The process, difficulties and the innovation of strategic environmental assessment (SEA) findings of Dropulli Municipality

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Abstract
Dropull municipality was created in 2015 by the union of three municipalities: Upper Dropull, Lower Dropull and Polican. It comprises 41 villages and a size of 45410 hectars. New development and planning relationships are emerging toward sustainable development, establishing urban-rural balances, protecting the environment, and improving community services. In 2017, the Municipality undertook the initiative of drafting the Local General Plan for the strategic development direction for a period of 15 years.
The plan underwent Strategic Environmental Assessment (SEA) at all stages, as a process of environmental status analysis, to identify the consequences of plan policies and the implementation of environmental projects. Throughout the process, potentials and opportunities for Dropull development, environmental problems and risks as well as measures to reduce the impact of the plan and projects are identified.

Objectives
The main objective of the SEA of the Dropull Local General Plan is to consider the impacts of the Plan and projects on the environment at all the stages of plan development, the alignment of plan objectives and projects with environmental objectives, environmental status analysis with public participation, and identify key stakeholders in decision making.

Main Theories
SEA is based on the requirements of Law 91/2013 "Strategic Environmental Assessment" which is fully aligned with Directive 2001/42 /EC of the European Parliament, and the specific legislation and international conventions. The Protocol on SEA is an international agreement that provides legal obligations and a procedural framework for the implementation of SEA in countries that are Parties to it (UNECE, page 4). The article is based on the SEA of the Dropull Plan conducted by the author as the leader of the SEA team (Lushaj et al., 2018). Developing a successful SEA means that "ideally, this process should start at the earliest phase of the project formulation, extend through the implementation phase, and include only after full monitoring of the complete project has been achieved" (Partidário, 2012, page 26).

Methodology
The methodology applied for this research work implies the analysis of the following : (i) Environmental assessment, (ii) consideration of the requirements of Ministry of Environment for SEA, (iii) Environmental Impact Assessment of the plan, project and planning scenarios, (iv) compliance of strategic objectives with environmental objectives; and (v) organization of 4 public hearings.

Introduction
The only document on the basis of which the development poliicies from 2005 to 2014 are based is the Gjirokastra District Development Strategy, drawn up in 2005 and some local operational plans. In 2018, the first Local General Plan of the municipality was drafted.

Topography and territorial systems
The area of Dropull is characterized by flat,

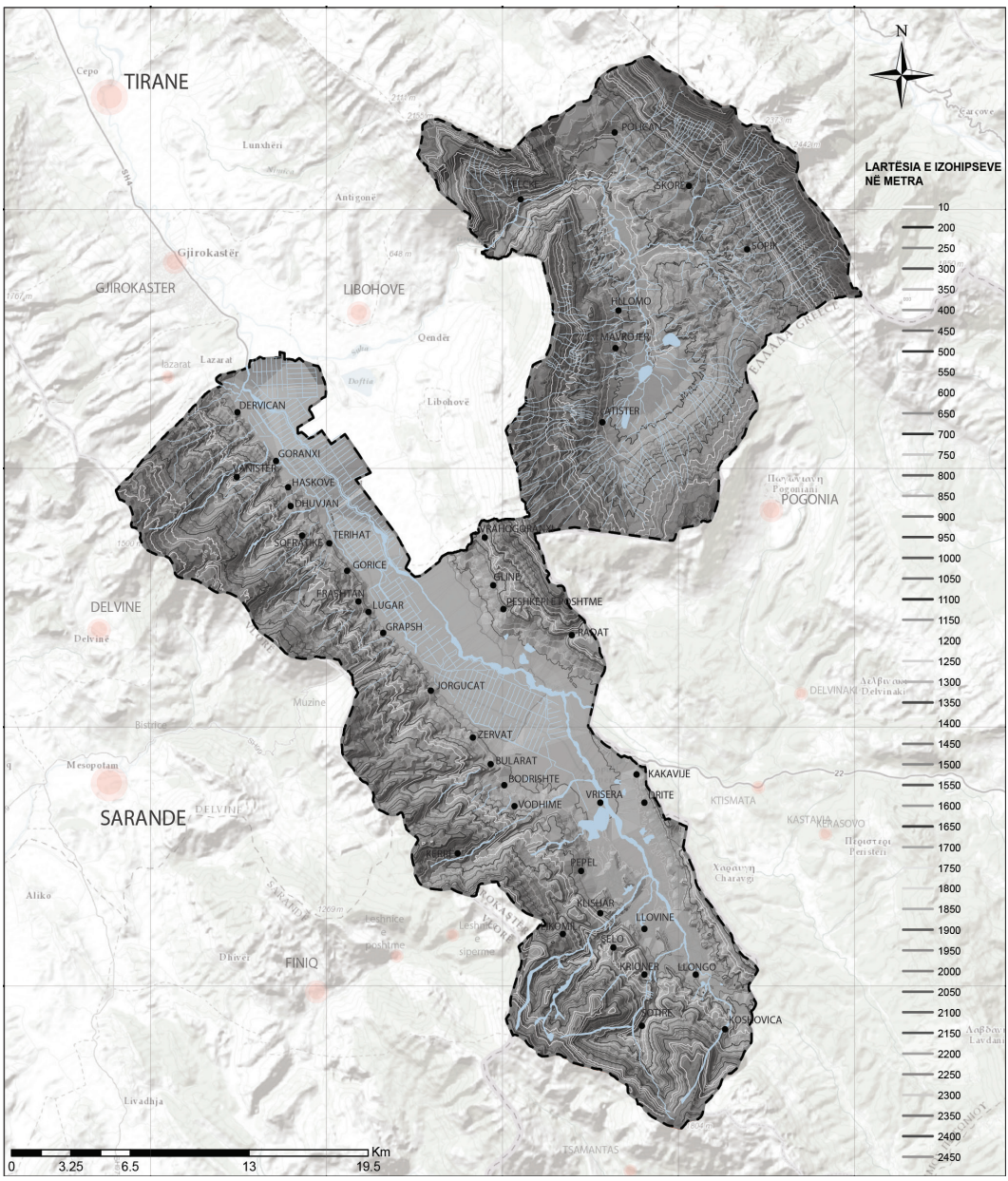

Fig. 1 / Topographic map of Dropull Municipality. Source / Dropull General Local Plan, SEA, Dropull

hilly, para-mountainous and mountainous terrain varying in an altitude from 200 to 2450 m above the sea level. It is rich in mountain ranges, valleys, a variety of ecosystems and habitats, biodiversity, natural landscapes, forest diversity, and 13 natural monuments (maps, 1). Dropull Municipality, with its distinctive rural characteristics, focuses on the development of agriculture, tourism and a cross-border "pole". It is distinguished by 22 species of medicinal plants and is the home of 15% of European migratory bird species.

Among the wildlife, the four species of "Neophron percnopterus" categorized as a globally endangered bird, and "Falco naumanni" account for 2.5% of the world's population. The Dropull Valley is included in the European Green Belt; source: https:// www.euronatur.org.

Among the 5 territorial systems, the urban system, the infrastructure, the agricultural, and the water components have different percentages, showed in Table 1. The natural habitat comprises 82.5% of the territory, of which 85% is forest and pasture.

There are about 6500 ha agricultural land, mainly in the Drino River valley, with high production capacity.

A rich hydraulic system, Drino River is0 the main tributary of the Vjosa River, with a length of 85 km, a watershed of 1324 km² and an average elevation of 745 m. Secondary rivers and mountain streams, groundwater, 19 reservoirs for irrigation are also part of the water resources.

Findings from the evaluation scenarios of the environmental assessment plan

SEA explored the potential trends of scenarios with the no-plan environmental development option. It has been observed that in the absence of a plan, economic and social drivers will deteriorate. The migration of rural population will increase while, social services and infrastructure in remote rural areas will be aggravated (urban waste management, wastewater, transport, health, education), and land use will undergo urban sprawl even in areas with natural hazards (seismic zones, landslides, floods). The economy will not develop, the environment and landscape will deteriorate, control over territory will fade, and the different strategies of addressing climate change will not be adapted. Unless the plan is adopted, the vision, strategy, development policies will not comply with the principles of the National General Plan and the development strategy and environmental protection.

Summary of the analysis of the environmental situation in the territory of Dropull Municipality

Environmental assessment for some indicators is based on gathering direct field information by measuring air quality, noise, weather data using the equipments of Polis University.

The CO2 emissions were calculated, based on the model (USEPA 2016) used by the US Environmental Protection Agency (EPA). According to a 9 months monitoring of the Gjirokaster-Kakavije segment in 2017, 357,110 cars have circulated, and the gas emissions are estimated at 2,088.4 tonne of CO2. Although air pollution does not reach critical levels, some sources of local activity need to be curtailed, discharges on the Gjirokastra-Kakavi highway, mismanagement of urban waste and sewage, uncontrolled quarrying, burning of waste and forest, improved transportation public (Lushaj et al., 2018).

Management of the solid urban waste by the end of 2018 is organized in only 11(blu red) out of 41 villages. Source sharing, recycling and composting are non-existent. The disposal of waste in landfills is without standards. The hospital waste of the health centers is mixed with urban waste. Management infrastructure is only 30% of the required levels. Through the SEA recommendations, the Municipality intends to establish a waste management system throughout the territory. Currently, the wastewater management is based entirely on the collection in septic tanks constructed without standards, causing pollution of the environment, water, soil, especially during floods.

Geohazards and natural stressors are high: seismicity, rockfall from the mountains, quarry exploitation, extreme seasonal drought, forest burning, landscape damage and fires spread all over the territory, especially in Pogon, the Sotira, and the "Broad" Mountain, where the loss of natural esources and biodiversity are potentially high.

In most of the territory seismicity is 7 degrees, while in the Dervican area and Vanister 9 degrees (yellow color). SEA assessment guides the urban expansion and the design in accordance with the level of seismicity and soil characteristics. Repeated floods occur in the Dropull plain from the Drino river and mountain streams. Soil erosion is a complex problem with widespread presence almost throughout the territory

Fig. 2 / Components of the territorial system. Source / Dropull General Local Plan, SEA, Dropull

Territorial components	Percentage of coverage (%)
Urban system	2.22
Infrastructure	0.84
Agricultural	13.48
Water	0.95
Natural habitat	82.5

Tab. 1 / Components of the territorial system. Source / Dropull General Local Plan

of the Municipality. Rehabilitation of the protective structures of the Drino River is needed (panels, embankments, cessation of inert use).

Assessment of the compliance of objectives and environmental impact of the plan

The consistency between the objectives of the plan in 28 programs and 113 projects is evaluated with 13 environmental objectives. It turns out that overall the objectives of the plan are in line with the environmental objectives, in relation to environmental impacts and efficiency in infrastructure development, economics, services and environmental protection. Specifically, four plan programs are

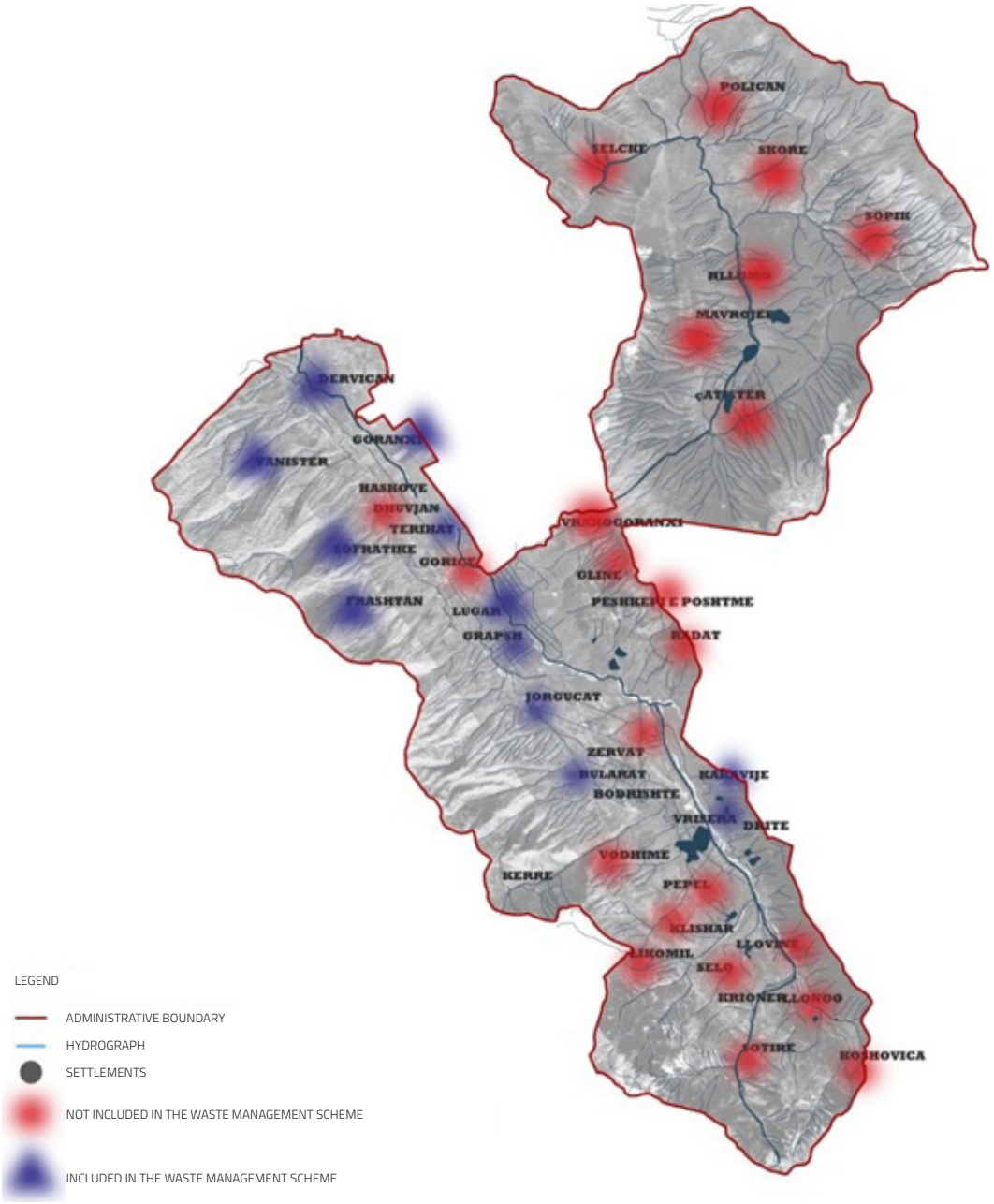

Fig. 3 / Management of solid urban waste, Dropull Municipality
Source / Dropull General Local Plan, SEA, Dropull

fully compliant with the environmental objectives; ten objectives are partially compliant; in nine programs the link to the environmental objectives is dim; and five objectives have no relationship with one another. The objectives of the plan, which find the highest compliance with the environmental objectives, are those for institutional capacity building, agriculture development, livestock farming, protection from natural hazards, rehabilitation of the production support infrastructure. Objectives that focus on the natural environment find strong links with the objectives of the fire protection plan, forest and pasture management, drought reduction.

The development of agriculture has strong links with the environmental objectives of flood protection, adaptation to climate change, land protection etc.

Compatibility of projects with environmental impact

Detailed analysis of the compliance of each project with the 13 environmental objectives, applying the impact rates, shows that: a) 28 projects had no impact or positive impact; b) 28 projects had partial impact (no significant impacts); c) 25 projects have enviromental impacts that need to be mitigated through additional mitigation measures; d) there are no projects with significant impacts; (e) There are no projects with disastruous impacts. Mitigation measures have also been recommended for the projects of Group (c) and (b). It is also planned that some projects will undergo the Environmental Impact Assessment.

SEA process difficulties

- In municipalities where there are missing

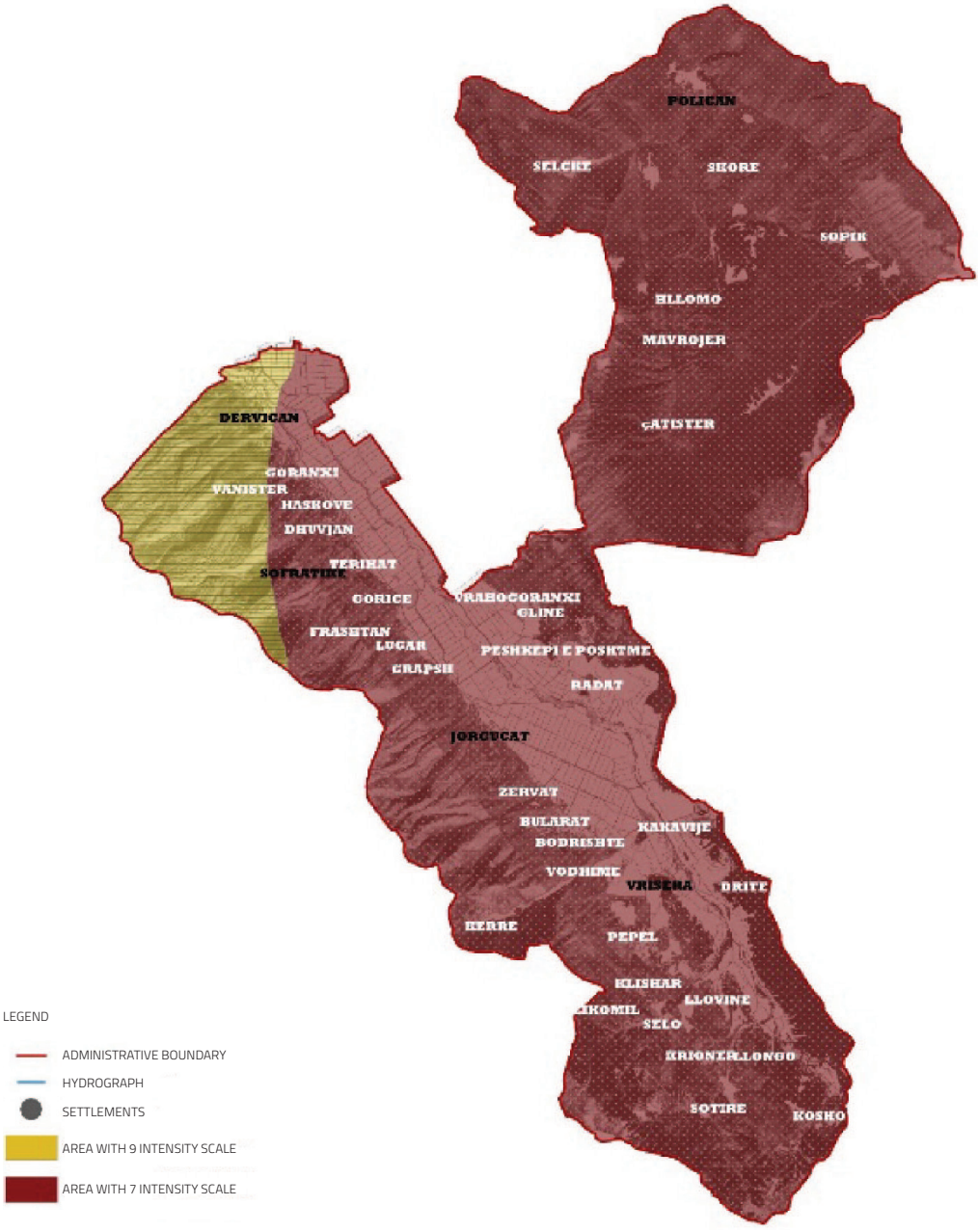

Fig. 4 / Seismic hazard Dropull Municipality. Source / Dropull General Local Plan, SEA, Dropull

data, there are discrepancies between the municipal administrative units and the regional agencies for numerical economic indicators, environmental, and territorial systems. The data system needs to be upgraded and constantly updated in new municipalities.

-The Municipality of Dropull, until (2018) is not included in the scheme of monitoring of environmental indicators by the responsible institutions and the indicators on the state of the environment are missing.

- Insufficient management capacities in the new municipalities do not enable the orientation of measures for prevention, protection and rehabilitation of the environment.

- Coordination of local and regional institutions and public involvement in decision making is weak.

-In order to assess the Transboundary Environmental Impact Assessment (Espoo Convention), there is a need for more information and consultation from border countries on environmental impacts and emissions.

Innovative findings

- SEA conducted an assessment by expert teams from all fields for innovative and professional findings. To change the criteria for the certification of experts, the way of organizing the courses, the criteria for the right of licensing, Partidário states that "the team that shall perform the SEA must be set up so that it may respond to the iterative and multidisciplinarity that satisfy the three main SEA components - technical, process and communication" (Partidário, M.R., 2007).

- In the absence of monitoring, the environmental indicators monitored for the city of Gjirokastra are not valid for

Dropull, and they cannot be used for environmental analysis, benchmarking, change dynamics, and impact mitigation interventions. Monitoring should also be extended to other indicators. According to Nowacki, "the monitoring of the environmental and health indicators, and the integration of the environmental and health monitoring systems would also help to either establish or better monitor health outcomes from certain risk factors" (Nowacki, et al., 2010).

- The evaluation results should be connected well with the components of the General Local Plan. According to Fischer (2002), the poliicies of SEA generally, obtain better results than SEA of plans and SEA of programmes.
- Communication with key stakeholders must be perfected through dialogue and negotiations, as wel as through the methodology developed in the context of the particulars of each plan. The wold Bank highlights important that the "Identification of Environmental Priorities" and public participation process SEA is an important mechanism that creates increased accountability for the policymakers enhancing environmental governance, strengthens democratic institutions and addresses potential mechanisms for dialogue and for influencing policy. (World Bank, 2008)

Conclusions

1. Although the Municipality of Dropull possesses a high natural, economic potentials, the environment is threatened by pollution, geohazards, the level of urban waste management and wastewater with impacts on environmental pollution and community life.
2. The Municipality of Dropull should be included in the national environmental monitoring scheme.
3. The plan and SEA oriented the development areas to avoid the risks of high seismicity of 7 and 9 intensity.
4. Develop and implement management plans for forest fires and Dropull field floods from the Drino River and mountain streams over a wide area of the territory with high environmental impacts.
5. Biodiversity and landscape are under the pressure of fires, cuttings, endangered species such as medicinal herbs, Cuckoo Horse, Yellow Claw Hawk, Mountain Eagle, Wild Pork, Bear, Fork, Wolf, Partridge. Reassessment of Nature Monuments, as they have lost their value and announce proposed monuments in SEA.
6. Identification of the consequences of the 15-year plan and environmental projects shows that: 4 strategic programs fully comply with environmental objectives, ten partially overlap, in 9 programs the link is dim and 5 objectives are not linked. Evaluation of each project with 13 environmental objectives shows that 25 projects have conditional compliance with environmental objectives (C), 28 projects with partial compliance (B). There are no devastating impact-projects.
7. Mitigation measures limiting environmental impacts during implementation have been developed for each project.

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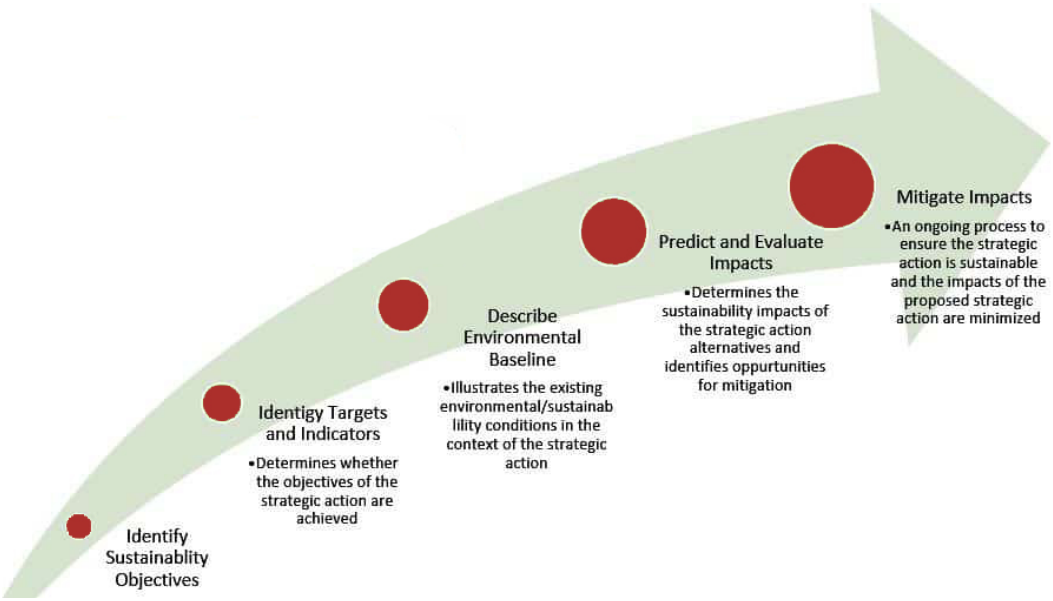

Fig. 5 / Strategic Environmental Assessment.
Source / https://planningtank.com/environment/strategic-environmental-assessment-sea

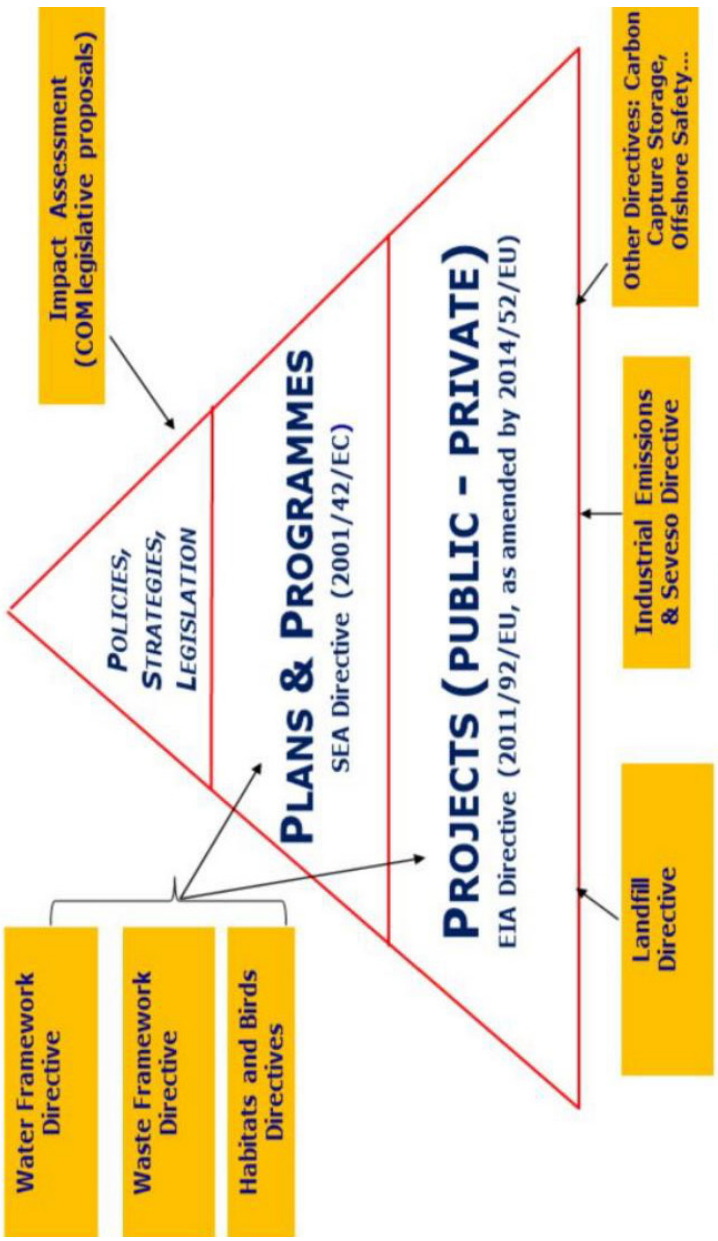

Fig. 5 / Environmental Assessment at EU level.
Source / https://ec.europa.eu/environment/legal/law/10/pdf/1_Dobreva_Introduction.pdf