or revised fundamentally.

The result of this process step is the assessment of the *State Ecological Expertise Commission*. A positive assessment is a necessary foundation for granting use rights of the agreed-upon plot of land to the *Project Developer*. In case of a negative decision in the assessment, he has the right to revise the documents in accordance with the commentary, and to submit them for a renewed assessment. The assessment of the State Ecological Expertise can be challenged in court by any party to the proceedings.

3.2.2. Environmental review of the project documentation

After the submission of documents to the *State Expertise Commission* for Project Documentation and Survey Results, the State Expertise Agency at the level concerned organises the *Environmental Review Process*, the goal of which is no different from that of the State Ecological Expertise.

The environmental auditors are persons who are especially trained and qualified. According to Government Decision No 145 of March 5, 2007, Russia intended to introduce such a training and qualification system overall in 2008. In some regions of Russia, it is now the practice at the state expertise agencies to contract organisations accredited by the Environmental Assessment Chamber, or some other competent institution with the appropriate environmental knowledge for the implementation of environmental assessments.

The *Project Developer* receives an appropriate instruction, or a list from the state agency from which he can select an *Environmental Assessment Agency*, with which he then signs a contract for a compliance audit of the project documentation with environmental and nature conservation regulations. The *Environmental Assessment Agency* reviews the documents within the agreed period, and submits an assessment of the permissibility of the environmental impacts of a project, and on its compliance with the applicable rules. In case of fundamental project permissibility, but insufficient ecological explanatory statement for the project solution, the *Environmental Assessment Agency* will submit recommendations for a revision of the project design.

On the basis of environmental review and the assessment of other non-environmentally relevant factors, the state expertise agency will decide on the permissibility or impermissibility of a project.

The result of this process step is similar to that for Section 3.2.1. The assessment of state expertise commission can, as in that case, be challenged in court by any participant.

3.3. Provision of plots of land for project implementation

The positive assessment by the state expertise commission is a necessary condition for the permission from the *Competent Authority* and the transfer of the right of use of the selected plot of land to the *Project Developer*. That process is regulated by the Land Code of the RF [5], and is described in detail in the recommendations for the definition of construction land [19]. It can be concretised by regional legislation. The result of this process step is the granting of the right of use or possession of the plot of land selected by the *Competent Authority* to the *Project Developer*. From that point on, the *Project Developer* starts the implementation of the project.

4.1. Implementation of the project and special protection and rehabilitation measures for the environment

The *Project Developer* completes all necessary documents for project implementation (engineering drawings and other documents not subject to the agreement), and starts project implementation. The *Supervisory Authorities*, the *Technical Planner* or the *Author of the OVOS* can, in the context of an environmental monitoring process or a supervision of the originator, organise a complete or random-sample monitoring process of the implementation of the stipulations for the project and of the environmental protection measures during the construction phase.

After completion of the construction phase (or in stages), before operation can commence, the completed facility has to be accepted. Here, the newly constructed facilities are reviewed for compliance with the approved project solutions. At the regional level, the method can be concretised by specific rules. Bringing the facility into operation needs to be authorised by a specially appointed Acceptance Commission, which consists of various representatives: the *Project Developer* (*Contracting Entity*), the *Technical Planner*, the construction organisation, and representatives of *Supervisory Agencies* – the state public health, fire, energy, environmental and construction supervision authorities. Where appropriate, other interested parties are to be involved. The Commission carries out a complex analysis and produces an inspection report. If the protocol is adopted by the office which has appointed the Acceptance Commission, the operation of the system is considered to be accepted as of that date. The result of this process step is the actual implementation of the project solutions.

4.2. Environmental monitoring during the construction and operation phases

The ecological accompaniment during this period includes the following tasks:

- Monitoring the performance of the measures to reduce environmental impacts proposed in the project
- Annual presentation of the data on the continued monitoring of environmental impacts
- Offset payments for the company's resource consumption, pollutant emissions and waste disposal
- Periodic identification of all environmental impacts, production and updating of an environmental pass for the company, and
- Monitoring of the protected assets in the impact area of the company.

The duty to fulfil the first three points is placed upon the company itself, as the polluter. In addition to the *Project Developer*, the *Supervisory Authorities* are involved in the fulfilment of the latter two points. The form of their participation and the nature of their interaction with the companies are agreed upon in the monitoring programme, which is developed during the project planning process. If in the course of monitoring the operating programme proves to be in need of modernisation, the necessary changes are introduced in consultation with the interested parties.

3.2 The Strategic Environmental Assessment in Germany

The objective of the EU Directive On the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive/ 2001/42/EC) is "to ensure a high level of protection of the environment, and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes", with a view of promoting sustainable development, by ensuring that an environmental assessment is carried out for certain plans and programmes which are likely to have a significant effect on the environment; these are to include full public participation. The basic concept of the Directive is therefore the early integration of environmental considerations, so as to implement an environmental protection process based on the precautionary principle.

Under the Federal German Environmental Impact Assessment Act (German: UVPG) for the implementation of the EU Directive, a mandatory environmental assessment is incumbent upon plans and programmes which:

- Are listed in Annex 3, No. 1 of the UVPG (e.g. transport infrastructure plans, flood control plans, spatial planning, landscape planning)
- Are listed in Annex 3, No. 2 of the UVPG (e.g. noise abatement plans, air quality management plans, waste management plans), and which provide a framework for decision-making on the permissibility of projects (projects as per Annex I of the UVPG; projects that require a case by case EIA preliminary assessment (screening) under the law of the particular German state; Article 14b of the UVPG)
- Are subject to a impact assessment procedure according to Article 35 of the Federal Nature Conservation Act (German: BNatSchG), i.e., route determinations, spatial plans and other plans are to be reviewed for their compatibility with the conservation objectives of an Site of Community Interest, or a European Special Protection Area for birds (Article 14c of the UVPG).

The environmental assessment of plans and programmes that specify the use of small areas at local level and minor modifications to existing plans and programmes is optional. Moreover, it applies to other plans and programmes not covered by the mandatory assessment requirement, but which also established a framework for the future approval of projects. In these cases, a Strategic Environmental Assessment is only to be carried out if a preliminary assessment (screening) of the case based on consideration of the criteria in Appendix 4 indicates that significant environmental impact is anticipated.

In addition to the determination of a mandatory SEA requirement, the Strategic Environmental Assessment includes at least the following steps (Articles 14e-m of the UVPG):

- The determination of the scope of investigations, i.e. the scope and degree of detail of the information to be included in the environmental report, with the involvement of certain authorities (scoping)
- The preparation of an environmental report
- Carrying out of consultations
- The consideration of the environmental report and the consultation results during the decision-making process
- The announcement of the decision
- The monitoring of the likely significant impact on the environment.

The **Environmental Report** must contain:

- An outline of the contents and the main objectives of the plan or programme
- The environmental characteristics and current state of the environment within the areas
- Existing environmental problems (previous impacts)
- The environmental targest
- The expected significant environmental impacts
- The measures envisaged to avoid, minimise and compensate environmental impacts
- An outline of the alternatives analised,
- The proposed measures for future monitoring, and
- A non-technical summary.

To avoid duplicate assessment for the SEA and the EIA at the various planning levels, a tiering of the investigation framework, i.e., of the content and level of detail, is undertaken. This applies to both plans and programmes that are part of a multi-stage planning and approval process (SEA level), and the subsequent approval of projects for which the plan or programme sets a framework (EIA level). This is intended to limit the environmental assessment to additional or other significant environmental impacts, and to the required updates and more thorough investigations (Article 14f Sec.3 of the UVPG).

3.3 The EIA in a staged spatial planning and approval procedure in Germany

The implementation of the European EIA Directive 85/337/EEC as national legislation was carried out in Germany by integrating the EIA into existing technical planning proceedings as a dependent segment. The overall procedure is carried out by the respectively competent authority. If there are several competent authorities, or parallel authorisation decisions to be made, one authority must be determined as being in charge[4]. In these sponsorship proceedings, which are respectively established in the laws on specific matters, the procedural steps are, as it were, piggybacked in accordance with the Federal German Environmental Impact Assessment Act (German: UVPG). First of all however, the UVPG relates only to projects (so-called “project EIA”) in specific permission processes, such as plan approval or permission procedures, or in such upstream processes as spatial planning or route determination. However, since the EIA is an instrument of environmental precaution, it is useful to apply it as early as possible in this overall process of decision-making, i.e., already at the level of plans and programmes, as a so-called “plan EIA”. This is now the objective with the SEA Directive (see Figure 3.1).

The purpose of the preliminary proceedings is “to relieve the ensuing proceedings, which are conducted on a stricter scale and are thus more narrowly limited, of the burden of dealing with aspects of greater than local scope” [62, p. 37] (Table 3.2). One of the most important purposes of the spatial planning procedure is the examination of possible project alternatives, since these proceedings involve the large-scale spatial and environmental impact assessment of a project. At this early planning stage, alternatives can still be included flexibly [78]. In the ensuing authorisation procedures by contrast, questions of detail and local impact will be considered. The EIA within the authorisation proceeding is rather designed to optimise the concept at a selected site [65]. Under the Federal German Environ-

[4] For the legal foundations of the EIA, cf. [88, vol. 1].

mental Impact Assessment Act (German: UVPG) and the Federal Regional Planning Act (German: ROG), this stepped proceeding is called "tiering" of the matter under investigation, i.e. the contents of the matters being investigated during the spatial planning procedure are not to be repeated during the authorisation procedure.

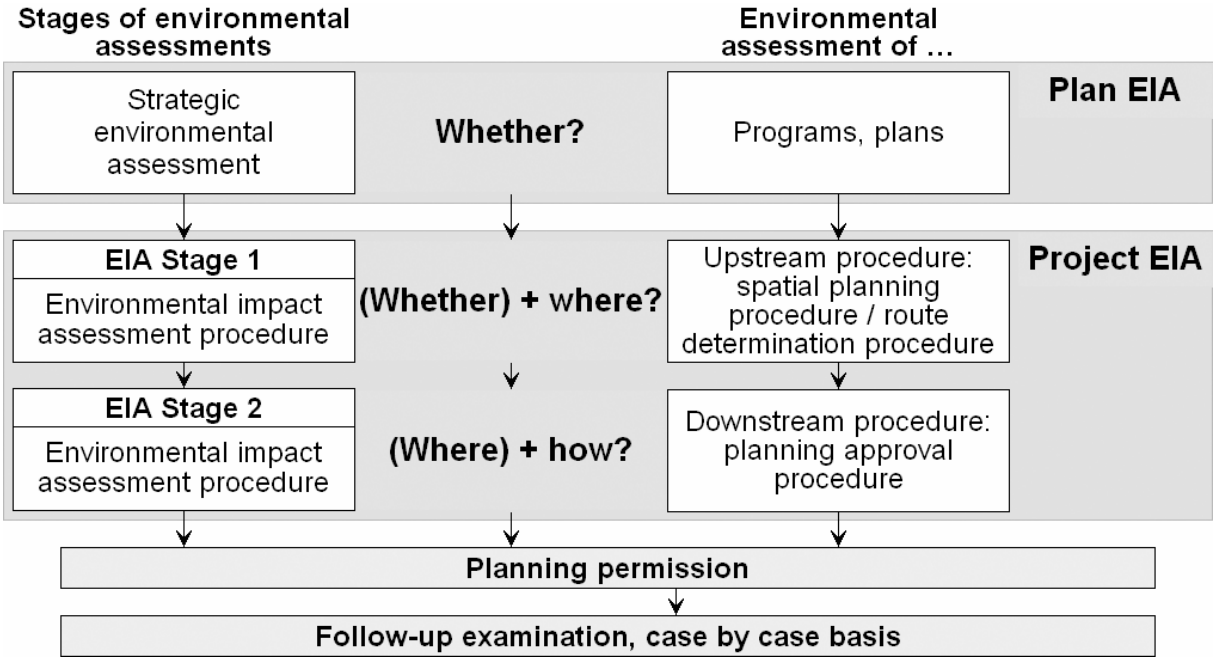


Fig. 3.1: Levels of the EIA [70, 73].

Table 3.2

The relationship between upstream and downstream procedure [79, p. 127]

Upstream procedure	Downstream procedure
Large-scale, regional perspective	Local perspective
Determination of a site	Examination of alternatives at a site
Investigation of alternative sites	Analysis of technical or process alternatives at a site
Description of regional impact	Description of local impact
Large-scale perspective	Examination of details on site

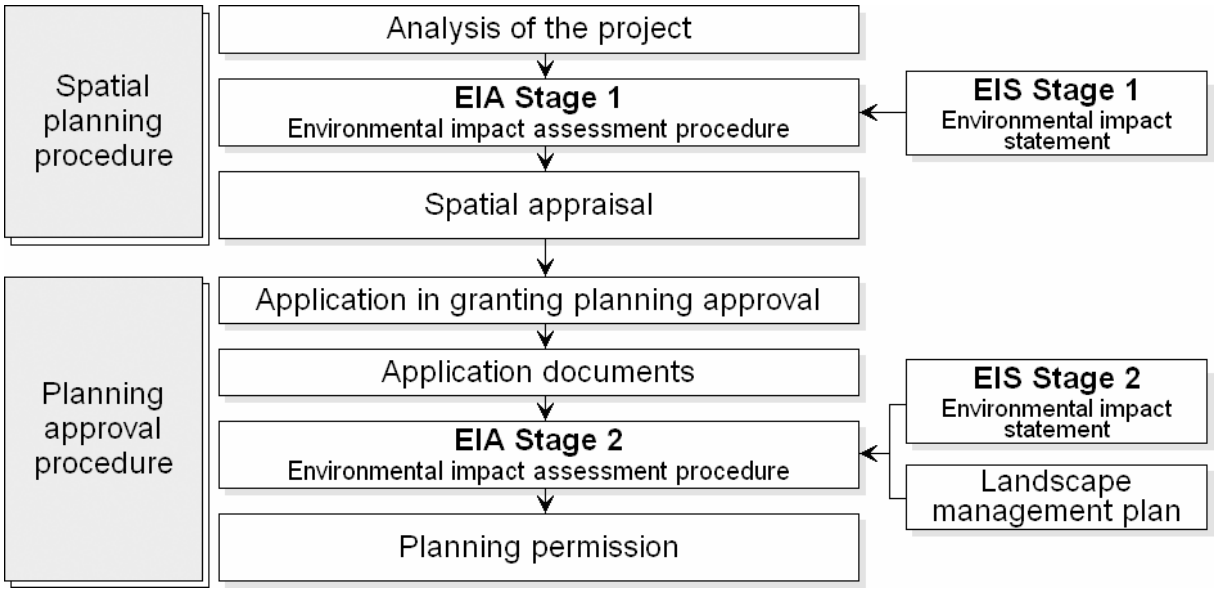


Fig. 3.2: Two-step procedure for spatial planning and plan approval **[70, p. 185]**.

However, this "tiering" also applies to such planning contents as question formulation, degree of depth and detail of the investigations to be carried out in the environmental impact statement (EIS), as the basis for the environmental assessment of the EIA[5]. Due to the two-level nature of the proceedings, e.g. in a road building scheme, a Stage 1 EIS would be carried out at the level of the linear route determination, since this essentially addresses spatial issues, and involves the ascertainment of relatively low-conflict corridors. At the level of the plan approval procedure, deepening investigations and a comparison of options are carried out in the Stage 2 EIS. In order to avoid repetitive work, a description of the measures at the conceptual level will be sufficient in the Stage 2 EIS, while the more concrete planning of the in-kind/on-site offset and out-of-kind/off-site offset (compensation measures) can then be addressed in the Landscape Management Plan [70], (also see Fig. 3.2).

The contents and the process sequence are largely stipulated in the Federal German Environmental Impact Assessment Act (German: UVPG). The procedure is to be carried out according to the following steps:

- Screening, determination of EIA requirement, specific-case examination (Articles 3a-f UVPG)
- Scoping, determination of the scope of the investigation, and information as to the documentation presumably to be required (Article 5 UVPG)
- Identification and description of the environmental impacts, technical contents of the EIS (article 6 UVPG)
- Participation of the authorities and the public (Articles 8-9b & Article 16 UVPG for spatial planning procedures)
- Summarised description of environmental impacts (Article 11 UVPG)
- Environmental impact assessment by the authority, balanced consideration and decision-making (Article 12 UVPG).

The formulation of the process sequence also depends on the respective sponsorship proceedings. The overall process sequence is shown in Fig. 3.3.

Screening includes both the general preliminary assessment and the site-specific preliminary assessment in each case, which are provided under Column 2 of Annex 1, Federal German Environmental Impact Assessment Act (German: UVPG). Its purpose is to determine whether a project may have significant (unfavourable) environmental impacts in a specific case. In the examination of the significance, the criteria of Annex 2, UVPG apply, which encompass the characteristics, the site, and the possible impacts of the project.

The term **scoping** refers to the specification of the scope of the investigations, or the information about documents which will presumably be required. In the scoping process, not only the contents and size of the future application documentation is established, but also the presumable scope of the investigation for the environmental impact assessment. The scoping process usually only takes place when the project developer files the appropriate application. Since scoping is primarily used for more complex projects, technically relevant authorities, as well as experts and third parties concerned, should be consulted, in addition to the competent authority [62]. Involvement of the public is not provided. Substantially, the question at issue is the determination of the environmental significance of the project, on the one hand with respect to protected assets, and on the other with respect to the project's effects. At issue too are the required methods and criteria, as well as the scope of the investigations. The project developer ultimately has the freedom of decision as to the methods and criteria to be applied, but also bears the risk, because the scoping proceedings legally have only consultative function [62][6].

The application documents of the project developer also include an **environmental impact statement** (EIS), in which the project and the environment are described, and the effects on the environment analysed. It serves as a basis for the participation of the authorities, the representatives of public interest, and the public. It is also a basis for the trade-off between various interests in the decision-making process of the project, its manner, scope and site, and the optimisation of the project from the environmental point of view [70].

[5] The contents of the EIS are presented in detail in Section 6.2.
[6] For the legal foundations of the EIA cf. [88, Bd. 1].

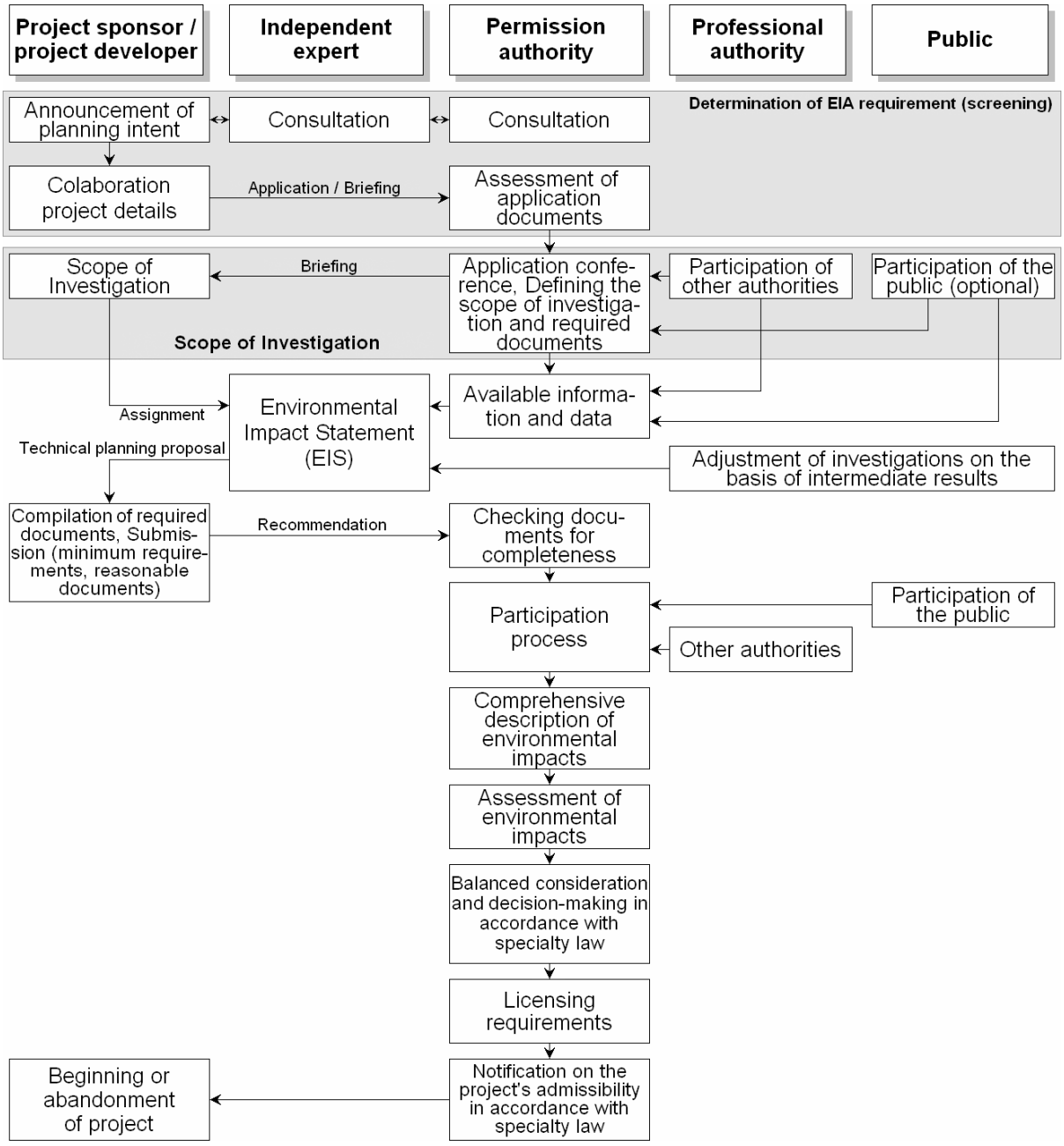


Fig. 3.3: Overall process sequence for the EIA [70, P. 187].

Since the EIA is a dependent process segment, the authority responsible for each authorisation proceeding also bears responsibility for the respective EIA. To improve the information base of the relevant authority, particularly with regard to possible environmental interests, other authorities and representatives of the public interest should be involved. The **participation of the authorities** also serves the preservation of other official responsibilities. The authorities to be involved are also to represent interests of the public, from the point of view of their respective departments. [70].

The **participation of the public** is designed to improve the information base for the decision-making process. Also desirable however, is a way to monitor and test the information from the project developer. The public participation process consists of three steps: (1) the public display of the documents submitted by the project developer; (2) the hearing on the procedure (ascertainment of objections and separate discussion date); and (3) the notification of the persons affected and the objectors, regarding the decision. Early public participation can also contribute to increased acceptance of the project.

On the basis of all information relevant for the assessment and the decision-making process, i.e. the application documents, the official statements and the results of the public participation, the competent authority is to develop a **comprehensive description** of the environmental impacts of the project, and of in-kind/on-site offset and out-of-kind/off-site offset (compensation measures).

The **assessment of the environmental impacts** of the project by the competent authority then takes place on the basis of the comprehensive presentation. This takes this assessment into account in the **balanced consideration** and the **decision** as to the permissibility of the project. As a rule, a comprehensive balanced consideration of all interests is carried out, i.e. including social, economic and ecological interests. This interaction between the assessment and the decision-making process is shown in Fig. 3.4.

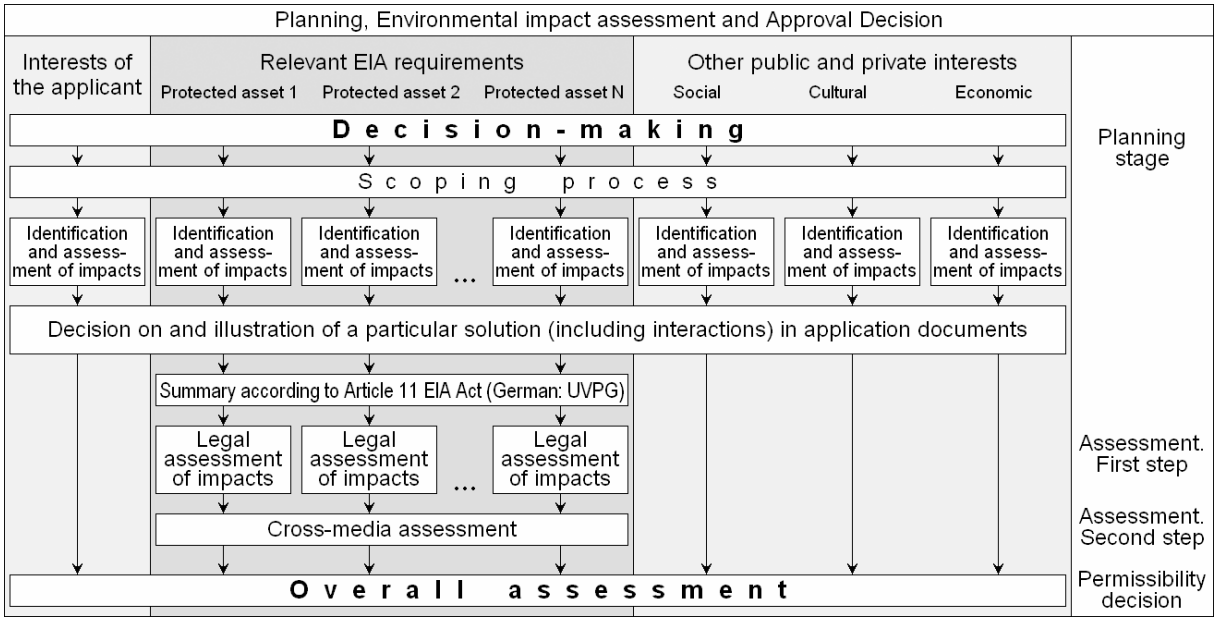


Fig. 3.4: Planning, EIA and permissibility decision [72, p. 44].

4. COMPARATIVE ANALYSIS AND ANALYSIS OF WEAKNESSES: THE ECOLOGICAL EXPERTISE IN RUSSIA AND THE ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURE IN GERMANY

4.1. Comparison of German and Russian procedures

The environmental accompaniment of project planning in Russia and the EIA in Germany are similar in terms of goals and major content. Table 4.1 juxtaposes the sequence of a project planning process in Russia and in EIA in Germany, which is integrated into sponsorship procedures (spatial planning and approval procedures).

Table 4.1

Similar process sequence in Russia and Germany.

The process of project planning in Russia (as per Table 3.1)	**Analogous process sequence, EIA in Germany**
1.1. Pre-planning of investment activities	• Planning Intent • Consultation between the applicant and the permission authority
1.2. Preliminary assessment of environmental impact	• Preliminary assessment (screening) • Determination of EIA requirement
1.3. Preparation and submission of a Statement of Intent to the relevant authority	• Announcement of project intent by project developer to relevant agencies and the public • Preparation of documents for the application conference
1.4. Preliminary analysis of project by the authority 1.5. Coordination of Statement of Intent with supervisory authorities, informing public and local population	• Application Conference (scoping), chaired by permission authority, with public participation
1.6. Decision on basic permissibility of project, determination of subsequent procedure	• Determination of the subsequent procedure
1.7. Development of technical task definition (investigation framework) for OVOS in project explanatory statement and/or in tech./ economic feasibility study	• Defining the scope of the investigation
2.1. Implementation of the technical and environmental investigations and preparation of the OVOS	• Drafting the documents for the first EIA Stage and preparation of the EIS on the spatial planning procedure
2.2. Coordinated agreement on the project after implementation of the OVOS and site selection	• Implementation of the first EIA Stage in the spatial planning process
2.3. Preliminary agreement on the plot of land to be used for the project	• Decision on the fundamental permissibility of the project, and the preferred site • Preparations for the second EIA Stage
3.1. Assessment of environmental impact, given the project solutions and the planned environmental measures in the feasibility study, or in the part of the project subject to approval	• Preparation of documentation for the second EIA Stage and preparation of the EIS for the permission/planning approval procedure
3.2. Review of project documentation	• Implementation of the second EIA Stage in the permission/planning approval procedure
3.3. Provision of the plot of land for the project	• Decision and permission for the project
4.1. Project implementation and operation 4.2. Environmental monitoring during construction and operation of the system	• Follup examination, case by case basis

Both in the German and in the Russian cases, three essential questions must be addressed:

1. Is the project fundamentally permissible (whether)?

2. At which location should the project be implemented (where)?

3. In what way will the project be implemented at the selected location (how)?

In Russia, an answer to the first question can in general be had after the first stage of project planning. An important advantage of the German method is that in this stage, the permission authority supports the project developer organisationally and informally in the drafting of his Statement of Intent. Consultation talks with the competent authority thus already start at the stage of the Statement of Intent.

Under the Russian procedure, this function of state authorities is less pronounced, so that in practice, the preliminary agreement on the project is left entirely to the project developer. At the same time, under Russian law, a number of support duties will be transferred to the supervisory authorities during the project planning phase. For example, under Article 31 of the Land Code of the RF [2002], all necessary information for a site decision in the possession of the implementing authority must be submitted on request free of charge to any other authority requesting it, within a period of two weeks.

Under the German procedure, much greater emphasis is placed on the application conference and the establishment of the investigation framework, or scoping. In the Russian equivalent, this process step corresponds to the preparation of the technical task definition for the environmental impact statement (OVOS). Legally, this step is indeed established, but in practice, the responsibility for its implementation is imposed only on the project developer. He in turn often assigns the developer of OVOS to formulate the technical task definition for it. And the latter creates it primarily with a view towards his own interests and possibilities. As a result, the OVOS by no means always fulfils the mission which must be solved by the necessary technical studies on a concrete project.

One of the main differences between the German and Russian procedures is thus the greater weight assigned to the initial planning stages of a project in Germany, i.e., the structuring of the EIA process in two stages (spatial planning/permission procedure). This allows the steps of the assessment of environmental impacts of the project to be carried out more efficiently, in terms of environmental substance, and ultimately also more economically. The early participation of the authorities and the public can ensure that various aspects are included in a timely manner, and better offsets obtained. Early public participation leads to greater acceptance, and helps expedite the process.

The spatial planning process, with EIA Stage 1 integrated, is used in Germany for purposes of alternative site comparison and project explanatory statement. In the Russian procedure, the project developer or investor decides in accordance with his own concept about the advantages of such an early step. In both cases, an environmental impact statement (EIS) is carried out at this point, and the project site justified with the aid of regulatory procedural and background data.

Thus, in the Russian procedure, the project explanatory statement step can be skipped, and the answer to the questions of “permissibility” and of the “where” of a project addressed jointly. Under the German procedure, it is also in some states possible for certain projects to limit the EIA to one procedural step, that of the permission procedure.

The final phase of a project plan is similar under both procedues. During project implementation, both provide for random environmental monitoring, to determine whether the environmental standards stipulated for the project had been met. In practice however, there are deficits in both countries.

4.2. Weaknesses of the Russian procedure

The structure of the procedure for the ecological accompaniment of project planning in Russia is adequately complete and logical. If all process steps are carried out, a reasonable compromise between the interests of the project developer and the protection of the environment can be expected. With this method, it is possible to optimise the cost of project planning by setting priorities, and gradually developing a concrete and detailed assessment of environmental impacts appropriate to the technical parameters of a project. The procedure provides that the scope of work of an environmental impact statement (OVOS) be reduced, and some of the operational steps for projects which do not significantly endanger the environment skipped. Nevertheless, quite a few problems appear in practice during the ecological accompaniment of projects, which to some extent can be laid to weaknesses in the procedure. The most typical are presented below.

Competency of several authorities

Although it was claimed that a major focus of the administrative reform implemented in Russia since 2003 would end the duplication of functions and powers among federal administrative agencies, the number of authorities responsible for the environmental impact assessment of projects has increased manifold. While until 2000, the ecological expertise was the sole responsibility of the State Committee for Ecology of Russia, and from 2000 to 2003, the Ministry of Natural Resources of the RF, in which the Committee for Ecology was integrated, presently, as a result of the reform, the following agencies are responsible for the expertise at the federal and regional levels:

For compliance with environmental and nature conservation concerns in the state ecological expertise for project documentation and survey results:

- The Federal Agency for Construction and Municipal Housing of the Ministry of Regional Development of the RF
- The executive authorities of subjects of the RF, or their subordinate state institutions
- The Ministry of Defence of the RF for military facilities of the armed forces of the RF

For the implementation of the state ecological expertise for projects under the Urban Planning Code of the RF:

- The Federal Service for Supervising Natural Resources (*Rosprirodnadzor*) of the Ministry of Natural Resources of the RF
- The Federal Service for Ecological, Technological and Nuclear Supervision (*Rostekhnadzor*)
- The enforcement authorities of the subjects of the RF.

The fragmentation of the operations to be examined among a large number of authorities causes uncertainty regarding the test object itself, since the requirements upon the contents of an investigation of environmental impacts are as a rule not identical among the various authorities. There is no single set of environmental assessments. The only document which presently regulates the method and content of environmental impact statement is the "Regulation for the Assessment of Environmental Impacts (OVOS)" [17] of the State Committee on Ecology of Russia, i.e., a document of an authority which no longer exists. Of course, the other authorities now responsible for the expertise can simply ignore this document.

The variety and complexity of legal stipulations

Any authority involved to one degree or another in project planning establishes rules for its own participation by issuing or reissuing corresponding stipulations, e.g., for the epidemiological evaluation, for the evaluation of historical and cultural assets, for industrial safety, for working conditions, for the protection of the population and areas affected in case of emergency situations, and for the evaluation of many other requirements of the project. There are dozens of documents in which, in one form or another, environmental standards must be complied with. As a result, the project developer and the drafters of the documents have to deal with the huge number of documents, which are often not coordinated with one another with respect to logic, terminology and stipulations.

The lack of clear regulations regarding the rights and responsibilities of all project participants

The lack of consistent and transparent rules is a result of the large number of competencies. In the context of the restructuring of the government administration, these competencies, and their rights and duties, change constantly.

The lack of any constructive accompaniment of project planning by the authority

In the Russian procedure, the function of the competent authority is on the whole reduced to that of reviewing whether formally requisite project planning steps, such as in the preparation of project documentation, have in fact taken place: coordination, impact assessments, decisions on permission or rejection of a project, etc. The competent authority, which is supposed to represent both economic and ecological concerns, would in fact have to assume the roles both of an adviser to the project developer, and of an intermediary between him and the participants of a project plan, as is for example the case in

Germany. Such consultations would reduce the time and expense of the project developer, and significantly accelerate the ascertainment of the most environmentally friendly project concept.

Absence of rules for creating and coordinating the technical task definition for the content and scope of an OVOS

As per the regulation on the assessment of environmental impacts of a proposed project in the RF [17], the duty to develop a technical task definition for the OVOS is incumbent upon the project developer. The participation of the authorities that will later examine the content and results of the OVOS is, however, not specifically stipulated. As a result, the actual contents of an OVOS are often exaggerated in some points and insufficient in others. Such a situation increases the cost of a project, delays the progress of a project planning process, causes unwarranted conflicts between participants, and ultimately does justice neither to the economic interests of the project developer, nor to those of the environment. The content and formal structure for defining the scope for an OVOS is well developed, and is used effectively in the European countries.

Uncertainty regarding the requirements for the content of the submitted project documentation

Upon acceptance of the documentation, including the specifically environmental parts (environmental impact assessment and/or environmental protection), the competent authority essentially ensures the completeness of the documentation, i.e., whether the legally required documents are in fact present. The content and quality of these documents is as a rule not evaluated, since no criteria have been developed for that purpose. Such an assessment occurs only in the course of the expertise, on the basis of experts' opinions. If it turns out that the contents of the documents do not meet the requirements, the project developer is given the recommendation either to revise the documents or to cancel the expertise, which is tantamount to rejection of the project. The process is then delayed, and requires additional resources and effort. Such a situation could be avoided if quality criteria existed, and a quality assessment was to take place prior to submission of the project documentation. Then the experts would, in the course of an expertise, be able to address the actual object of the assessment, i.e., whether the impacts are permissible, and whether the planned environmental protection measures are adequate.

Consideration of objections by the affected population

The legal stipulations define only very vaguely the manner in which the affected population living in the impact area of a project, and also the general public, are to be taken into account. There are no instructions for addressing and answering their objections. Ultimately, the existing practice of public participation does not guarantee that the interests of the affected population will be sufficiently considered.

Lack of criteria for the formation of a commission of experts on concrete projects

In the earlier practice of ecological expertise, the competent national authority created a commission of experts, the members of which were independent and not associated with either the project developers or the authors of the documentation. Such an approach is the basis for objective assessment of a project; however, there is a lack of criteria for the selection of the experts. They are often determined by the staff of the authority responsible for the expertise, which causes a subjective perspective, both for the procedure of the assessment process and for the results of expertise. In the state expertise, the practice is emerging that the project developer concludes a contract for implementation of an expertise directly with the state environmental auditor. As a result, the auditor becomes dependent on the project developer. In such a situation, no objective expert report can be expected.

The discrepancy between the ecological expertise of project documentation and monitoring of project implementation

Russian legislation has no mandatory stipulation for the participation in the monitoring of project implementation by people who have carried out an ecological expertise of documentation. Other organisations are responsible for these functions (monitoring/ supervisory authorities, the state final acceptance commission, etc.). In practice, the environmental concerns of a project are either not monitored,

or there is a formal examination to ensure that environmental protection measures are included in the project documentation.

4.3. Weaknesses of the German procedure

The procedure and sequence for the EIA process in Germany are established relatively strictly. By law, the steps for determining the EIA requirement, the definition of the scope of the environmental investigations, the preparation of an environmental impact statement, the involvement of other authorities and of the public, and the final compilation and assessment of environmental impacts by the competent authority are specified. These relatively strict requirements in practice lead to a uniform processing of the EIA. Moreover, routines have now been developed which, all in all, have led to a unifying, relatively homogeneous approach to the practice of the EIA, so that it is a predictable procedure that applicants can plan for.

Another major strength of the EIA in Germany is that its results are taken into account in the implementation of projects. The completion of the EIA in Germany thus leads to more "sustainable" project decisions, i.e., decisions which take environmental concerns into account. This has been shown in empirical studies [cf. 90]. The EIA is therefore not merely "lip service", but in fact serves the purposes of project optimisation in environmental terms.

Another major strength of the EIA and the authorisation practice in Germany generally is that once an – albeit sometimes tedious – decision has been reached, the project developer has real planning security. Due to the extensive consultation and participation steps, compromise solutions and the optimisation of planning are sought, which also address the concerns of citizens and other authorities. Such results achieved much wider acceptance. The official decision may then bind the project developer to certain environmental requirements; after the decision however, he also has a right to implement his project. This planning security for the project developer is another key strength of this procedural practice.

Beyond this however, there are still a number of weaknesses, which are described below.

The EIA requirement (screening)

The EU Directive gives member states relatively large leeway in setting the criteria for the EIA requirement. In Germany, the Federal German Environmental Impact Assessment Act (German: UVPG) lists the different EIA project types and categories in concrete terms. Capacity and threshold values that define the magnitude of such projects are to be examined in the course of the determination of the EIA requirement. Thus for example animal husbandry operations with a certain number of head of livestock (e.g., more than 2000 pigs) are subject to a general EIA requirement. Such a clear establishment of threshold values has in the past often resulted in project developers implementing their projects in several stages, each just below the relevant threshold level, and submitting a number of separate applications in succession, for so-called "piecemeal" permission. The introduction of screening, which now also covers the range of projects below the threshold and order of magnitude, has largely eliminated this weakness. However, there are cases where even very small projects located in very sensitive areas, natural spaces and protected assets potentially can have very extensive and serious environmental effects.

In Germany, the criticism has often been raised that the thresholds for certain types of projects, for example urban planning projects, have been too high, and were therefore generally not subject to EIA. Legislatures have even gone so far as to exempt certain inner-city construction projects from EIA entirely, which is currently being very heavily criticised in Germany. Especially in the urban context, significant effects can be expected to the human being as a protected asset due to noise; moreover, inner-city park and recreational areas too can suffer damage from groundwater depletion during the construction phase of projects.

A clear orientation of the EIA requirement to threshold values of course simplifies the administrative practice. Nevertheless, mechanisms are necessary by means of which even very small projects which have a very significant impact on the environment can be subjected to EIA in certain cases.

Formal public participation

Public participation in the approval process and hence in the EIA is regulated in Germany by strict specifications. This is based on the Federal Administrative Procedures Act (German: VwVfG), which also provides for strict deadlines for participation. Thus, the application documents, and therefore the environmental impact statement, are available for inspection by potentially affected citizens in the respective municipalities for only four weeks. During these four weeks, and for two weeks beyond the end of public inspection period, the public has time to raise objections and submit them to the authority. This tight limitation of the participatory processes is a clear apparent weakness. Especially in the case of large projects with a large number of records and information in the application documents, these can hardly be reviewed and processed in such a brief period by the citizens. If a citizen misses the objection deadline, s/he is usually excluded from any further steps, especially from court action against the official decision of permissibility. Other EU countries handle the step of public participation much more openly, and thus achieve significant success in the acceptance of projects by the people. On the other hand, a strictly formal procedure such as exists in Germany also provides clear instructions, and gives the citizens clearly defined guidelines for participation or for court action in Germany. It thus also gives the citizen a degree of legal participation security.

Without a doubt, additional efforts regarding the clarity of the application documents should be undertaken. To ensure effective public participation, it must be ensured that everyone can read the documents. This is often not the case, due to the sometimes very complex scientific explanations. Here, the new media (visualisation of processes and scenarios, Internet presentations) could increasingly be used.

5. RECOMMENDATIONS FOR THE IMPROVEMENT OF THE PROCEDURE OF ECOLOGICAL ACCOMPANIMENT OF PROJECT PLANNING IN RUSSIA

This section deals with some methods developed to correct certain deficits in the procedure of ecological accompaniment of projects in Russia. They are listed in Section 4.2, and are based on European, German and Russian experience.

5.1. Formation and preliminary approval of a planned investment project

5.1.1. Regulation of the rights and responsibilities of investment project participants

Under German law, there are clearly defined quality requirements for the application documents submitted by all participants in an EIA procedure. **Table II.1.1, Appendix 1.1** contains the principle requirements for actors involved in the ecological approval process for development projects, in order to ensure the quality of the procedure.

Despite the fact that these requirements are primarily intended to ensure compliance with the formal and statutory procedure, this general presentation of the formal requirements and interests of all participants allows a distinct differentiation of their rights and responsibilities. Stipulations regarding the form of participation in the procedure should be supplemented by those governing the substance of this participation, as well as by mutual responsibilities of the actors in the process. These responsibilities are shown in **Table II.1.2, Appendix 1.1**, using the example of the requirements for the developer of environmental documentation (the OVOS).

5.1.2. Approval of investment project by a government authority or a coordinating agency

The drafting and consideration of the Statement of Intent are an important stage in the investment process, which to a large extent determine its further realisation. This stage includes the principle content of a planned project, the main factors of environmental impact, a list and contents of submitted documents, a list of necessary permits, approvals, conditions, etc. In Russia, an initiator of an intended project as a rule performs this kind of work on his own, with no assistance from government authorities or the relevant agencies. This significantly complicates the completion of this stage, and an inexperienced initiator of an intended project may encounter such problems as carrying out useless work, duplication of approvals, etc. Ultimately, despite considerable effort, environmental documentation often appears to be incomplete and of low quality.

Under German law, the authority responsible for the approval procedure provides compulsory consultation assistance to an initiator of an intended project at the application submission stage, in a process in which they jointly determine the structure and contents of the necessary documents, the scope of the environmental impact statement, and the general process of the further approval procedure. A detailed procedure for such consultation assistance to the initiator from the agency is shown in **Table II.1.3, Appendix 1.2.**

5.1.3. Preliminary environmental impact assessment

The principle goal of the preliminary environmental impact assessment in the Russian procedure is to determine whether the planned project is allowable in principle. If, according to the assessment results, the answer is positive, there will in any case be a further multi-stage approval procedure for the planned project, including a justification for the investment and a technical and economic justification).

Under the German EIA procedure, in addition to such an assessment, a preliminary investigation, a so-called screening, is carried out to ascertain whether or not there is a need to perform this procedure for

the concrete project, and if so, whether in full – i.e., the first and second EIA Stages – or in reduced form – i.e., only the first EIA Stage.

The screening process consists of several steps. First, it is necessary to ascertain whether the intended project has been included in the list of types of projects for which the EIA procedure in Germany is mandatory. This list is an appendix to the German EIA Law. An example of such a list is provided for Austria in **Table II.1.4, Appendix 1.3**. Similar lists exist in Germany and in other EU countries. If a full or reduced EIA procedure (Variants 1 and 2), appears to be mandatory for the listed project, the procedure will be carried out according to these requirements. If the project does not appear on the list, or is found under Variant 3, the screening is carried out according to the scheme shown in Fig. 5.1.

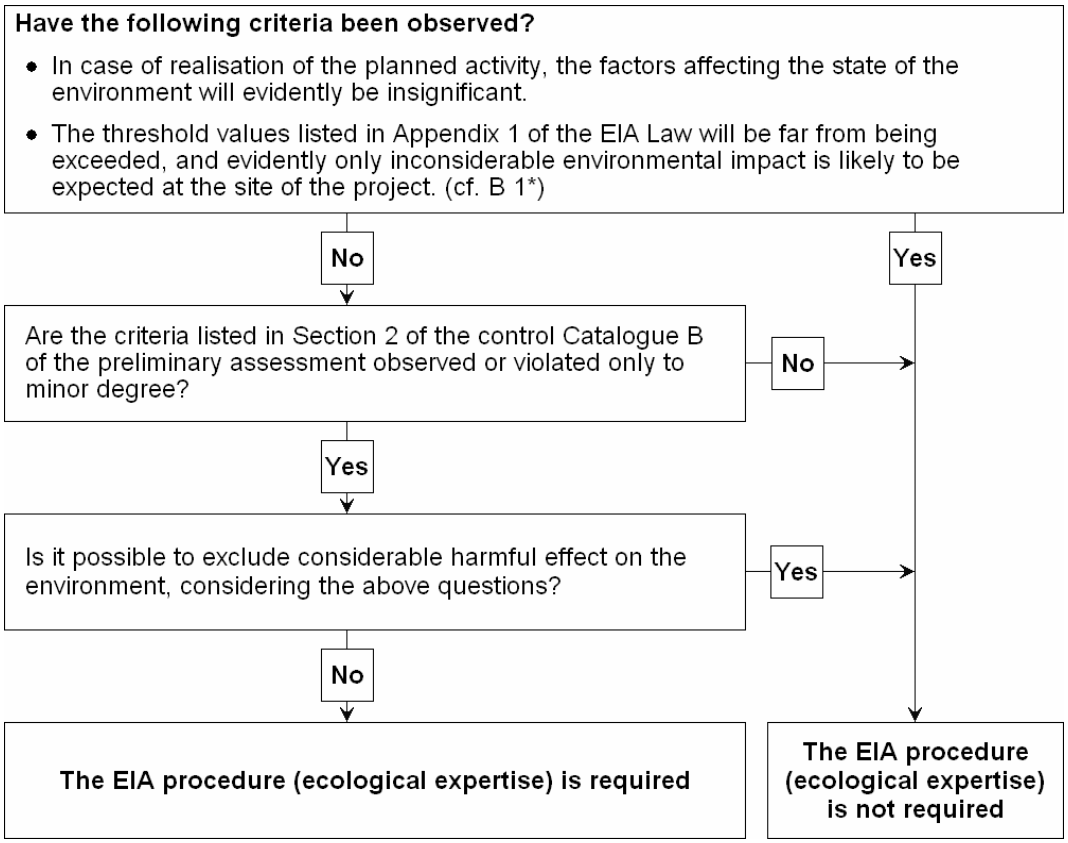


Fig. 5.1: Scheme for a general preliminary assessment of an intended project (screening).

A variety of so-called check lists are usually used for an assessment under this scheme. These catalogues are developed for different types of projects, and may be of sectoral or of regional character. Examples of such checklists are shown for road construction in **Table II.1.5, Appendix 1.3**, and for railway construction in **Table II.1.6, Appendix 1.3**.

Based on this screening procedure, a decision is made on whether the EIA is to be carried out or not.

5.1.4. Development of technical tasks for the investigation of the impacts upon the environment of the planned project

Unlike under the Russian procedure, where technical tasks are listed by an EIS developer and their approval is a formality, under the German EIA procedure, great importance is attached to this work step. Its results determine how comprehensively the opinions and interests of all participants of the process – the initiator of the intended project, the authorisation authorities, other concerned authorities, the resident population and the public – are taken into account, and ultimately, the quality, reliability and objectivity of the environmental impact study. In the German literature this work step is called the establishment or delimitation of the scope of investigation, or the scoping process.

Under German EIA Law, the scoping process can be subdivided into three segments (in):

1. Submission of a Statement of Intent by the initiator of an intended project
2. Specification of the scope of investigation, incl. the limits of the area under investigation)
3. Information by the competent authority on the presumed scope of the investigation for the EIS.

There are standard technical documents for various types of projects, which describe in detail the scoping procedure with regard to the key questions under consideration concerning the sectoral peculiarities of the particular project. On the whole, the procedure of scoping is similar in different branches. **Table II.1.7, Appendix 1.4**, describes the working stages of scoping, using the example of waste recycling.

Below there are some requirements to the main steps of scoping.

1. Statement of Intent by an initiator of project should contain such information that third parties, such as the authorities concerned, the local population, and NGOs, can understand the essence and the scale of the potential impacts of the planned project, and make their own proposals on the determination of the research framework. This information is prepared by the initiator of the project during consultations with the authority responsible for the EIA procedure (see **Appendix 1.2**).

The following documents are to be submitted at the scoping date:

- A brief description of the project and the impact factors
- A brief description of the environment and its components
- Suggestions on the framework of the investigation and to the limits of the area of investigation
- Details on the planning process and the participants of the EIA procedure.

Table II.1.8, Appendix 1.4 presents information provided by the initiator of a project, and the character of its consultation during the scoping process, using the example of road construction. The most valuable information is data on the potential impacts. **Table II.1.9, Appendix 1.4**, describes the impacts for the same example.

2. Specification of the scope of investigation, incl. delimitation of the area of investigation (scoping)

At the scoping meeting, also known as the application conference, all participants in the proceedings, incl. the public, take part. The agenda of the conference is the clarification of the following questions:

- What are the most important impact factors of the project;
- What degree of detail of the investigations and what information about each of the protected assets and its functions are necessary;
- What are the limits of the area of investigation;
- How long does the investigations take; and
- What types of methods are to be used?

The stages of the meeting and questions clarified there are shown in Table 5.1. An example of application of this scheme for a concrete type of project – road construction – is given in **Table II.1.10, Appendix 1.4**.

During the scoping process, a preliminary approximate assessment of the impact factors ascertained is carried out to obtain the information necessary for carrying out the investigations. This usually occurs at the qualitative level by means of simple matrices which visually illustrate a potential level of impact. An example of such a matrix is shown in **Table II.1.11, Appendix 1.4.**

The information obtained about the level of impact allows the optimisation of the scale and content of investigations and the determination of information on the environment relevant to these investigations. **Table II.1.12, Appendix 1.4** shows an example of ascertainment of such information using the example of hydrotechnical construction.

The following zones should be included (see Fig. 5.2) within the area of investigation:

- Project site
- Impact area

- Effect area
- Compensation area.

An example of the selection of the scope of the area under investigation is shown in **Table II.1.13, Appendix 1.4** with regard to road construction.

Table 5.1

Main tasks and work steps of the scoping process

Tasks and work steps of the scoping process	Facts to be ascertained
1. Ascertainment of the essential impact factors of the project	• Derivation of the impact factors from the technical project information
2. Establishment of the main focus and the degree of detail of the investigations (if necessary, special investigations) for the recording of the protected assets or protected asset functions	• A rough assessment of the impact factors relevant to decision-making: • The expected exposure of protected assets, and their significance for the investigation area; • The actual state, impacts and vulnerability of the landscape area concerned
3. Delimitation of the investigation area (if necessary, protected-asset and variant-related)	• Inclusion of all obvious variants of the project for the fulfilment of the transport-related objectives and their expected impacts (construction, facility and transport/ business-related)
4. Establishment of the time frame of the investigations	• Protected-asset-specific time period for investigations (e.g. vegetation period); • Time requirement for the investigation, including the overall-planning specification
5. Establishment of methods to be used, investigation techniques (measurements, estimates, forecasts etc.) and special environmental assessment methods under the consideration of environmental standards and legislative demands	• Methods for the ascertainment of specific protected assets • Methods for the ascertainment of impact factors • Methods for the ascertainment of interactions • Methods for determining environmental impacts • Technical methods and standards of assessment • Methods for estimating protected-asset-specific needs for in-kind/on-site and out-of-kind/off-site offsetting (compensatory measures)

3. Notification of the accepted scope of investigation of the environmental impact caused by a planned project

The specifications determined in the scoping process must be recorded in a common final document, the scoping protocol, which is presented to all parties concerned, and, if necessary, published. On the basis of this protocol the initiator of the intended project develops the technical task list (the framework of the investigation) for the drafter of the EIS. In the further course of the proceedings, whether the specifications for evaluating the impact on the environment established in the scoping protocol have been observed during the investigation is to be verified. A sample of the content of a scoping protocol is shown in **Table II.1.14, Appendix 1.4**.

5.2. Expertise and approval of project documentation

5.2.1. Requirements for the structure and content of environmental documentation submitted for the expertise

Unlike in the Russian procedure, where an examination of the quality and validity of the environmental sections of the project documentation is carried out during the expertise, in Germany, the authorising authority issues a permit as soon as it receives this documentation, and carries out this examination before the beginning the EIA procedure. This saves effort for the participants of the procedure, and to devote themselves to further consideration of the planned project on its merits. There are certain formal procedural requirements for the structure and content of the documents on environmental impact assessment, which are shown in **Table II.1.15, Appendix 1.5**. Special forms or check-

lists are used for this examination. An example of this form is shown for road construction in **Table II.1.16, Appendix 1.5**.

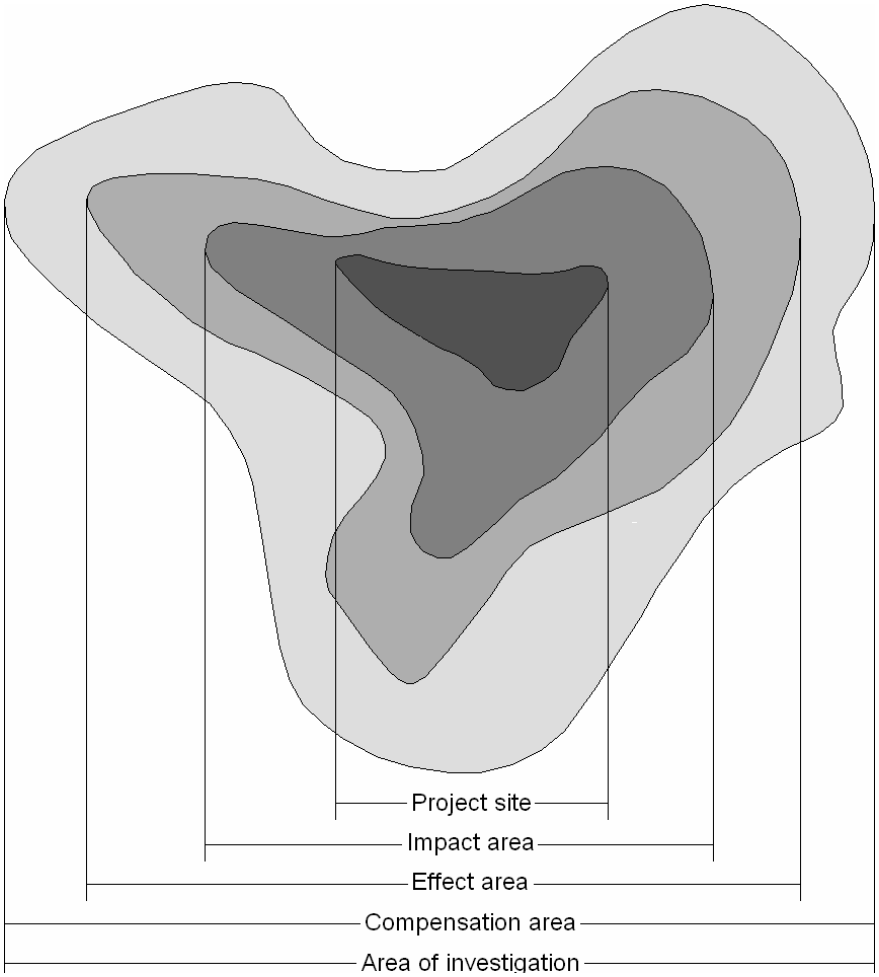


Fig. 5.2. Delimitation of the area of investigation.

5.2.2. Procedure of consideration of public opinion and the opinion of local citizens in the area of project realisation

The goal of involving the public in discussion of a planned project is stipulated in the German procedure more precisely and in greater detail than in the Russian procedure. This goal is defined as follows: *To ascertain all public interests affected by the project and to expand the information base for decision-making about the possibility of project realisation*. The general requirements for the procedure of involving the public are shown in **Table II.1.17, Appendix 1.6.**

To achieve this goal, it is necessary that the authorising authority be familiar with public opinion. Therefore, it is important to use methods which promote the involvement of as many representatives of the public as possible in the procedure, and encourage them to express their views. Such methods include both active and passive methods; they are shown in **Table II.1.18, Appendix 1.6**.

The most significant is timely provision of information to the population affected by the project, in an appropriate scale and in simple form, so as to allow the citizens to formulate their own points of view. The efficiencies of the various methods of information are shown in **Table II.1.19, Appendix 1.6**. At present, the information on the Internet in interactive mode is considered the most effective method, and one which allows for an exchange of opinions among the interested parties. The necessity of using such a form is stipulated by the EU Directive On Public Access to Environmental Information and by the corresponding law of Germany. An example of such a site created during the construction of a section of a federal road is shown in **Table II.1.20, Appendix 1.6.**

The conditions of the public presentation of the project documentation, its discussion, and the expression and consideration of all these claims should correspond to the complexity and scale of the project.

Figure 5.3 shows the approximate duration of the procedure of involvement of the public in the EIA. As in the Russian procedure, the term for insight and consideration of the project documentation is no more than one month. Clearly, this is not enough for larger projects (see Section 4.3). A similar time frame also exists for the involvement of coordinating authorities (Fig. 5.4).

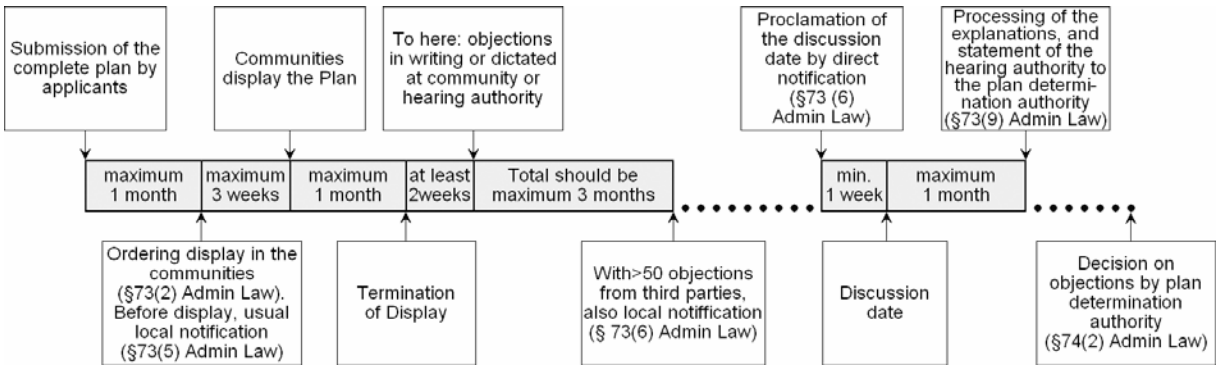


Fig. 5.3. Deadlines for participation by the public in the EIA procedure.

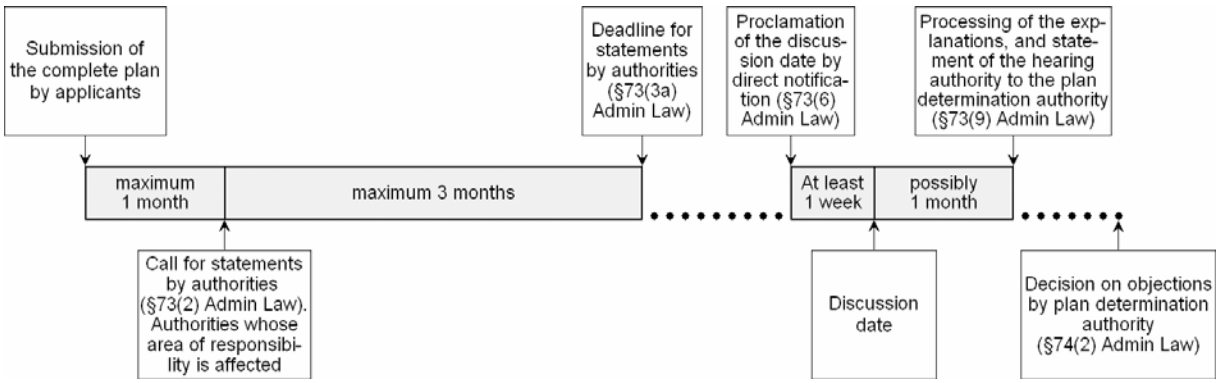


Fig. 5.4. Deadlines for participation by the authorities in the EIA procedure.

5.2.3. Brief summary of environmental impact used for decision-making on the admissibility of a planned project

The brief summary of the impact on the environment in the EIA is drafted by different participants in two variants at different stages of the procedure. The first variant is by drafter of the the EIS after completion of the studies of environmental impact. The second variant is by the authorising authority responsible for the procedure. These documents, both of which are very similar, are drafted for different purposes, so that they are slightly different in content. A comparison of these variants is shown in Table 5.2.

As can be seen in Table 5.2, the summary of environmental impacts in the EIS drafted by the developer in Germany has the same goals and content as the summary of non-technical character in the Russian procedure. It will be considered in Section 8, which deals with the summary composed by the authority issuing the permit for realisation of the planned project, as this document is the basis for decision-making on the admissibility or non-admissibility of the project.

This brief summary of environmental impacts should meet the following procedural and methodological requirements.

1. The brief summary must include a description of the entire set of impacts which could cause substantial changes for any protected environmental asset.

2. The approval authorities and authorities affected by the project are to be involved in the compilation of the brief summary in order to express their views on the level and character of the impacts concerning the assets and processes about which they are competent.

3. The brief summary should be understandable for the public, so that an attempt should be made to avoid details and terminology familiar only to specialists.

4. The brief summary contains information on the type, scope, frequency, and probability of impact occurrence, as well as an analysis of the appropriateness of methods used, and the validity of the results obtained.

5. The brief summary includes proposals, remarks and claims expressed by the public, and analyses these comments. It also provides information on how they have been taken into consideration during the procedure.

Table 5.2
Comparison of impact summary of a planned project carried out by different participants of the EIA procedure

Reason for comparison	Brief impact summary	Non-technical summary
Type of document	A governmental assessment – a state task	Joint assessment by environmental specialists, including compilers of the project documentation
Responsible for drafting document	The decision-making authority on admissibility of a planned project, which issues the permit for its realisation	The initiator of a project, or the developer acting on the instructions of the former, submits project documentation in the environmental impact study (EIS)
Goal of document	To create the basis for a governmental impact assessment and prepare a decision on issuing the permit	To provide a general idea on the scope and character of the impact. This part of the project documentation is used for various purposes: first, to familiarise the public with the proposed project and its impact on the environment
Content of document	• Non-technical summary elaborated by the initiator of a project • Statement by authorities affected by the project (approving authorities) • Summary of the opinions of the public • Opinion of the authority issuing the permit	• Description of intent, • Specific description of the environmental condition of protected assets • Description of environmental impacts • Description of avoidance, minimisation, offset and substitute remedial measures (The complete structure of the document is shown in **Appendix 2.10**)

5.2.4. Decision on the Admissibility of a Project

Under the EIA Law, the authorising authority evaluates the environmental impacts of a project. In this context, the environmental impacts are thus evaluated on the basis of legal standards, or standards derived from legal stipulations. Here, decisions must be made as to whether particular environmental impacts contravene certain legal prohibitions or targets, and are thus to be considered in the context of the environmental impact assessment for a decision on the project.

During the assessment process, the authorising authority orients itself towards the following technical/ substantive requirements and recommendations.

1. The environmental impact assessment is to be carried out with a view towards effective avoidance of negative impacts on the environment. The standard for the applicable measure of environmental precautions is the wording of the applicable laws, in which that interpretation of general legal formulation which is most precautionary is to be applied.

Which assessment standard can be classified as most environmentally precautionary is determined according to the specifics of each case and the substantive justification of the respective standard. Environmental standards are precautionary if they are oriented towards:

- Avoidance of negative effects to the maximum possible extent
- Long-term protection, particularly of elementary protected assets
- Consideration of the interests of different, particularly vulnerable sections of the population
- Safety factors for the consideration of knowledge gaps with regard to concrete dose-effect relationships, and
- Consideration of effects which are little known, or are in and of themselves harmless.

2. The governmental assessment must be limited to environmental interests, and must ignore any other interests, such as economic factors.

3. The EIA procedure should also carry out an overall assessment transcending the boundaries between the various protected assets. The following targets can be of significance here:

- Protection of human health
- Improvement of environmental conditions as a contribution to the quality of human life, and
- Preservation of the habitat potential for plants and animals.

4. A comparative assessment of project alternatives with one another is not sufficient. The project and each alternative are to be evaluated on their own terms with respect to the fulfilment of legal environmental requirements.

6. ASSESSMENT OF ENVIRONMENTAL IMPACTS IN RUSSIA AND GERMANY

6.1. Structure and Content of the Assessment of Environmental Impacts (OVOS) in Russia

The content and process of an environmental impact assessment (OVOS) are primarily stipulated in the Regulation on the assessment of environmental impacts [17], and in various building codes [23, 24]. They largely determine the procedure, and provide for three steps:

1. Planning intent, screening and formulation of the technical task definition for an environmental impact assessment
2. Assessment of environmental impacts and preparation of a draft
3. Preparation of the final version of the documents for the environmental impact assessment.

The three steps are integrated into the procedure of ecological accompaniment of a project planning process, the sequence of which is described in Section 3.1. The contents of each working step are presented below.

Preliminary examination

In the preliminary examination (screening), the project developer is to accomplish the following tasks:

- Collecting and documenting data on:
  - the nature, scope and purpose of the project, possible alternatives, the construction period, the site, possible transboundary effects, compatibility with spatial and technical plans and programmes
  - the protected assets that could be affected, and their most sensitive components
  - potentially significant environmental impacts, the need for land, waste, the impact of transport and other infrastructure, emission sources
  - measures to avoid or compensate for the impact;
- Informing the public about the planning intent;
- Conducting preliminary discussions in order to identify the participants in the OVOS, including the interested public;
- Conducting a screening process by the same steps as with an environmental impact assessment, but less detailed and comprehensive.

In this step, two significant results are to be achieved:

- Conclusions about the basic feasibility of project implementation, and
- Technical terms of reference for an environmental impact assessment, which are to include:
  - The main tasks in carrying out an environmental impact assessment
  - The expected structure and content of the documents
  - The appropriate valuation methods
  - The investigation period.

Investigation of environmental impact

The investigation is carried out according to the technical tasks formulated in the previous step, and provides for the following tasks:

- Description of the project and possible alternatives (including the zero variant);
- Spatial analysis (state of the environment, including previous impacts, etc.);
- Identification of potential environmental impacts, taking account the alternatives;
- Assessment of the environmental impact of a project (potential risks; nature, extent and propagation of effects; and prediction of environmental and related social and economic effects);
- Identification of measures to avoid or compensate for adverse effects, evaluation of efficiency and implementation;
- Assessment of the remaining environmental impacts and their consequences;

- Comparison of alternatives with regard to the environmental and socio-economic consequences, including the zero alternative and the preferred option;
- Development of proposals for monitoring the environment in all phases of project implementation;
- Development of recommendations for the analysis of project implementation.

The methodological aspects are discussed in Sections 7 and 8, below. The results of the investigation include:

- Draft version of the environmental impact assessment (OVOS), which is also the basis for finalization of the documents and the decision on the permissibility of the project
- A non-technical summary (brief, understandable description), to be presented to the public for inspection.

Final version of the documents to evaluate the environmental impact

The final version of the documents on environmental impact assessment (OVOS) is based on the draft, and takes into consideration the comments, suggestions and information by contributed the parties during the discussion. The final version includes information and arguments for the inclusion or exclusion of the comments and suggestions received, as well as records of public hearings. This version is submitted for assessment (expertise), together with the other documents.

The degree of detail and accuracy of the assessment increases with each step. During the preliminary examination of the planning intent (screening), the project impacts are estimated roughly, and siting proposals are made. In the process step of project explanatory statement, the assessment of the environment for possible site variations, the prognosis of potential environmental changes, and the ascertainment of the views and objections of the affected population regarding the project and its possible consequences are mandatory parts of the OVOS.

In the project documentation, the prognoses on environmental changes must be detailed, including consideration for spatial connections and project solutions to production and manufacturing technologies, and drafting of special measures for compensation. Also, the project must include a programme for monitoring environmental impacts, and the effectiveness of compensation measures. Then, in the last step (practical implementation of the project), the monitoring of the actual effects of environmental change is carried out.

6.2. Structure and Content of the Environmental Impact Statement (EIS) in Germany

For an environmental impact assessment procedure the project developer is mandated to describe the expected environmental impacts in an environmental impact statement (EIS). The EIS must be submitted to the authority in charge of the proceedings at the beginning of the administrative and decision-making process, together with the other application documentation. However, the assessment in the context of the EIS should not be confused with the appraisal by the authority. Whether a project is to be considered ecologically compatible or not and whether its environmental impacts are reasonably acceptable or not, are questions to be determined by the relevant authority [88]. The task of the EIS consists of the technical preparation of the official environmental impact assessment procedure, and the provision of the most important foundations for the official comprehensive description, assessment, balanced consideration and decision on the permissibility of the project. Moreover, the EIS constitutes an important basis for the participation by the authorities and the public, as well as for the optimisation of the project from an environmental point of view.

Fig. 6.1 shows an example of the process of an EIS. As a rule, the investigation is structured as follows:

- Preparatory work steps (specification of the investigation framework)
- Spatial analysis
- Collaboration in the development of options, as a trans-sectoral work step
- Impact forecast and comparison of options.

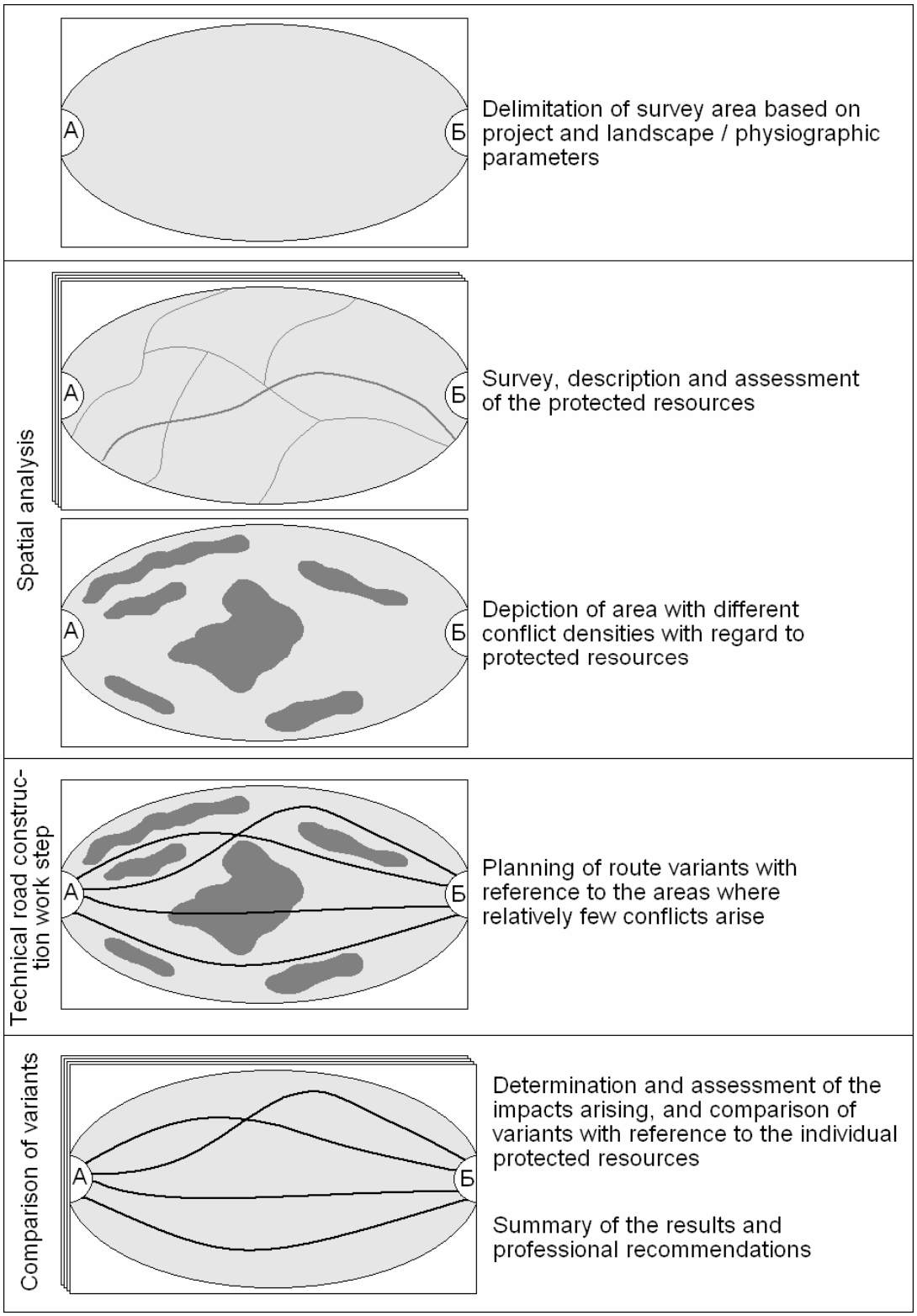


Fig. 6.1: Sequence of EIS steps, using the example of determining the course of a planned road [59].

In EIA, the examination of alternatives or variants to the intended project is mandatory. Here, “alternative” means a fundamentally different systemic solution, while “variant” generally refers to one of a number of spatial options for a project [84]. The goal is to optimise the project to the extent that as little impact as possible occurs. The representation of a so-called zero option or zero alternative is also recommended, i.e. the projected condition of the environment without the project. It cannot be

included in the EIS as a planning variant, but rather serves as a reference context. The nonimplementation of a project for environmental reasons can be brought about either by a decision in the proceedings rejecting the project, or by the termination of proceedings by the project developer. The latter occurs particularly in situations in which it is clear that significant environmental impacts will occur which will moreover not be justified by the fairly modest benefits to be achieved by the project [90].

Requirements for the contents of an environmental impact statement as per Article 6 UVPG (Federal German Environmental Impact Assessment Act) (see Fig. 6.2):

- A general description of the project
- A description of the concept for the facility
- A description of the site situation
- A forecast and assessment of the environmental impacts
- Instructions for avoidance and minimisation of, and for the compensation for, environmental impacts
- An overall assessment of environmental impacts, and
- A general or non-technically understandable summary.

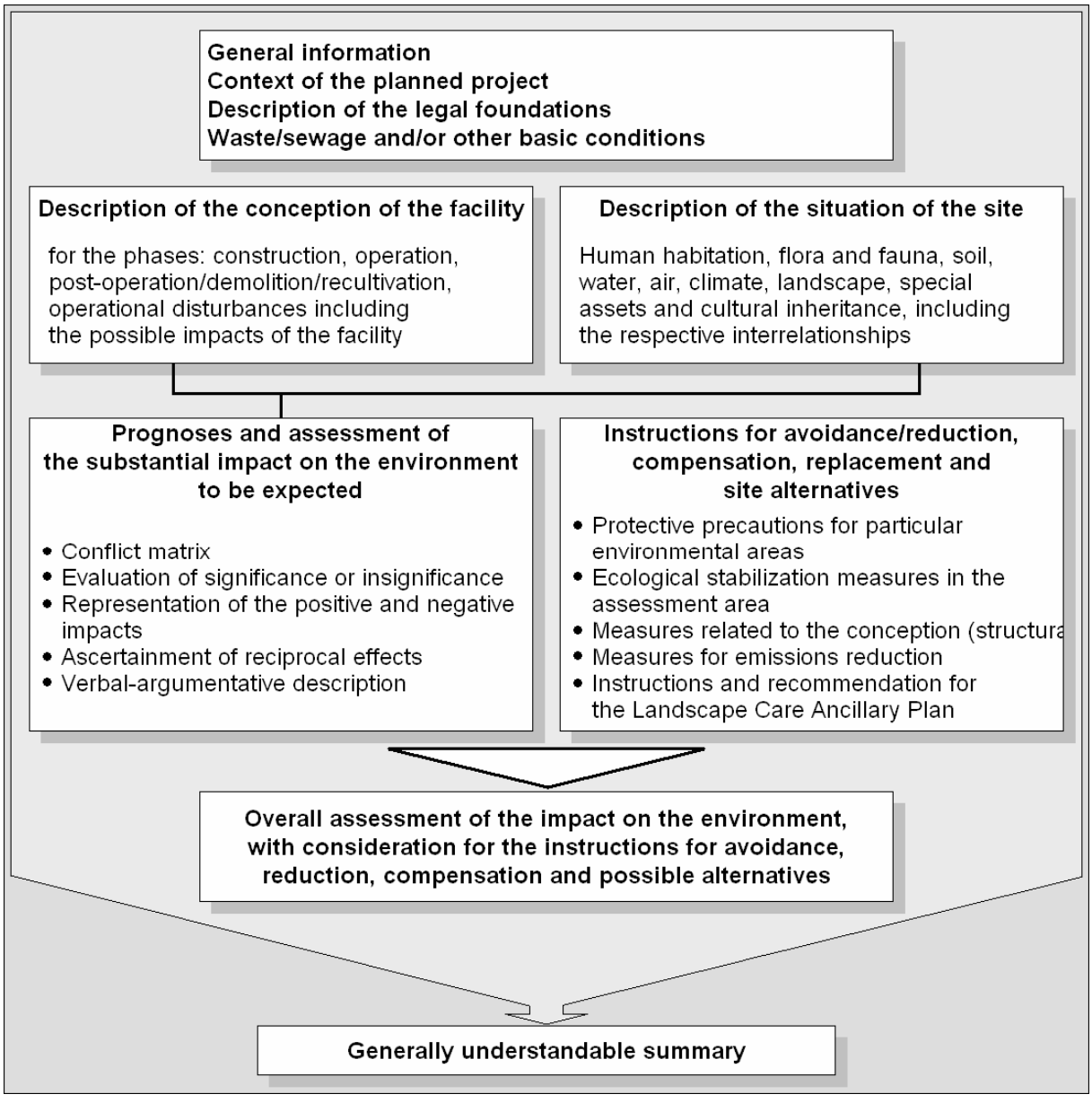


Fig 6.2: Substantive structure of an environmental impact statement [85].

The prerequisite for environmental impact assessment in an EIS is the ascertainment and the evaluation of the stock of protected assets listed in Article 2 UVPG (see Documentation 2.2):

- Man, including human health; animals and plants; and biodiversity
- Soil, water, air, climate and landscape
- Cultural assets and other material assets, and
- The interaction between the aforementioned protected assets.

The EIS must show the type, scope, frequency and duration of the significant impacts to be expected. The following categories are distinguished:

- Construction-related impacts caused before and during the construction period by the preparatory measures, site development work, and establishment and operation of the construction site
- Impacts caused by the facility and connected with its structure, which are irreversible and long-term
- Operationally-related impacts connected with the operation of the facility, supply and disposal, water and energy consumption, emissions the normal course of operations and in the case of defects, and
- Shut-down-related impacts occurring in the course of dismantling and rehabilitation work, and involving the existence of residual substances.

The formal preparation of the environmental impact statement is not legally stipulated in detail. In many cases, the EIS is a separate, internally conclusive document, which can be very helpful for the clarity of the presentation of the investigation and its results. However, it can also be a compilation of various documents. The degree of detail and the types of investigations depends on the project, its planning state, its dimensions and its expected environmental impacts [70].

The quality of an EIS may have a decisive influence on the consideration of the concerns of people and the environment in process decision-making. “If an EIS is prepared intensively and comprehensively under consideration for all protected assets, the considerations raised during the examination process can also play a major role in the decision on the procedure.” [90, p. 158].

7. COMPARATIVE ANALYSIS OF THE OVOS IN RUSSIA AND THE EIS IN GERMANY

7.1. Weaknesses of the Environmental Impact Assessment (OVOS) in Russia

The general legal stipulations concern with the contents and methods of evaluating environmental impacts [17, 23 and 24] deal mainly with procedural matters. They concern all types of projects which are legally subject to an impact assessment, so that the assessment contents and methods are not differentiated by project type. The quite general assessment principles set out in the rules are more or less extensively documented in a variety of legal-methodological official publications.

Despite the sufficiently extensive representation of legal procedural/methodological issues and problems regarding the OVOS, by no means all contents, assessment methods and forms of presentation of results are clear in practice. In the following, we will present what are in our view the most significant weaknesses of the OVOS in the practice of ecological accompaniment of project planning.

Insufficient attention to the preliminary assessment of environmental impacts

One of the most frequently encountered deficiencies in Russian practice in project assessment is the insufficient attention given in the early stages of planning. The contents of such a screening are often superficial. As a result, it is difficult to assess, on the basis of the statement of intent, even the basic parameters of the environmental impact. In this context, the dangers of a project are usually exaggerated, so that further ecological accompaniment is biased. Besides deciding on the fundamental permissibility or non-permissibility of a project, the other main task of the preliminary assessment is to draft the procedure for the OVOS and the other steps during the ecological accompaniment of project planning. Exemplary methods for the screening have been developed in European countries, including Germany (see Section 5.1.3 and Annex 1.3).

Uncertainty regarding the contents of an OVOS, depending on the type of project

To define the contents of a project-specific OVOS is often a creative task, since one must focus on what is relevant for our decision. An objective choice is only possible based on the results of a comprehensive assessment, i.e. after the drafting of the OVOS. The task definition for an OVOS needs to be formulated before the actual tasks. The result is that each project will produce a comprehensive OVOS. However, such a trend results in substantial increase in the expense and effort of project planning. There are as yet no techniques in Russian practice for arriving at reasonable compromises.

In European and German practice, the definition of the scope of the investigations receives considerably more attention (scoping). Many questions on this issue are resolved through a special scoping procedure. In addition, there are a number of tools which make the work easier, such as

- Classification of the types of projects, their extent, and the impact caused by the projects upon protected assets
- Criteria for the evaluation of protected assets, depending on the type of impact
- Criteria for the assessment of cumulative impacts, and for the overall assessment of impacts.

Some are described in Section 8.

Lack of distinction of existing assessment methods between mandatory and recommended methods

For the individual steps of an OVOS (evaluation of the actual state of protected assets, prognosis of the changes they will be subjected to as a result of the project, identification of environmental damage), it is common to use specially developed and approved methods. In examining the project documents, the supervisory authorities often emphasise the demand for the implementation of approved assessment methods, thus giving formal requirements priority over practical feasibility. Such an approach is often not effective. Each method is based on models. The applicability of a method must be examined for the extent to which the particular model is adapted to reality. It is quite possible to give

guidance on assessment criteria and methods. But they have a purely advisory role, the application of which is only possible after examination of their suitability in the particular case.

7.2 Weaknesses of the Environmental Impact Statement (UVS) in Germany

A major strength of the practice of the German EIA – is that extensive guidelines, indications and methodological tools below the level of legislation have already been developed. This has caused the quality of environmental impact statements drafted to increase over time, so that a recognised state of the art has been achieved. The quality of environmental information in turn influences the regulatory decisions. If high-quality environmental information is provided, the result will be greater incorporation of environmental considerations into the decisions [see 90]. The preparation of application documents follows certain routines and standards that have been proven in practice. It is now standard that for the adequate assessment of environmental information and the development of habitat mapping, appropriate survey periods must be kept to. Another key strength is the close integration of the EIA with other planning instruments. For example, landscape plans and also other environmental information systems provide important basic information. In general, the environmental information data situation in Germany appears positive and can be used for the preparation of environmental impact statements.

Review requirements for environmental impact

The German Environmental Impact Impact Assessment Act (German: UVPG) requires an assessment of environmental impacts according to a standard based on the principle of environmental precaution. This vague legal concept is however not further operationalised in the UVPG, i.e., made usable for planning and assessment practice. The assessment criteria of environmental precaution are indeed only defined in greater detail below the level of legislation, e.g. in administrative regulations, but this does not apply to all protected assets under UVPG. This lack of clear environmental precaution standards in practice leads to problems of prognosis, of the evaluation of intensity, and of the comparability of assessment results. In the course of the development of the EIA in Germany, additional assessment standards are necessary, possibly even at the sub-legislative level.

In addition, the sectoral and medium-oriented structure of German environmental law in the various legal foundations results in the fact that the same terminology may be used, but that in the context of different instruments, terms will be interpreted differently from the point of view of their technical content. For example, “significant impact” under the Environmental Impact Assessment Act (German: UVPG) is interpreted differently from “significant impact” on nature and the landscape under the Federal Nature Conservation Act (German: BNatSchG), in other conservation-related assessment procedures. Here, the assessments are based on different interpretations of the question as to when a “significant impact” sets in. Conversely, there are different terms even for the same test object, in various legal contexts. For example, the UVPG refers to the “landscape” as a protected asset, while the BNatSchG emphasises the “overall appearance of the landscape”, although in practice the same information is collected. Here, the establishment of an environmental code will have to ensure terminological and substantive harmonisation in the future.

Examination of alternatives and possible solutions

From a technical perspective it is essential to ensure comprehensive environmental precaution, and in the context of sustainable development, the examination of alternatives and solutions. For example, in the practice of road construction, the issue when planning a route for a new road must be to ensure that valuable plant and animal habitats and hot spots of biodiversity are not affected. The project developer has the legal obligation to show in his application documents an overview of the most important other solution possibilities which he has examined, and the reasons for his selection. However, the authorising authority cannot force you to comprehensively address in detail other possible solutions for your project, unless another specific law expressly requires such an alternative examination. Hence, an essential approach to environmental screening under the UVPG is irrelevant in practice. Here, more pro-

gressive approaches to the explicit implementation of the examination of alternatives will be needed in the future.

Monitoring and follow-up control

The monitoring of environmental impacts after the implementation of a project, including follow-up control, is rare in practice, although environmental law provides the appropriate foundations for it. Hence, the extent to which the predicted environmental impacts have in fact occurred, or whether additional environmental impacts may be identified, is usually not investigated. Tighter monitoring must be implemented, especially to ensure the efficiency of compensation measures. There is often a lack of management measures to achieve the compensation objectives set out in the permission decision. However, without adequate monitoring and follow-up control, there will also be no basis for any new plan adaptation, or to handle such unanticipated environmental impacts. But with the introduction of the Strategic Environmental Assessment in Germany, the subject of monitoring and follow-up control is currently being discussed in greater depth, and may be expected to continue at the level of the Environmental Impact Assessment of projects, with more extensive use of follow-up control.

8. RECOMMENDATIONS FOR THE CONTENT STRUCTURE OF THE ENVIRONMENTAL IMPACT ASSESSMENT (OVOS)

The analysis of the methodological approaches for the assessment of environmental impacts in Russia and Germany enables the identification of those which can help compensate for the deficits stated in Section 7. This section describes some tools which will be useful for Russian methods of impact assessment, which are mainly focused on direct estimates or measurements of the parameters of processes occurring in the environment as a result of certain impacts, i.e. on direct quantitative assessment. These methods have a number of indisputable advantages, as they are based on an understanding of the mechanisms of rather sophisticated natural processes, and, as a rule, demand a greater number of parameters which are difficult to determine. The use of such sophisticated and costly methods does not always correspond to the goals of assessment, for example, when it is necessary to compare options of project implementation in significantly different natural environments, or to provide an integral assessment of the impacts ascertained through impact assessment of particular protected assets. Moreover, such approaches appear to be useless in determining cumulative or indirect impacts.

In German practice, the estimation of ecological risk is often substituted for direct assessment to solve certain types of problems. A significant part of this section is devoted to the description of methods of ecological risk analysis.

8.1. The structure of Environmental Impact Statements

According to the standards of German documentation, the structure of environmental impact statements (EIS) includes the following stages:

Preparatory stage:

- Specification of the scope of the investigation (see Section 5.1.4.)
- Delimitation of the area segments for the investigation: the impact area, the effect area, and the compensation area (see Fig. 5.2).

Analysis of the territory:

- Specification, description and assessment of affected environmental components
- Differentiation of areas with different level of conflicts, and identification of the main conflicts.

Development of the planned project options:

- Impact assessment of options taking into account conflicts ascertained

Prediction of impact and comparison of planned project options:

- Specification, description and assessment of impacts, protected-asset-related comparison of options
- Integrated assessment of options, choice of preferred option.

The general scheme of the structure and content of Environmental Impact Statements, using the example of a road construction project, is shown in Figures 6.1 and 6.2. **Table II.2.1, Appendix 2.1** shows the structure of an EIS using initially established alternatives to the planned project implementation.

These stages are carried out simultaneously with the development of a technical plan (project planning). Moreover, the technical plan of a certain stage is developed in accordance with the results of the corresponding stage of the impact assessment process. The relationship between these stages, using the example of a road construction project, is shown in Figure 8.1.

The documentation on impact assessment also includes the development of impact mitigation measures – avoidance, minimisation, in-kind/on-site or out-of-kind/off-site offsetting (compensation). Such measures are developed after obtaining the prognosis of impairment, and taking into account the impacts to be considered (**Table II.2.1, Appendix 2.1**). If impairment is considerable, measures are chosen to eliminate the impact will cause this impairment, or to mitigate its level. After development of

such measures and modification of the original characteristics of the technical plan, the impact is re-evaluated. If the level of impact remains high, measures are developed for in-kind/on-site offsetting of the impacts or out-of-kind/off-site offsetting of the impaired protected environmental assets. The structure and content of the EIS together with impact mitigation measures, are shown in **Table II.2.2, Appendix 2.1,** using the example of the construction of an industrial complex.

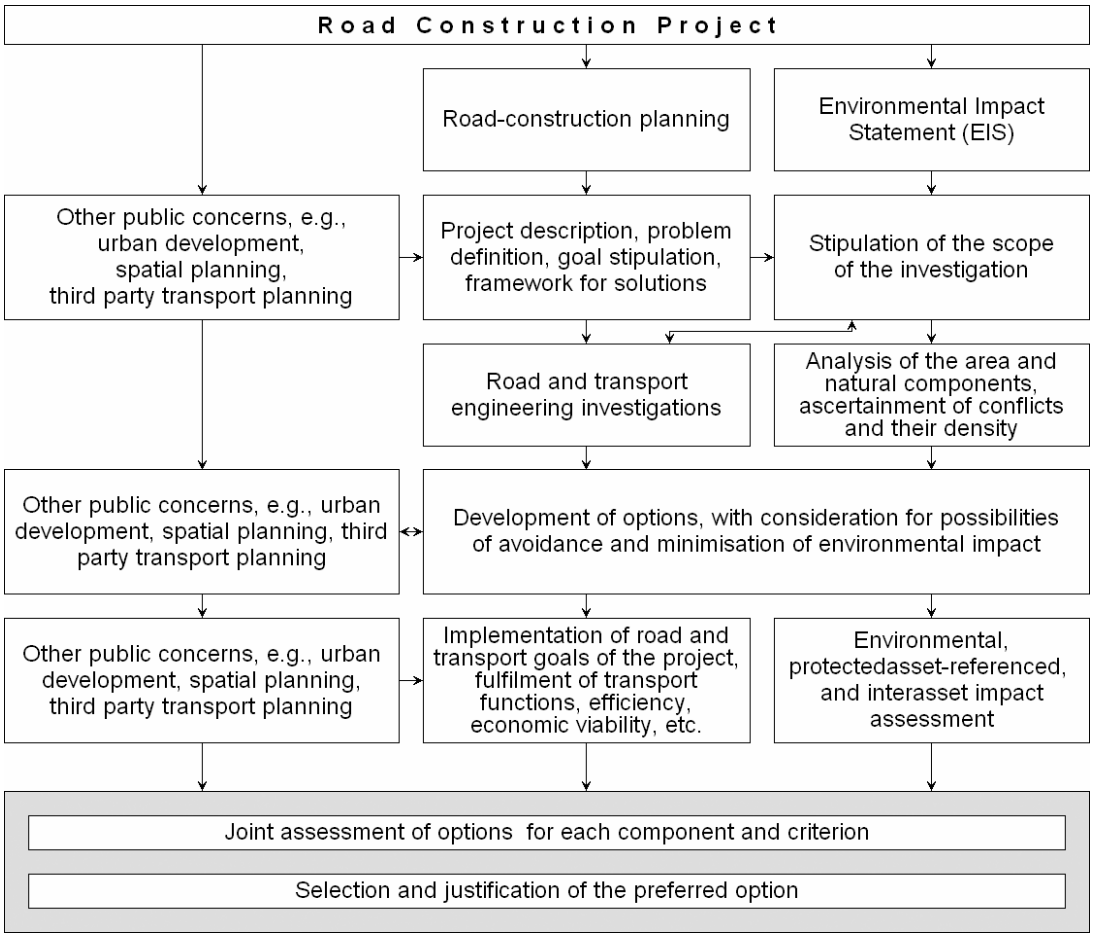


Fig. 8.1. Correlation between the stages of development of a technical plan and the drafting of an Environmental Impact Statement, using the example of a road construction project.

As regards environmental protection, the stages of investigation can be defined as follows: The environment is described in the context of "impact – environment", i.e., those protected assets and their functions that are assessed as being significantly affected are described and evaluated. This stage and the stages of analysis and prognosis of impacts comprise a ecologically oriented system of goals for project implementation. The impact assessment is carried out within the framework of an ecologically oriented legal system of classification. The content of the EIS with regard to the conservation of nature is shown in **Table II.2.3, Appendix 2.1.**

8.2. The description and assessment of protected environmental assets

Protected assets which are subject to the impact assessment of the planned project are protected by the Environmental Impact Assessment Act (German: UVPG) in Germany. They include:

- People
- Animals and plants
- The soil, including the geological environment

- Ground and surface waters
- Air and the climate
- The overall appearance of the landscape
- Cultural and other material assets.

The description (inventory) and assessment of these assets and their functions are the first step in an EIS investigation, and are carried out in the context of impact prognosis. These assets are often called "protected assets" or "protected resources". The goals of their protection differ slightly among the various types of development projects. These goals determine the content of the description and assessment, the criteria of the particular assets and their functions, and the evaluation, which is carried out in categories of significance and sensitivity.

Thus, the goals of conservation of particular assets and their functions are determined for a certain type of development project, and the criteria for its description and assessment are developed on the basis of these goals. The assessments obtained are applied to the prognosis of the impact (see Appendices 2.5 and 2.6). The development of criteria for the description and assessment of various environmental assets is shown in **Table II.2.4, Appendix 2.2,** using the example of a railway construction project. The assessment includes criteria for the selection of especially valuable environmental assets, as shown in **Table II.2.5, Appendix 2.2**.

Of all the possible functions of a certain asset, only those are taken for the description and assessment which are expected to be significantly affected. The concrete aspects of the planned development project are considered, as shown in **Table II.2.6, Appendix 2.2.** Another example of the development of criteria for inventory and assessment of protected assets according to function is shown in **Table II.2.7, Appendix 2.2.** This example is of general nature, and can be applied to the majority of development project types. A simpler scheme is shown in **Table II.2.8, Appendix 2.2.** The assessment criteria in this table are based on the potential properties of the assets.

The technique for the evaluation of protected assets and their functions by categories of significance and sensitivity is as follows: Various scales are usually used. As an example, a scale of significance for species and biotopes is shown in **Table II.2.9, Appendix 2.2**. The scale for biotope assessment makes it possible to carry out the assessment within the area of the investigation.

The spatial assessment of particular species or groups of species is based on biotope assessment. **Table II.2.10, Appendix 2.2** shows a scale pattern of such an assessment for animals, based on characteristics of occurrence of particular species. Spatial-functional relationships which are significant for a number of species groups are also assessed, comparing particular sites, or sites and their adjacent territories, concerning the effect of habitat fragmentation. The final assessment is achieved by overlaying the results of the evaluation of particular species or species groups. As a rule, the classification of the spatial unit of the highest level of significance among all those assessed is taken.

8.3. Assessment of environmental impacts

8.3.1. Determination of impact factors

In Germany, there is an extensive literature of special instructions for distinguishing impact factors. These documents, developed on the basis of extensive experience, contain impact factors for practically all types of development projects at the various stages of their realisation. Tables for determining impact factors are given in **Appendix 2.3,** with descriptions of these factors. They may refer to any type of development project realised in a certain region (**Table II.2.11**), or to a particular type of project, e.g. mining (**Table II.2.12**), land-use planning (**Table II.2.13**), or railway construction (**Table II.2.14**). **Table II.2.15** shows the impact factors in road construction graphically.

It cannot be expected that these lists of impact factors will be comprehensive. However, they describe the majority of impact factors of frequent occurrence. Such lists appear to be useful for an initial anal-

ysis of impacts, and are the basis for a completeness check for consideration of these impacts in the EIS documents by any participant of the ecological accompaniment process of a project.

8.3.2. Interaction between protected assets and cumulative impacts

The concept of the interaction between protected assets is relatively new in Russian practice of impact assessment. Certainly, the consideration of these interactions is not specified as a mandatory stage in the assessment process. In German practice, the ascertainment of interaction between protected assets in three stages is recommended:

- Consideration of interaction for each protected asset;
- Consideration of interaction between the protected assets;
- Consideration of impact transfer from one protected asset to another.

Consideration of interaction for each protected asset

Usually, interactions within and between particular protected assets are inventoried and described together with the evaluation of each protected asset. For example, it is impossible to represent the asset "Animals" or "Plants" without a description of their interaction with abiotic components – in particular with the project site. An example of the ascertainment of such interactions within the ecosystem is shown in **Table II.2.16, Appendix 2.4.**

The consideration of the interactions during this work step is based on the criteria of the inventory of particular protected asset which are important for decision-making. It is possible to assume that the description of a particular protected asset at a certain stage will suffice to ascertain the interactions and determine the impacts which may be caused by the planned development project. Therefore, there will be no need to perform any additional inventory of other factors.

Consideration of interactions between protected assets

This consideration is necessary if peculiarities of the interactions or their complexes which are important for the decision-making process have not been described in the previous stage, due to peculiarities of the natural and social organisation of the territory. The consideration of interactions at this stage can be fulfilled using "impact chains" (**Table II.2.18, Appendix 2.4**) or matrices of connections in a diagram (**Table II.2.19, Appendix 2.4**) or a table (**Table II.2.20, Appendix 2.4**).

With regard to the prognosis of the impact level of a planned development project, consideration of interactions between protected assets is carried out as a description of these impacts, with consideration for the complex of interactions between particular protected assets. Impacts on areas with especially intensive interaction, e.g. floodplains, peat bogs, natural forests, and large natural or cultural landscapes, should first of all be inventoried and described. The contents of such a description of interactions as presented in the EIS documents is shown in **Table II.2.21, Appendix 2.4**.

Consideration of impact transfer

In addition to a description of the impact of the planned development project with consideration for the interactions between protected assets, possible impact transfer should also be described. The effect of impact transfer arises if impacts are caused or enhanced for one or more other protected assets as a result of avoidance or minimisation of impact measures for on one asset. For example, in order to reduce noise pollution, the construction of a noise barrier may be planned, which may however then affect the landscape and contribute to the deterioration of its overall appearance (visual impact), or create a barrier for animals, fragmenting their habitat.

Cumulative impacts

The description of the interaction between protected assets is supplemented by the assessment of possible cumulative impacts. The spectrum of such impacts is shown in **Table II.2.17, Appendix 2.4**, and **Table II.2.22, Appendix 2.4** show these impacts graphically.

8.3.3. Methods of impact assessment

In German practice, analysis of environmental risk is frequently used for impact assessment. The intensity of the particular impact factors of a planned development project expressed in certain gradations, e.g., high, medium, and low, is compared with the sensitivity or significance of protected assets to this impact, expressed in gradations of equal or greater detail. It is assumed that environmental risk is the highest at those sites in the impact area where the highest intensity of this impact corresponds with the highest sensitivity or significance of the protected asset involved, or its functions.

To compare the intensity of impact on the asset involved, or on its function and its sensitivity or significance (value), matrices are used in which these parameters are combined, with consideration for the concrete conditions of the realisation of the project and of the goals of conservation of a particular protected asset. An example of such matrix is shown in Figure 8.2.

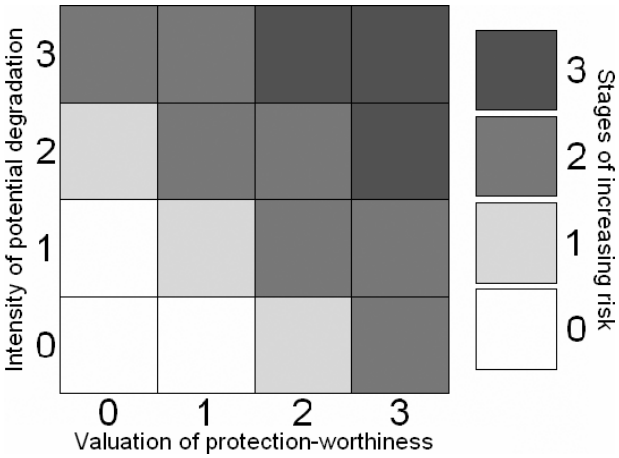


Fig. 8.2. Matrix for determination of ecological risk, based on comparison of the value of a protected asset and the impact intensity upon that asset.

The technique for matrix creation the example of which is shown in Figure 8.2 is as follows: Sensitivity or significance (value) is ranked according to the assessed characteristics (criteria) described in Section 8.2. **Table II.2.23, Appendix 2.5** shows an example of map compilation using ranked values of sensitivity and significance for one of the assets (plants), for a construction project for a recreational complex. The intensity of load impacts is also ranked in the same manner (Section 8.3.1). The result is a matrix for a comparison of the characteristics obtained described above, as shown in Figure 8.3.

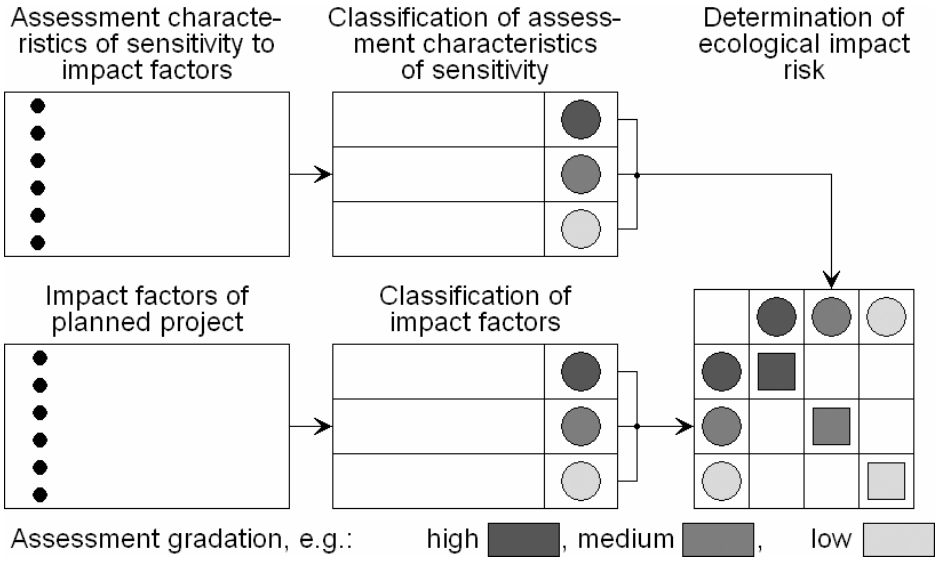


Fig. 8.3. Environmental risk analysis scheme.

The use of the term environmental risk allows an analysis of the territory based on cartographic overlaying of parameters of impact intensity and sensitivity (significance). An example of map compilation

based on such a overlay technique using matrices as shown in Figure 8.3 is illustrated in **Table II.2.24, Appendix 2.5,** using the example of a pipeline route.

The advantage of such an approach is that qualitative estimates of the parameters used in the form of simple stepped scales are enough to ascertain the characteristics of environmental risk, e.g., as mentioned above, as of high, medium, and low sensitivity and impact intensity. Such scales can be developed specifically for concrete impact, e.g. on the basis of expert assessments, or taken from standard and methodological documents.

Schemes for parameter ranking can be used as expert assessments on the basis of such constructs as "and/or", "yes/no" or "if/then" decision trees (**Tables II.2.25, II.2.26, Appendix 2.5**), or of matrices combining several assessment criteria (**Table II.2.27, Appendix 2.5**).

8.3.4. Prognosis of impact

Impact is predicted on the basis of the analysis of environmental risk, the methods for which are described in Section 8.3.3. The main input characteristics for prognosis are:

- Intensity of impact (intensity of loads, level of disturbances, effect, and damage)
- Sensitivity of a protected asset or its functions, for which a prognosis of environmental risk level is created
- Significance of a protected asset or its functions
- Characteristics of an impact area or areas, including their assessment in the categories sensitivity and significance.

The general requirements for the determination of some of these characteristics and methodological approaches for the compilation of impact prognosis are described in **Appendix 2.6**.

8.3.5. Comparison of the options of a planned development project and recommendations for a choice of the optimum option

The results of the investigations carried out during the comparison of options are summarized as follows. Based on the impact prognosis, the impacts on the environment of all options considered are compared and a final option is determined, which will have the least impact on the protected assets. This comparison is carried out in two stages. First, the options are considered with regard to their impact on each protected asset separately. Second, the results of these comparisons are summarized for an integral assessment comparing the protected assets.

Protected-asset-specific comparison of options of a planned development project

The balanced qualitative and quantitative results of an impact prognosis are assessed in the course of a protected-asset-specific comparison of the options, as well as the main significant conflicts of each option. Environmental impacts which have been taken into consideration for a particular protected asset should be described and evaluated separately with regard to their intensity and spatial distribution.

There is no sense in aggregating or summarising several impacts during the assessment process, as that requires a mathematical weighting of the gravity of various impacts upon each protected asset. The experience shows that the algorithm for such weighting, no matter how meticulously it may have been developed, usually has a formalistic character, and that the estimates thus obtained do not reflect the real situation impartially.

The choice of the most environmentally compatible route option, considering the protected assets involved, should be grounded qualitatively on the basis of the intensity of environmental impacts ascertained. It is necessary to interpret the effects for each asset separately, in terms of their significance for the decision-making process.

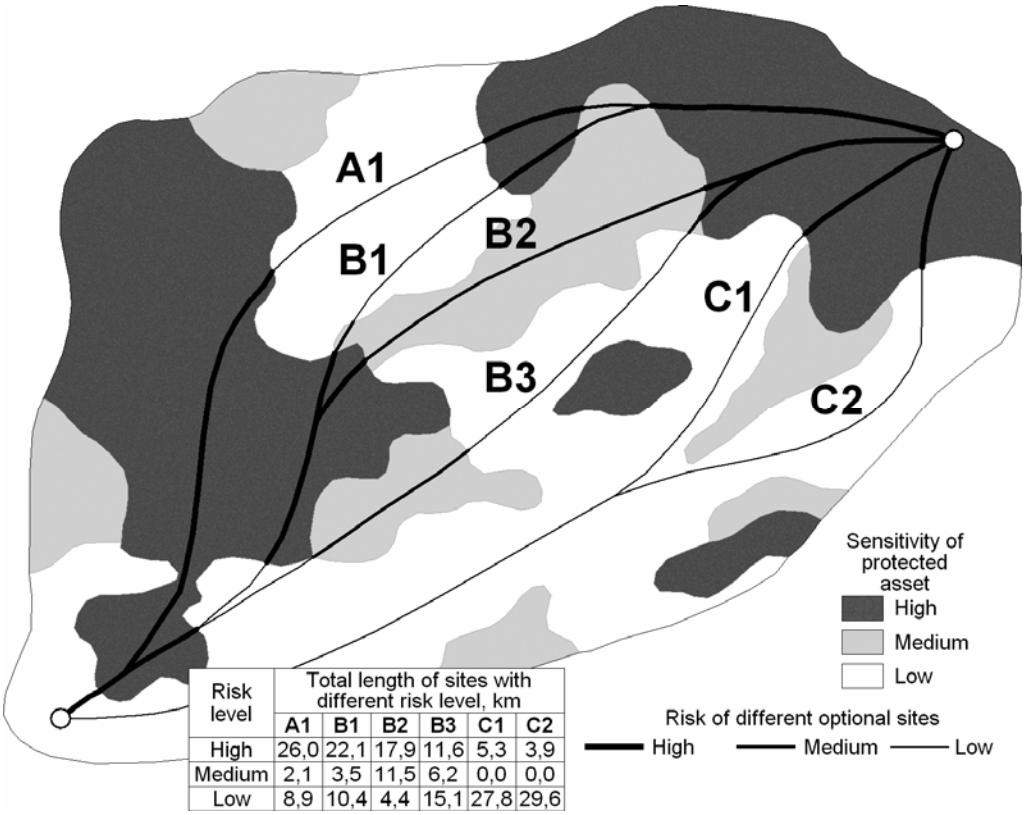
The impact of each option of the route upon the environment should be evaluated and compared, taking into account the possibilities for avoidance and minimisation of impacts, including both in-

kind/on-site and out-of-kind/off-site offsetting (compensation). It is also necessary to clearly demonstrate the residual harmful effects (loads and load reliefs) of a preferred option.

Assessments in tabular form are used for comparison of a large number of options. An example of such an evaluation, for the protected asset "Landscapes", is shown in **Table II.2.31, Appendix 2.7.**

In the case of this example, with qualitative ranking, the most environmentally compatible option is that with the lowest impact on landscape units, minimal effect on vegetative and structural elements, and the shortest crossings of aquatic elements and lengths of banks. Moreover, for the choice of the optimal option, it is also necessary to take into consideration additional qualitative characteristics of impact, e.g., a comparison with reference to landscape patterns.

Depending on the concrete specific characteristics of a project, the reviews described can be based on maps showing values, sensitivity or environmental risk. The application of such an approach is more effective for linear constructions. The length of a construction site is one of the factors of option ranking with the least level of environmental risk. A scheme for the determination of sites with different risk levels is shown in Figure 8.4.



Risk level	Total length of sites with different risk level, km					
	A1	B1	B2	B3	C1	C2
High	26,0	22,1	17,9	11,6	5,3	3,9
Medium	2,1	3,5	11,5	6,2	0,0	0,0
Low	8,9	10,4	4,4	15,1	27,8	29,6

Fig. 8.4. Comparison of site options for a certain protected asset, with consideration for risk level.

The protected-asset-specific comparison of planned project options and recommendations for option selection

As a result of the protected-asset-specific comparison of options, it is necessary to recommend an option or options with the lowest level of environmental impact. The substantiation of the selection requires a justification of the advantages and disadvantages of each option, with consideration for the main issues raised.

If it is impossible to give preference to any option from the viewpoint of environmental protection, for example, if protected-asset-specific ranking differs significantly between assets, an option can be chosen based on the relative significance of the protected assets. Significance should be evaluated taking into account the goals and requirements of environmental protection in the area under consideration, regional land use plans designed to improve the quality of the environment, and specialised standards.

In order to obtain a visual concept of the recommendations for the selection of the best option for a planned development project, it is recommended that the results of the protected-asset-specific ranking be presented in tabular form. An example of comprehensive ranking is given in **Table II.2.32, Appendix 2.7** with consideration for the largely quantitative characteristics of impacts. Another way of ranking is according to the qualitative description of impacts, represented using a stepped scale (**Table II.2.33, Appendix 2.7**).

8.4. Development of measures for the avoidance, minimisation, and in-kind/on-site and out-of-kind/off-site offsetting (compensation) of impacts

In the German procedure of ecological accompaniment of projects, the development of environmental measures is carried out in several stages. First, the impact assessment of a planned development project is carried out in accordance with the planned technical parameters of the project. If it is ascertained that the impacts will be large and impermissible, measures for the avoidance or minimisation of the level of these impacts are developed. Technical characteristics of the initial plan can be corrected.

Then, a second assessment is carried out, taking into account the corrected characteristics and avoidance and minimisation measures provided. If, after the investigation, it is ascertained that residual impacts are still considerable, in-kind/on-site offset measures to compensate these impacts are developed, or if compensation on site is impossible, out-of-kind/off-site offsetting measures for the impaired protected assets or their functions are implemented at another site. The general scheme for the decision-making process on the necessity for developing compensatory measures is shown in Figure 8.5.

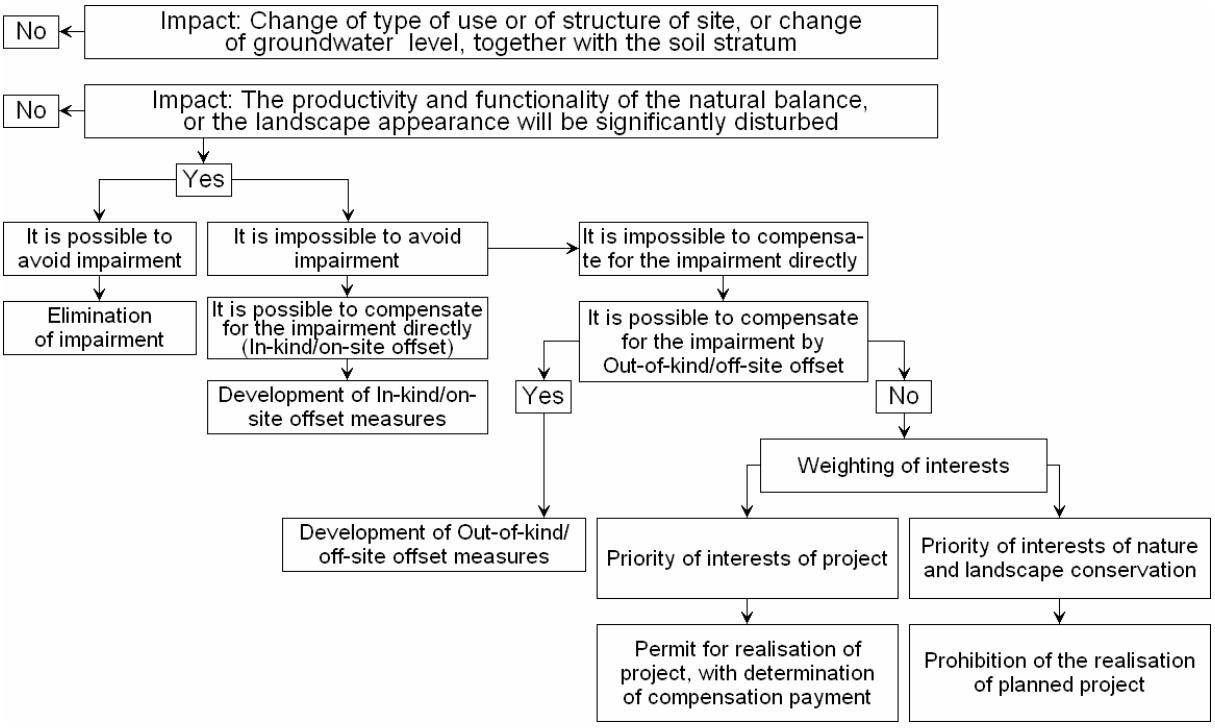


Fig. 8.5. Scheme for the decision-making process on the necessity for developing of compensatory measures, using the example of concrete impact.

This figure shows that if residual impacts remain large after implementation of the avoidance and minimisation measures, and in-kind/on-site offset and out-of-kind/off-site offset (compensation) is impossible, the social, political or other significance of the project is evaluated. If that is evidently higher than the impact level, these impacts can be offset by compensatory payments.

In practice however, these situations occur very rarely, and compensatory cash payments are not allowed. The decision on the permissibility or impermissibility of the planned development project is

usually made according to the scheme shown in Figure 8.6. It is important to stress that in Russian practice, cash payments are the most common form of compensation, whereas natural compensation is very rarely used.

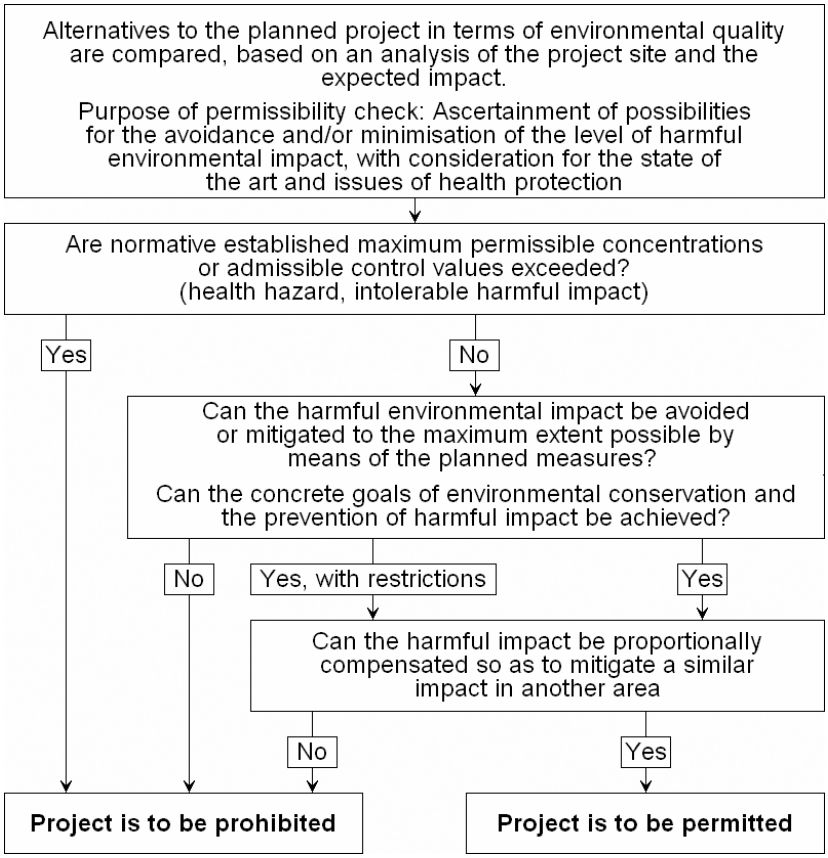


Fig. 8.6. Decision-making on the permissibility of a planned project from the point of view of adherence to ecological standards within the EIS framework.

Measures for the avoidance and minimisation of impact levels

These measures are preventive in their essence, as they are primarily directed toward the correction of technical decisions of the project aimed at achieving environmental impact standards. Examples of such measures for various types of development projects are shown in **Tables II.2.34-II.2.36, Appendix 2.8.**

Determination of the necessity of implementing impact compensation measures and the land required for their realisation

In case of impacts which are impossible to avoid or minimise by changing the project decisions, it is necessary to develop compensatory measures on other neighbouring territories. The determination of the necessity of these measures, and of which land will be required for their realisation, is shown in **Appendix II.2.38**.

Balancing impacts and the measures for their avoidance, minimisation, and compensation

The effectiveness of developed measures and the achievement of environmental targets are checked by balancing these measures and their potential environmental impacts. This audit is prepared in several stages enumerated below:

1. Description of the proposed project, based on a prognosis of the most significant impacts
2. Description of the protected assets and their functions in the project site area, the impact area and the effect area, with regard to their significance, long-term viability and sensitivity (see Fig. 5.2)
3. Description of potential environmental impacts upon affected protected assets and their functions:
    - Locations and sizes of affected areas, with their various functions
    - Types and levels of impacts on environmental functions, including their duration.

4. Development of preventive measures for the avoidance and minimisation of environmental impacts.
5. Description of the residual significant impacts after application of preventive measures, with their types, locations, sizes, and intensities
6. Development of measures for compensation of environmental impacts:

   - Location and areas of suitable sites for the implementation of compensatory measures, or locations and extents of the required specific land
   - Compensation targets and estimated period needed for the development of the desired state, taking into consideration the former state and the current significance of the land areas used for compensation
   - Description of necessary compensatory measures, broken down by measures for in-kind/on-site and for out-of-kind/off-site offsetting
     - Type of measure and its implementation by stage (initiation, development, and completion)
     - Time, duration, and necessity of continuous use or management,
     - Monitoring requirement for the implementation and functioning of the measure.

7. An integral inter-component and inter-functional assessment of the results obtained is made after balancing the impacts against the measures for their avoidance, minimisation, and in-kind/on-site and out-of-kind/off-site offsetting. The goal of this audit is:

   - To ascertain multifunctional compensation areas and measures, i.e. a ratio between these areas or measures and several significantly disturbed functions
   - To elucidate the effectiveness of measures in cases where a significant impact is predicted due to the interaction of several separately insignificant impacts
   - To answer the question as to whether the significance of particular protected assets and their functions can be increased as a result of project realisation, considering the measures developed, and if so, how
   - To answer the question as to which protected assets and their functions will not be able to be completely compensated in terms of environmental protection after the implementation of the measures of the above types and of landscape management, and to which extent.

Table II.2.38, Appendix 2.8 shows an example of an audit balancing impacts with the measures to be applied for their avoidance, minimisation, in-kind/on-site and out-of-kind/off-site offsetting (compensation), for a residential construction project.

The implementation of compensatory measures, their effectiveness and the target to be achieved is monitored from the beginning of project realisation. A special form, examples of which are shown in **Table II.2.39, Appendix 2.8,** is filled out for each measure.

8.5. Presentation of the results of the investigation

8.5.1. Recording the results of environmental impact assessment

In Germany, there are generally accepted standards for recording the results of impact assessment. Since they are established in the standard literature, these standards differ only slightly, and are largely identical for various project types. This facilitates participation in the procedures for the coordination of development projects, especially for the public. The general content of these standards is shown below.

The results of the investigation of environmental impacts are presented in both textual and cartographic form. The quality of these documents is important for understanding and ascertaining the possibilities for monitoring the results of the impact assessment process.

A shortened option is recommended for analyses of large volumes of results. This option provides significant results, which are summarised in tables and, if necessary, on maps. The content of these visual

aids proves the validity of the results obtained. The shortened option should be compiled in such a way that it can be used for the development of a comprehensible summary of non-technical character (see Sections 5.2.3 and 8.3.8).

Text compilation

The textual part of the document should be structured according to the order in which the results have been obtained. If necessary, the structure should be compacted by combining certain items. Items of the structure which do not refer to the results obtaining should be omitted (e.g., an unreasonably detailed description of the natural environment).

While compiling an explanatory report, it is necessary to take into consideration the specificity of the proposed project and the focus on ascertainment and analysis of the problems. Therefore, it is recommended to refrain from using descriptions of the general scientific content, or extensive literature citations. The text should be understandable to all and, if possible, be brief and convincing. This can be achieved through the use of tables, diagrams, schemes, graphics, figures, and other visual aids. Extensive explanations and justifications of specific topics of the project, such as expert reports on the state of the air quality, the mapping of flora and fauna, plans for the reduction of noise pollution, etc., should be included in appendices.

Cartographic design

The cartographic design of data is to be oriented toward the existing "model maps", which provide a framework pattern which can be adapted to the existing demands of a concrete project. They allow a clear, graphic illustration of the environmental impact of the planned development project.

The contents of maps should be combined if possible, especially if the evaluation of particular protected assets differs insignificantly. Depending on the circumstances, it is possible to reasonably dispense with certain maps if certain protected assets will not be affected by the planned project.

It makes sense for some project types to provide maps in a simplified form, and to choose a scale appropriate to such a simplification. The content of maps, their conventional symbols, and their legends should be adapted to topics specific to the planned project and the peculiarities of the area under investigation.

Texts and maps should be presented as a comprehensive whole, and both parts should be coordinated, and should supplement one another in their conclusions.

Electronic data processing

The process of the investigations and its approaches should not be determined only by the possibilities and limitations of the digital system. Therefore, it is necessary to use data processing programmes which can achieve the goals of the investigation, partially or completely, with no loss of quality.

Examples of the structure and content of materials on environmental impact assessment are shown in **Tables II.2.40, II.2.41, Appendix 2.9**.

8.5.2. The brief summary of environmental impact (summary of a non-technical character)

A summary of non-technical character is compiled by an EIS developer after completion of the investigations of environmental impact. The general requirements for the compilation of such a document are given below:

1. The summary of a non-technical character is focused on the efficient presentation of all documents developed within the framework of the investigation into the potential environmental impacts of an intended investment project. This is an important basis for the participation of the public in the discussion and decision-making process on the permissibility of the realisation of the proposed project, and it should be structured in a clear and understandable manner.
2. The summary should contain all significant results obtained within the framework of preparation of the environmental impact assessment documentation. It should constitute an independent document, and be understandable without reference to all the documentation.

3. The summary of a non-technical character should provide any third party with information as to how the project might affect which of their interests.
4. As the document under consideration is of a summary nature, detailed argumentation is omitted. However, the argumentation mentioned in the basic project documentation should be cited. Those terms and concepts which are not understandable to a non-specialist should be avoided. If that is impossible, they are to be explained in the text, or in a glossary.
5. The summary should cite not only the content of the basic documentation on studies of environmental impacts, but also the existing supplementary investigations, expert conclusions, and detailed opinions of the coordinating authorities, of the public, and of the media.

Examples of the structure and content of the summary of a non-technical character are shown in **Tables II.2.42, II.2.44, Appendix 2.10.**

9. CONCLUSIONS

The analysis of the German-Russian and European experiences with environmental components of project planning presented in this book has shown that with the realisation of a project, regardless of project type, environmental changes must be expected in any country. In the solution of conflicts however, a number of different criteria will be given priority to, which often have a strongly subjective nuance. Nonetheless, it is evident that there is a growing tendency towards prioritising and concretisising precautionary values. This tendency is reflected in the development of international and national environmental quality objectives and their legal enforcement. In procedural issues regarding environmental impact assessment, and with substantive/methodological guidelines on the environmental impact statement, the EU is also increasingly trying to harmonise the approach. This is possible because there has now been an accrual of many years of experience, which demonstrates the strengths and weaknesses of various methods and instruments.

It should be specially emphasised that the tasks of evaluation, prognosis and decision-making in the context of an environmental impact assessment of projects are complex and involve great uncertainty, particularly when the information is incorrect or lacking altogether. In Russia moreover, these duties often have to be addressed by people with completely different training. Such a situation calls for forms of representation of project information and methods of data processing which is understandable to a broad spectrum of people. From this perspective, it can be very useful for Russia to get to know the range of methods and instruments which have emerged from the practice of the environmental impact statement in Germany. These are generally qualitative, semi-quantitative and expert methods with which not only quantitative but also extensive verbal information can be managed.

Despite a rather large number of legal, regulatory and methodological documents on ecological accompaniment of project planning in Russia, it cannot be said that sufficient support, let alone legal stipulations, exist, according to which the key issues of the assessment of environmental impacts – **whether? where?** and **how?** a project is to be implemented – can be answered. The authors of this book are hopeful that the proposed process and structures of content and methodological guidance can contribute to the further development of the environmental component of project planning in Russia.

At the beginning of their adoption and efficient application in Russian practice, the methods and techniques presented must be tested on different project types, and adapted. This is a task for the various scientific disciplines, although additional investment and the permission of higher authorities are not necessarily required. Such work may be carried out in the framework of relatively large planning projects, as it were, as a continuation of what has been started under the German-Russian cooperation effort with the present compendium.

Annex 1

GUIDELINES FOR THE PROCEDURE OF ENVIRONMENTAL ACCOMPANIMENT OF PROJECT PLANNING AND THE ECOLOGICAL EXPERTISE IN RUSSIA

Annex 2

GUIDELINES FOR THE DRAFTING OF ENVIRONMENTAL IMPACT STATEMENTS IN RUSSIA

Annex 3

GERMAN TECHNICAL TERMS

Approval procedure	An administrative procedure designed to assess and determine the legality of a project. At the end of this procedure, implementation of the project will be either approved or rejected.
Balancing of interests	Legally regulated procedure within the planning and decision-making process, in which the competing objectives and concerns are juxtaposed according to their importance, and the weightier matters are given priority.
Compensation	The umbrella term covering both in-kind/on-site offset and out-of-kind/off-site offset measures in connection with the application of the rules governing compensation for unavoidable damage.
Environmental Impact Assessment Procedure (EIA)	A non-independent part of an official procedure for determining the permissibility of a project. The objective of the EIA is the avoidance or minimisation of adverse environmental impacts, i.e., it serves to optimise the project.
Environmental Impact Statement (EIS)	An ecological expert report which is part of the EIA; it describes and evaluates the impact of the project on protected assets.
Environmental impact	Positive or negative changes of the natural assets which may e.g. be caused by a project. The prerequisite for the occurrence of effects is that the protected assets have specific sensitivity certain impact factors.
Examination of alternatives	1. Examination of alternative solutions to a planned project within the framework of the EIA, Habitat impact assessment or SEA. 2. Comparative studies of project alternatives in terms of environmental impact, as a comparison of variants.
Impact mitigation regulation	A legal stipulation which regulates the avoidance and compensation of the impacts of such an intervention.
Impact, impairment	Negative effect on the functional capacity of an ecosystem or its components, or on the landscape, which is specifiable in terms of type and duration.
In-kind/on-site offset	Compensation for damage to the ecosystem or the landscape caused by the implementation of a project, which must be materially/functionally in kind, proximate in time, and on-site.
Intervention	Under the Federal Nature Conservation Act, interventions in nature and the landscape are impacts which change the form or use of land or of the water table connected with the biotic surface of the soil such that significant impact of the capacity of the ecosystem and landscape is possible.
Investigation framework	The manner, object, scope, duration and methodology of the investigations to be carried out in the framework of a planning process. The framework also includes the delimitation of the area of investigation.
(Investment) project	The object of a planning process. If the project is a building, the term *Bauvorhaben* (construction project) is also used. If it is a law, it is called a *Gesetzesvorhaben* (legislative project).
Negative list	A list in which projects are listed which typically do not have a significant impact, so that no further testing is required.

Out-of-kind/off-site offset	Compensation for impairments of the ecosystem or landscape caused by the implementation of a project, to be considered only if in-kind/on-site offset measures are impossible. Out-of-kind/off-site offsetting must not necessarily be materially/functionally in kind, proximate in time, or on-site.
Participation by a public authority	Legally required or voluntary involvement of authorities in a planning process through the participation of public agencies.
Piggy-back procedure	A public law procedure that is not performed independently, but is linked to another process, i.e. "rides" on it.
Planning approval procedure	Administrative procedures for the approval of major projects. It is used in higher-level spatially significant sectoral planning. The procedure ends with the planning permission.
Positive list	A list in which projects are listed which typically can be expected to cause a significant impairment.
Project developer	The investor, person or institution that carries out a project.
Protected asset	Natural, cultural and/or material assets protected by legal ordinance because of their importance. Generally, a distinction is made between abiotic, i.e. non-living protected assets, such as the soil, and biotic, were living protected assets, e.g. animals.
Public agency	Public agencies perceive generic term for government and other institutions performing public functions. They are planning to participate in certain processes, if they could be affected by the plan in any way.
Public participation	Legally mandated or voluntary involvement of citizens in the decision-making and planning processes.
Scoping	Determination the investigation framework.
Screening	Preliminary assessment of a individual case to determine whether an EIA procedure is mandatory.
Significance of impact	A term rooted in various statutory provisions that describes a threshold for the severity of the most adverse environmental change, and must be determined on a case by case basis.
Spatial planning procedure	An administrative procedure for assessing the compatibility of a project with the requirements of spatial planning, and for the coordination with other spatially significant plans and measures. It is the planning procedure upstream from the planning approval procedure or route determination procedure; it does not lead directly to project approval.
Strategic Environmental Assessment (SEA)	A procedure used for plans and programmes that have a significant impact on the environment, in which the needs of environmental protection and nature conservation are already taken into account during the preparatory phase.
Zero option	A case in which a project is not implemented.

The glossary explains the most common German terms used in the compendium. For other German and Russian terms with the corresponding definitions, see the following trilingual dictionary, which has also been created as part of the German-Russian cooperative effort:

BUNDESAMT FÜR NATURSCHUTZ (Hrsg., 2006): Naturschutz mit Schwerpunkt Landschaftsplanung. Deutsch-russisch-englisches Sachwörterbuch. Bonn, Berlin, Hannover, Moskau, Irkutsk.

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2. О внесении изменений в отдельные законодательные акты Российской Федерации в связи с совершенствованием разграничения полномочий / Федеральный Закон РФ № 199-ФЗ от 31 декабря 2005 г.

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Scientific publication

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