

SEA for the Prespa Lake Watershed Management Plan

The SEA-report for the Prespa Lake Watershed Management Plan (PWMP) is a good example of an SEA for water management planning. The SEA-report contains a lot of data on problem analysis, objectives and possible measures to deal with the problems in the Prespa Lake area. The SEA-report concludes that interventions are needed if water quality and quantity problems are to be addressed, and gives an overview of different measures to consider. This factsheet described the SEA process and content, as well as some lessons learned for future practice

The management plan for the Prespa Lake Watershed, which is part of the Crni Drim River Basin, is the first water management plan to be established in Macedonia. Plan development is as part of the UNDP/GEF trilateral Prespa Park project (Integrated Ecosystem Management in the Prespa Lakes Basin of Albania, FYR-Macedonia and Greece). The SEA that has been undertaken for this plan is a benchmark SEA for Macedonian practice.

The Water Framework Directive

The European Water Framework Directive (WFD) requires the establishment of river basin districts, each of which must produce a River basin management plan (RBMP) for each 6-year period. The key aims of the WFD are:

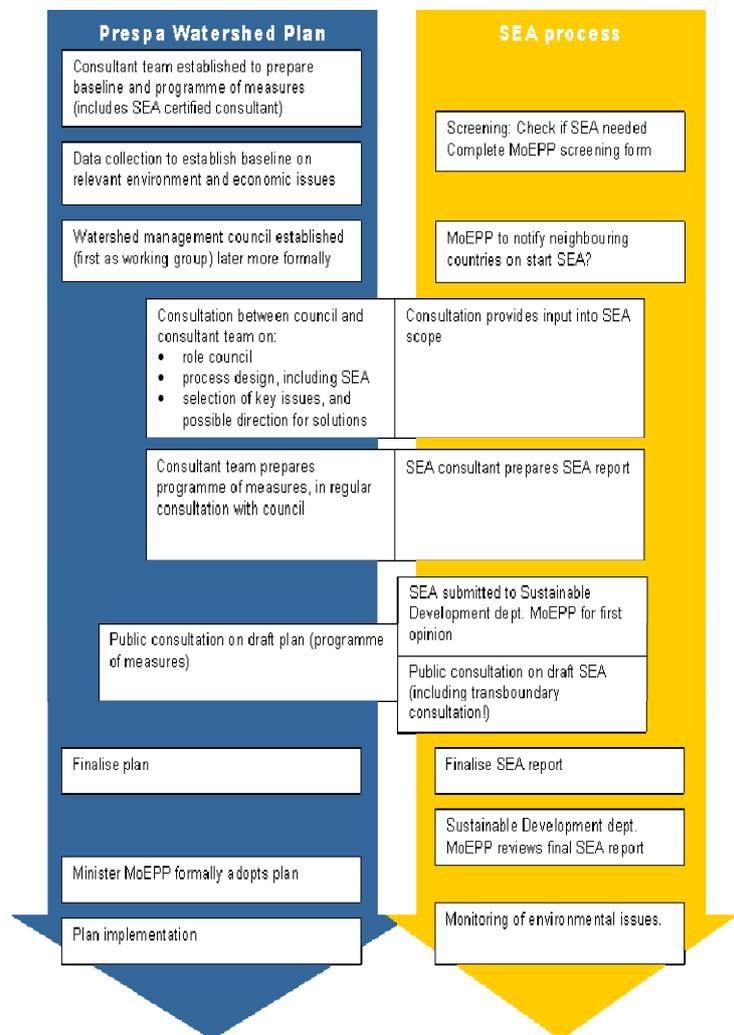
- to extend the scope of water protection to all surface and groundwater;
- to achieve 'good status' (as defined by the WFD) for most of Europe's waters by 2015;
- to develop a combined approach of emission limit values and quality standards to manage water quality and quantity;
- to facilitate the efficient economic valuation of water resources;
- to enhance levels of consultation and public participation during water management.

The implementation of the WFD is often the most prominent reason to establish a Water management plan. The EU SEA Directive states that these types of plans fall within the remit of the Directive and should therefore be subject to an assessment.

The final PWMP for the next six year period will be adopted by the competent authorities. Before that the draft plan and SEA-report will be open for public (including transboundary) consultation and the Department of Sustainable Development of the MoEPP will review the SEA-report. For plan development and implementation the *Prespa Lake Watershed Management Council* has been especially established.

The members of the council represent all important interests related to the plan, such as municipalities, state institutions/agencies, Natural Parks institutions (management bodies of protected areas), NGOs, Ministry of Environment and Physical Planning staff, water users (associations) and research/academic institutes.

In the early stages of the planning process, the Prespa SEA team, together with MoEPP SEA Staff, sat down to map out the steps in the planning and SEA processes. The resulting diagram – as shown below – helped to clarify how the different plan and SEA activities, as well as the procedural requirements, could best be co-ordinated.



Current situation and major issues

The Prespa region is considered to be an ecosystem of global significance and has been identified as one of Europe's major trans-boundary "ecological bricks". The entire Prespa Region hosts unique habitats that are important from both European and global conservation perspective. However, unsustainable agricultural, fisheries, water and forest management practices are causing stresses on the ecosystem health of the Prespa Basin.

The first step in developing the PWMP has been to identify the “baseline” and trends, which provides the information that is needed to:

- identify the major problems (which are relevant for the plan), causes for these problems (mechanisms) and likely future development;
- establish the reference situation (business as usual scenario) which will be used to compare alternatives on the level of achievement of objectives and environmental impact.

The Phase II Report on the Prespa Lake Watershed Management Plan (October 2010) describes the main problems for the Prespa Lake watershed and the main causes of these problems. This analysis of problems and causes forms an important basis for:

- setting objectives and indicators
- defining the assessment framework
- selecting measures and developing alternatives

Main problems	Main causes
<p>Surface water quality: Prespa Lake and most other water bodies (rivers) don't meet the WFD-criteria:</p> <ul style="list-style-type: none"> • high nutrient concentrations (N, PO₄, SO₄) • heavy metals in rivers (Mn, Fe, Al) and in Prespa Lake (Zn, Cu and toxic metals like Hg) • priority substances (pesticides) • ecological status partly moderate/ poor/bad 	<p>Point sources:</p> <ul style="list-style-type: none"> • domestic wastewater • industrial pollution (poultry enterprise, metal processing, food processing, etc) <p>Diffuse sources:</p> <ul style="list-style-type: none"> • fertilizers (no efficient techniques) • pesticides (preparation, application, washing, waste dump) • organic waste (apples, pesticide package)
<p>Groundwater quality: Contamination with pesticides and bacteria</p>	<ul style="list-style-type: none"> • pesticides from landfill • large amount of extraction wells
<p>Water quantity: Level of Prespa Lake has dropped significantly in the last 25 years</p>	<ul style="list-style-type: none"> • karstic outflow • evaporation • water extraction for irrigation and water supply

Objectives and indicators

An objective is a statement of what is intended, specifying a desired direction of change. Objectives can be expressed in a way that make them measurable (e.g. an objective to ‘improve surface water quality’ could be expressed as “good water quality status (WFD) for waterbody X in 2015”). The achievement of objectives is normally assessed by using indicators.

According to the WFD, “reference conditions” on both chemical and ecological water quality have to be identified for each type of water body (including groundwater bodies). These reference conditions will be the long term objectives for water quality, but usually they are not realistic objectives for the 6-year plan for each water body.

Table: Current status and (long term) objectives for waterbodies in Prespa Region

Name	Current status	Action needed?	Objectives	
			Rivers	HMWB & AWB*
Istocka 1	Good			
Istocka 2	Bad	Y	Good	
Istocka 3	Poor	Y	Good	
Golema 1	Good			
Golema 2	Moderate	Y	Good	
Golema 3	Moderate	Y	Good	
Golema 4	Moderate	Y	Good	
Golema 5	Moderate	Y	Good	
Golema 6	Bad	Y		Good potential
Golema 7	Bad	Y		Good potential
Golema 8	Poor	Y		Good potential
Kurbinska	Moderate	Y	Good	
Kranska 1	High			
Kranska 2	Moderate	Y	Good	
Brajcinska 1	High			
Brajcinska 2	Poor	Y	Good	

*) Highly Modified Water Bodies and Artificial Water Bodies

Selecting measures and developing alternatives

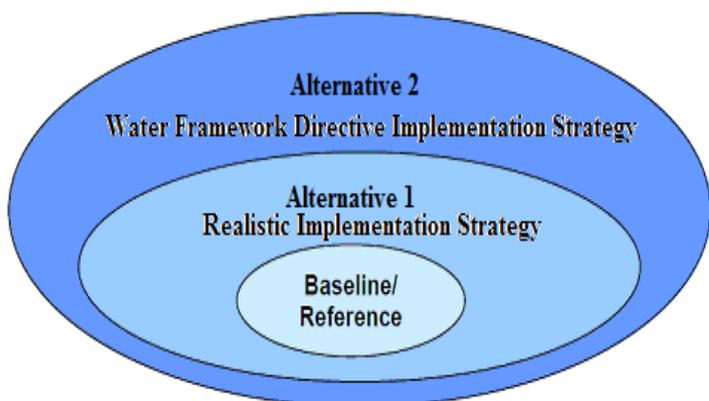
If problems and objectives are identified, the next step will be a broad exploration of possible solutions or strategies. Based on different criteria, the list of possibilities can be reduced to a selection of “realistic” solutions. For the PWMP this exploration has led to a so called “programme of measures”, which has been discussed with stakeholders (the “council” mentioned earlier).

Measures in this programme are very different in type and size/scale. For instance: technical measures (building a dam, improving sewage networks), regulatory measures, measures focusing on management, awareness raising or training (introducing drip irrigation, rational use of pesticides and fertilizers) and further investigation- and monitoring programmes. Some measures influence each other or are interdependent.

The programme of measures contains all measures that will be needed to achieve the objectives of the WFD. The PWMP will contain a part of these measures, to be implemented in the next six years.

Comparing **alternatives** is key to an SEA. The idea of alternatives is that there are different ways of achieving the plans objectives, and the SEA should support both public debate and decision-making on these different options. In the SEA for the PWMP alternatives were developed from the programme of measures:

- Baseline/reference: no actions will be taken
- Alternative 1, contains a selection of measures from the programme. The selection was based on a multi-criteria-analysis.
- Alternative 2 contains all measures from the programme of measures



The assessment framework

Comparing plan or programme alternatives by assessing their effects is central to an SEA. For this an “assessment framework” is needed: which (environmental) issues and criteria are relevant and which indicators can be used to assess the effects against those criteria.

In the draft SEA for PWMP the assessment framework looks like this:

Theme	Criteria
Water	<ul style="list-style-type: none"> • Groundwater quality • Quantity of drinking water • Surface water quality of waterbodies • Pollution of rivers • Lake pollution • Pollution to AWB, HMWB • Pollution to wetlands • Water abstraction
Air	<ul style="list-style-type: none"> • Reduction of energy consumption • Reduction of pollutant emissions • Reduction of GHG emissions
Soil	<ul style="list-style-type: none"> • Maintaining important geological formations • Reduction of nutrients input • Reduction of priority substances and hazardous substances • Protection from flood an erosion
Fauna & flora	<ul style="list-style-type: none"> • Safeguarding of terrestrial habitats • Safeguarding of rare plants and species • Safeguarding of endangered animal species • Reduce deforestation • Preservation of forest areas
Human beings	<ul style="list-style-type: none"> • Protection against natural hazards • Reduction of noise • Reduction of waste volumes • Protection of recreation & tourism areas • Prevention of hazards caused by contaminated sites
Other themes	<ul style="list-style-type: none"> • Cultivated and natural landscape • Economic growth of the region • Protection of material assets and cultural heritage

Assessment of alternatives

At the assessment stage the environmental effects of the plan alternatives are further analysed and evaluated against the assessment framework. This means identifying the changes to the environmental baseline (reference situation) which are predicted to arise from the plan alternatives.

The draft SEA-report for the PWMP shows the effects of the different measures across different criteria (sectors & issues), as set out in the assessment framework above. Effects of a measure can be either very positive (score +2), positive (+1), none/insignificant (0), negative (-1) or very negative (-2). A full assessment matrix of the effects is presented in an Annex of the report.

The SEA-report concludes that interventions are needed, if the downward trend in the quality of surface waters in the watershed is to be halted, and also in order to preserve the water quantity (both the levels of groundwater and in Lake Prespa). The assessment of the “business as usual scenario” shows that the situation will get worse if no action is taken.

The SEA-report gives an overview of different measures to consider that can contribute to the plan objectives, without causing significant negative environmental effects. This means that the SEA-report provides important information for decision making.

In conclusion

The SEA-report for the PWMP is a good example of an SEA for water management planning. The SEA-report contains a lot of data on problem analysis, objectives and possible measures to deal with the problems in the area. The use of tables and illustrations is very important for understanding the contents of the report. The tables in the report clearly show the status, objectives (and therefore the extent of the problems). The many detailed maps of the area contain a lot of useful information as well.

The SEA that has been undertaken for this plan is a benchmark SEA for Macedonian practice. This has been an important source in the development of a guidance document for SEA for water management planning in Macedonia by the Netherlands Commission for Environmental Assessment (NCEA).

Links

- SEA portal of the Ministry of Environment and Physical Planning (MoEPP): www.sea-info.mk
- UNDP/GEF project “Integrated Ecosystem Management in the Prespa Lakes Basin”: <http://prespa.iwlearn.org/>
- UNDP, United Nations Development Programme: www.undp.org.mk
- Netherlands Commission for Environmental Assessment (NCEA): www.eia.nl.