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Strategic environmental assessment of spatial plans in the light of own research

Key words: strategic environmental assessment (SEA), spatial plan, prognosis of environmental impact of spatial plan, SEA methods

Introduction

A strategic environmental impact assessment (SEA) is a third (beside an environmental impact assessment and an habitat assessment) principal form of an environmental impact assessment both in the Polish and European legal systems of environment protection. In the current legal situation, this assessment precedes preparation of development documents, among them also planning documents and their changes. An impact assessment of the outcomes of completion of local plans on the environment pertains to communes, which before voting or implementing changes to the plan should carry out such a procedure. It also pertains to investors who are obliged to conduct their building plans on the basis of the guidelines of local plans. As far as Natura 2000 sites are concerned, a prognosis of environmental impact may condition an acceptance of passing a local plan in a given localisation. In the Polish legal system, strategic environmental assessment in its procedural respect is regulated in the Act of 8 November 2008 on an access to the information of environment, and assessments of environmental impact, whereas in the part concerning contribution of community in preparation and acceptance of planning documents – the Act of 27 March 2003 on spatial planning and development.

In the literature an issue of assessing environmental impact of the projects of local plans has not been covered satisfactorily. The reference (Dalal-Clayton & Sadler, 2005) is mainly focused on description of experiences of different member states of the EU and developing countries in implementation of a strategic environmental assessment. In

the references (Khosravi, Jha-Thakur & Fischer, 2018; Fischer, Welsh & Jalal, 2019) the strategic environmental assessment of different strategic programmes were introduced. In the article of Rożek (2017), the author paid a special attention on demonstrating relations between communes' local planning acts and environment protection. In the references (Pyszny & Przybyła, 2014, 2017; Choi & Lee, 2016), the scope of using the GIS tools was analysed for the needs of preparing prognoses of environmental impact and of making an assessment of the prospects of the development of these tools in strategic assessment of environmental impact. In the references (Bednarek, 2012; Noble, Gunn & Martin, 2012; Tokarczyk-Dorociak et al., 2018) the methods of preparing prognoses of environmental impact which are recommended by experts and used in practice were characterised. In the references (Xie & Hao, 2014; Valizadeh & Hakimian, 2018), matrix methods were characterized.

Material and methods

The aim of the research was to examine the current requirements for strategic environmental assessment by the projects of local plans as well as an evaluation of quality of basic documents submitted with the assessment in their methodological aspect. Two cities in Poland were chosen for the analysis, both with the status of district and namely Olsztyn and Cracow, with a different degree of coverage with local spatial development plans (Olsztyn – 58% and Cracow – 61.7%) and with a different activity pertaining to completion of strategic assessments. The methods of the research were based on an analysis of the present knowledge, and among these on 44 prognoses on environmental impact prepared in the years of 2016–2018. In the first stage of the research there was checked on which projects of local plans an obligation of conducting SEA was imposed in each of the two cities, and for which projects an appropriate administrative body agreed to resign from its conducting or concluded that making such an assessment is not compulsory. Then it was examined which methods of assessment were used for the needs of basic documents of strategic assessment, i.e. of prognosis of an environmental impact. In the research checking lists were applied on the basis of which it was concluded whether the authors of the prognoses described the methods of their preparation and determined criteria of the assessment. The research was supplemented with the results of direct interviews. The interviews were conducted with self-government employees appropriate for making assessment of environmental impact as well as governmental administration employees who are responsible for giving opinions on prognoses of environmental impact.

Algorithm of the SEA procedure of a spatial plan project

A general character and ambiguity of the wording of the Act of 2008 pertaining to a strategic assessment of environmental impact made the authors of this article work out methods of conducting such an assessment. A strategic assessment of a project of a local plan is a multi-stage

procedure with a participation of the interested parties, environment protection bodies and a community. It consists of the following stages:

- Stage 0. Activities initiating the SEA procedure.
- Stage 1. Determining the needs for conducting an environmental assessment.
- Stage 2. Agreeing on the degree of information minuteness foreseen in the prognosis of environmental impact.
- Stage 3. Making the prognosis.
- Stage 4. Receiving required opinions about the prognosis.
- Stage 5. Ensuring a community participation.
- Stage 6. Justification and recapitulation of the SEA.

An initiation of the SEA procedure takes place through a chain of preparatory activities, such as a passage of a resolution by the commune council on initiation of working out a local plan, a publication of the announcement about developing the plan, its presentation and the possibility to submit applications and comments, a publication of the announcement on carry out the SEA procedure, and considering of applications and comments to a local plan project. Combining information on the initiation both spatial planning and the SEA procedures is not prohibited and often used in practice. However, it reduces the importance of SEA and makes it only an element added to the procedure of developing a local plan.

In the first stage a determination is made for the need of conducting an assessment of the outcomes of the completion of the project of a local plan on the environment. A municipal authority may refrain from making a strategic assessment, if it concludes that implementation of the project will not impact the environment significantly. Such a resignation may pertain only to document projects constituting small modifications of the earlier accepted local plans (e.g. preservation of the current land use with a change in the color of the roofs of single-family housing). A resignation from conducting a strategic assessment may take place only on the motion of a commune self-government body and after negotiations with a regional director of environment protection (RDEP) and a provincial sanitary inspector (PSI). The application form should include: data of the applicant, the legal basis that concerns the requested activity, the name of the local plan and the draft of this document. A modification of a spatial plan is qualified to be subject to the procedure of assessment (screening) according to the determined act criteria (kind and scale of environmental impact as well as features of the area included in the plan). A resignation from a strategic assessment of environmental impact requires a justification including information about the mentioned stipulations. The body that prepares a document project should inform the public opinion about the assessment resignation.

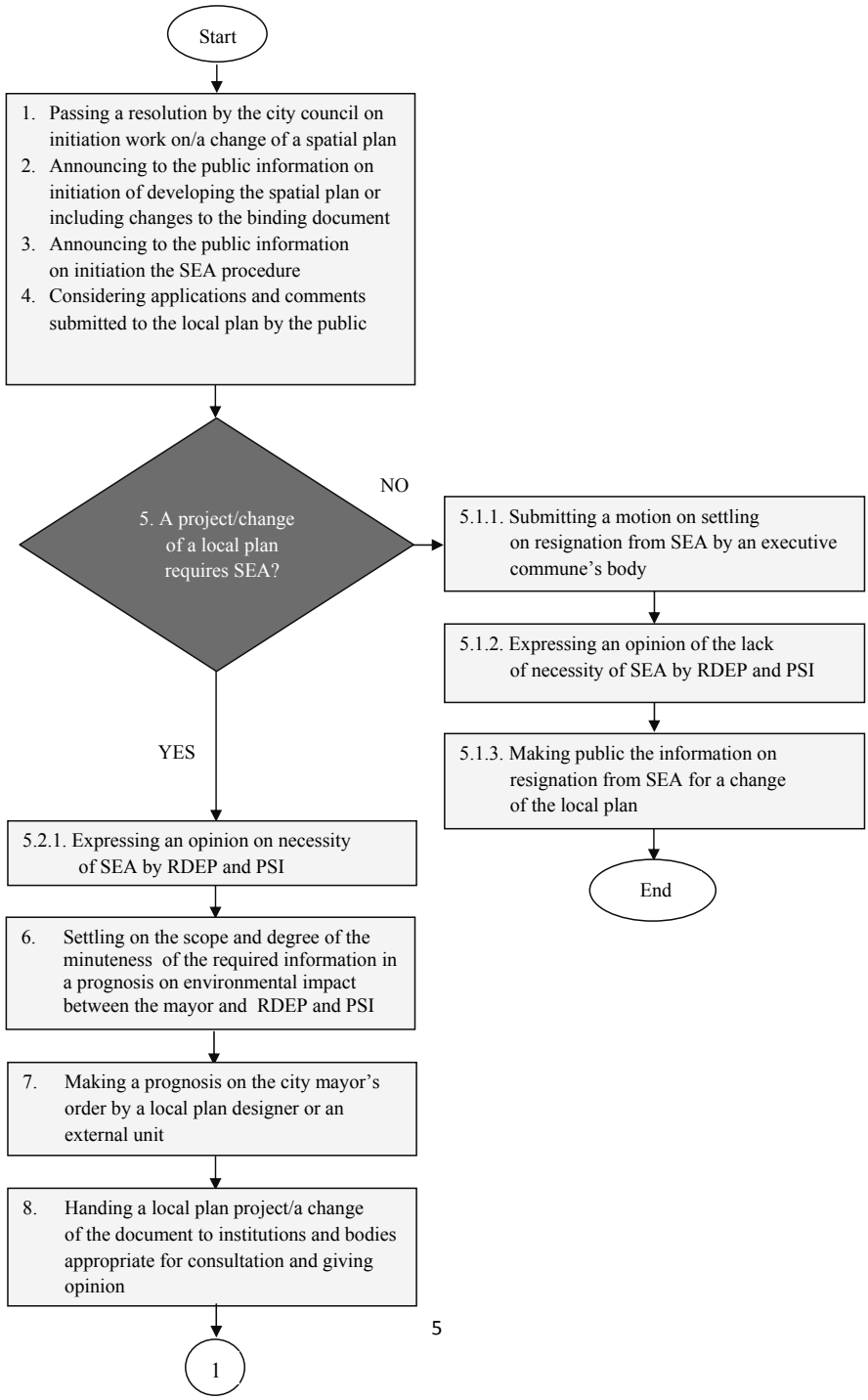
In the second stage a minuteness of a prognosis of environmental impact is determined. Its scope is regulated by the Act of 8 November 2008. Beside the elements required by the act, which are obligatory, the scope and degree of the minuteness of information that is required in a prognosis is determined with appropriate administrative bodies. The agreed

scope of the prognosis should exhaust doubts about its content. A resolution issued by these bodies on the scope and degree of the minuteness does not have an univocally determined legal form and cannot be subject to a plaint. It is required though that the plaints are considered by the author (the designer of a local plan, an external subject). The table shows a draft of checklist which may be an auxiliary tool in agreeing on the withdrawal to conduct the SEA procedure.

In the third stage of strategic assessment a prognosis of environmental impact is worked out. It had to be made before informing appropriate institutions and bodies for giving opinions and agreeing on the plan project about its conducting (Fogel, 2014). This document aims at presenting the results of a local plan completion for the environment and possible solutions minimising potentially negative outcomes of the plan items on particular elements of the environment. A prognosis is not an attachment for a local plan. It should, however, be exposed to the public viewing together with each layout of the plan. A good practise of many municipalities is increasingly sending a prognosis along with the draft of a spatial plan to all bodies that give opinions and agree on solutions adopted in this document. A prognosis has not got a normative character and it is also not binding on citizens or the municipality itself. This is a document of a assessing

TABLE. A checklist for agreeing on the withdrawal from the SEA procedure

No	Question	Yes/no comments	Statutory basis
1	Does the application for an opinion regarding the withdrawal from conducting the SEA meets formal requirements?		Act of 14 June 1960
2	Has the application been accompanied with a draft change of the local plan/preliminary findings, assumptions/copy of the resolution of the city council regarding the accession to drawing up the spatial plan?		Act of 14 June 1960
3	Does the spatial plan contain a comprehensive description of the change of the local plan?		Act of 14 June 1960
4	Does the change of the spatial plan, for which it is requested to withdraw the SEA, have the characteristics of a slight modification?		Act of 8 November 2008
5	Is the withdrawal done from the SEA after consultation with the relevant competent authorities?		Act of 8 November 2008
6	Does the opinion agreeing to abandon the SEA show that the implementation of the provisions of the local plan will not cause a significant impact on the environment, including Natura 2000 sites?		Act of 8 November 2008
7	Have the criteria set out in the Act of 8 November 2008 been taken into account while determining the need (or its lack) for the SEA?		Act of 8 November 2008
8	Was the information about the withdrawal from the SEA for the draft of local plan publicly disclosed?		Act of 8 November 2008


Start
1. Passing a resolution by the city council on initiation work on/a change of a spatial plan
2. Announcing to the public information on initiation of developing the spatial plan or including changes to the binding document
3. Announcing to the public information on initiation the SEA procedure
4. Considering applications and comments submitted to the local plan by the public
5. A project/change of a local plan requires SEA?
NO
5.1.1. Submitting a motion on settling on resignation from SEA by an executive commune's body
5.1.2. Expressing an opinion of the lack of necessity of SEA by RDEP and PSI
5.1.3. Making public the information on resignation from SEA for a change of the local plan
End
YES
5.2.1. Expressing an opinion on necessity of SEA by RDEP and PSI
6. Settling on the scope and degree of the minuteness of the required information in a prognosis on environmental impact between the mayor and RDEP and PSI
7. Making a prognosis on the city mayor's order by a local plan designer or an external unit
8. Handing a local plan project/a change of the document to institutions and bodies appropriate for consultation and giving opinion
5
1

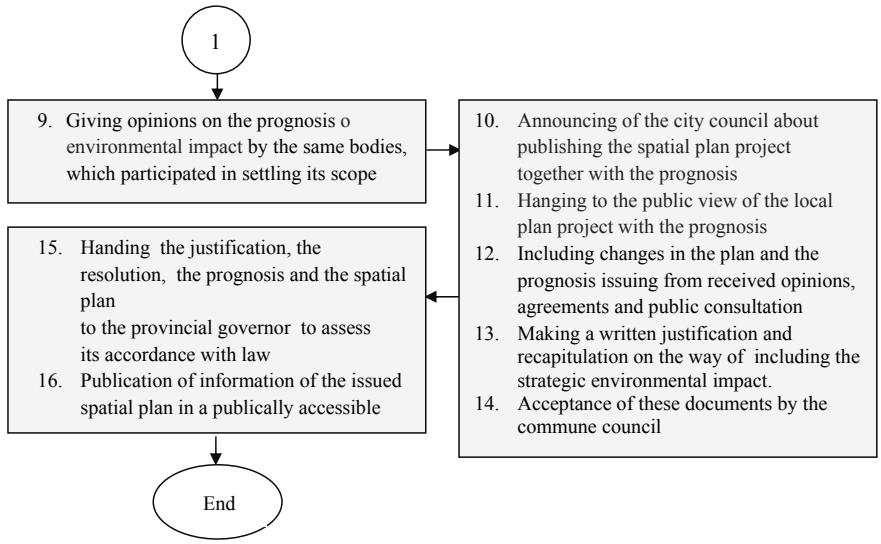


FIGURE 1. Algorithm of SEA procedure for local plan projects in Poland

and verifying character with regard to a planned use and the way of development of an area. However, without binding, it can significantly influence both the shape of a local plan and its subsequent implementation. At the stage of work on the local plan project, the prognosis becomes an early warning measure. In turn, during the implementation of the local plan, the prognosis should contribute to the selection of options favorable for the environment. Presently there are no detailed requirements to be met by a prognosis of environmental impact in the rank of an act.

In the fourth stage opinions are issued on the prognosis and the project of a local plan (from 1 January 2018, a local plan draft is consulted with the director of the regional executive staff of water management of the Polish Water State Water Holding). Authorised to give an opinion on a prognosis are the same bodies as in the case of negotiating its scope. There are a 30-day time limit for issuing an opinion. An opinion is given in the form of an ordinary letter, and contrary to an agreement, is not legally binding. The subject which prepares a project of a document must consider the opinion.

The fifth stage is aimed to ensure community participation in a strategic environmental assessment. First of all, this participation is to guarantee appropriate information of all the interested parties of a given proceeding and to enable them to make remarks and motions for the documents submitted to the public. The Act of 8 November 2008 does not determine a starting time of community's consultations. It is recommended though to begin them after preparation of a prognosis on environmental impact for a made document and after receiving opinions of other bodies.

In the sixth stage, additional documents should be developed regarding the SEA procedure. The first of them is the

document that justifies the inclusion of applications and comments submitted in relation to the public participation (it is not a document identical with the justification of the resolution of the commune council regarding the local plan). The second of them is the document that justifies the choice of the local plan adopted in relation to the considered alternatives. It is also containing information on the manner of taking into account the findings of the prognosis of environmental impact. In practice, one document is being developed that combines these issues with different results. This document does not constitute an annex to the resolution of the commune council regarding the local plan. It is attached to the planning documentation in order to enable the provincial governor to assess the compliance with the requirements related to the development of such documents. Figure 1 shows an algorithm of the SEA procedure of a local plan project.

Study on assessment methods used in SEA documentation

A prognosis of environmental impact is developed by the entity preparing a local spatial plan draft, and so the commune head and the mayor. In the case of the city of Olsztyn, all prognoses were outsourced to external contractors under the provisions of public procurement law. In Cracow – the spatial planning process (and development of prognoses), as the self-governmen's own task, in the vast majority of cases (88%) was carried out by the urban studio. A prognosis, as a special kind of an expert appraisement, should be characterised with high substantial values. Thus one of the aims of the study was identification of methods used during their creation. We didn't evaluate methods of assessment declared by the authors of prognoses. Some inventoried methods raise our doubts as to their naming method, not mentioning their use. An analysis of the assessment methods in the context of our study was to show if the methods applied in prognoses are adequate to the state of modern knowledge and selected from those recommended by experts.

In the first part of the study 44 prognoses of environmental impact were subjected to an analysis. Analysing them we concluded that some of them were preceded two or three times. Duplicating documents were rejected from analysis. We adopted the principle that for a further investigation we kept the earliest version of a document, which includes corrections made on the basis of earlier opinions or changes made by the designers of local plans. After rejection of duplicating prognoses, 29 documents were admitted for analysis.

After the analysis of the methodical chapters of the prognoses for the local plan projects in Olsztyn we concluded that not all of the applied methods were mentioned by the authors. A brief characterization of the matrix interaction method appeared in one of the prognoses in the chapter on identifying the impacts of the planned land development functions on the environmental components. Similarly, in another prognosis, the simplified matrix method was used but no mention was made by the authors. In these two mentioned documents we identified four other methods. In total, nine methods were referred to in the prognoses for

the local plan projects in Olsztyn, but a detailed characteristics of these methods was not included in any of the assessed documents. The method used in 100% of the prognoses was a descriptive one. In 75% of the prognoses a reference was made to a local visit, and in half of them it was emphasised that the information they presented was adopted to the content and degree of minuteness of a local plan project.

In contrast, the prognoses of environmental impact for local plan projects in Cracow were characterised with a greater methodical uniformity (Fig. 2), although in one of the analysed documents the SEA method was not stated at all.

The mostly used methods were the following: descriptive, superimposing and simplified matrix, but the last of them was not mentioned by the authors. In all the prognoses the order of activities was described which were done for preparation of a prognosis, but in places where they stated that the degree and character of the impact on the environment were determined, the criteria on the basis of which the assessment was made, were not named. In 84% of all the prognosis a reference to the Decree of the Minister of Environment of 14 November 2002 was made on detailed conditions to be fulfilled by a prognosis of environmental impact concerning projects of local plans of spatial development. The above-mentioned decree lost its legal force since 25 July 2005 (when an amendment of the parliamentary act on the law of en-

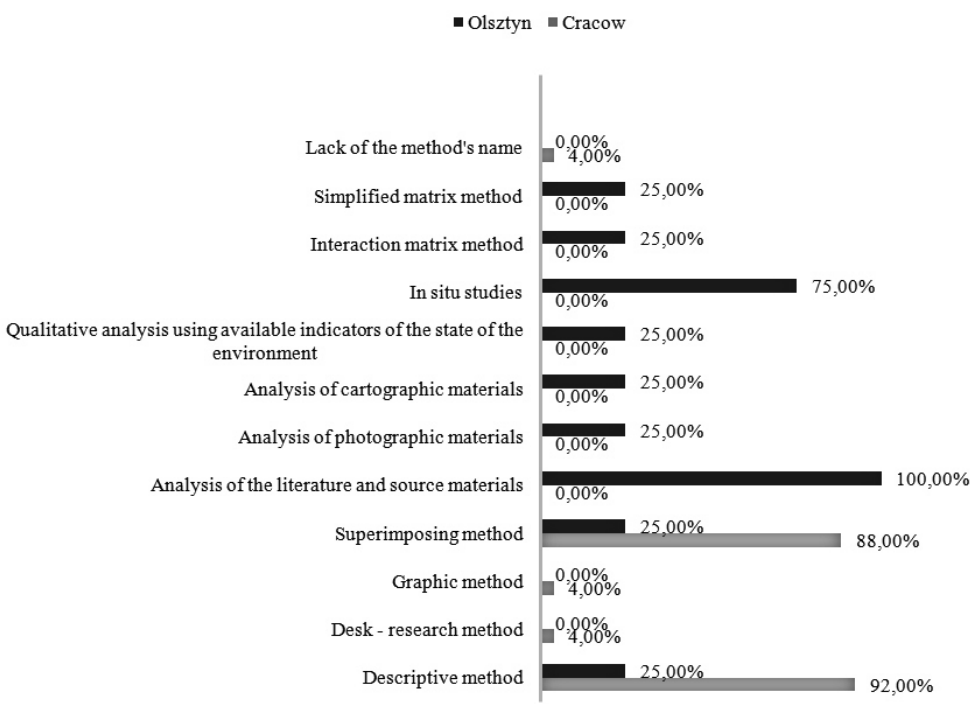


FIGURE 2. Methods indicated by the authors of prognoses in Olsztyn and Cracow in the period of 2016–2018

vironment protection was passed). In none of the analysed prognoses quantitative methods of prognosing were applied, which are considered as a useful supportive tool for decision making (Strulak-Wójcikiewicz & Łopuszyńska, 2014; Gicala & Sobotka, 2017).

Conclusions

The research showed a sketchy character of the principle used in making SEA issuing from regulations. Therefore we worked out an algorithm of the strategic assessment process, which can prove to be helpful in understanding of its aim and essence by investors and community. The elaborated algorithm is applicable in all cases requiring SEA. It also enabled us to spot weaknesses of the assessment process.

Up till now additional requirements to be met by a prognosis of local plan environmental impact have not been determined in the form of an executive act. Specifying of such requirements could be helpful to the subjects making such prognoses in precise determination of their content in a given case.

It is only right that an obligation to negotiate ready prognoses of environmental impact should be introduced instead of giving opinions, since agreement should be made on the scope and degree of minuteness of information required in a prognosis.

Guaranteed by the law possibility of refraining from SEA was not applicable in the case of changes made in the local plans in the period under study. It was used though in the case of other documents of a programme character (e.g. in up-dating plans of asbestos removal or environmental protection programmes).

It is justified to clarify the conditions determining the resignation from SEA, such as "minor modifications of documents". In the current regulation these are left undefined.

While preparing a prognosis of environmental impact, a variety of methods should be used. Only this approach gives the possibility of conducting multi-directional and multi-criteria assessment of the impact of the local plan project on the environment. The methods used by the authors of analysed prognoses were more diverse in the case of the city commune of Olsztyn than of Cracow. Partially it was due to the fact that making a prognosis was not a task of a local plan designer, but it was outsourced to different external firms in the way of a public order. In the absolute majority of prognoses, there was no detailed justification for the use of a particular method.

A common use of the descriptive method as the primary method for assessing the environmental impact of local plan projects diminishes trustworthiness of analysed prognoses. Relatively well-developed are assessment methods of environment condition (the magnitude of its resources and values, the pressure exerted by human's activity and the quality of environment) and the degree of task completion in the field of environment protection, constituting a starting point for the principal assessment. The methods of direct assessment of the impact of the determined points of local plan projects on the environment require a further improvement, which should not be limited only to the matrix methods.

The study on the quality of prognoses of environmental impact will be continued due to their decisive impact on the effectiveness of SEAs.

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Summary

Strategic environmental assessment of spatial plans in the light of own research. Strategic environmental assessment constitutes the least explored in research kind of an environmental assessment in comparison to environmental impact assessment and habitat assessment. The introduction of a strategic assessment was to ensure the completeness of the assessment system of environmental impact in investment processes and to guarantee a consideration for the principle of caution in early stages of these processes. In the current legal situation, a strategic environmental assessment should anticipate a preparation of commune's planning documents or making changes in such documents. In the case of local plans constituting minor changes of earlier-accepted documents, a strategic assessment is not made. As a result a strategic environmental assessment may be conducted in a limited scope in numerous communes. Additionally, a sketchy character and ambiguity of the regulations concerning strategic environmental assessments result in a lack of understanding for the necessity of conducting such assessments among investors and community. The aim of this article is to work out methods for strategic environmental assessment of the projects of local plans and to examine which methods of environmental impact assessment have been used in the prognoses of environmental impact, i.e. in the basic assessment documents. The research made shows that the quality of documents prepared for the need of strategic assessments is unsatisfactory in the aspects of methodology.

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