Erasmus+

KA220-HED - Cooperation partnerships in higher education

(KA220-HED)

PROJECT NUMBER: 2023-1-EL01-KA220-HED-000164728

Project acronym: **DEMo4PPL**
Project full title: **Digital Education Modules 4 Participatory Planning**

OPT-G7: PUBLIC PARTICIPATION IN ENVIRONMENTAL IMPACT ASSESSMENT

1. Short description

In the context of the current global debate on environmental issues, this course aims to provide an in-depth examination of how public participation can be effectively integrated into the decision-making processes associated with plans, programs and projects that are likely to have a significant impact on the environment.

The objective of the course is to propose a set of guidelines for the analysis and assessment of environmental impacts associated with plans, programs and projects, within the context of considerable complexity, characterized by the presence of multiple disciplines. The objective of the teaching is to ensure that students are aware of the issues related to the environmental aspects of intervention projects at each stage of their life cycle.
A variety of dedicated plans and sector tools exist, which are regulatory in nature (such as Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA)). Furthermore, complex evaluation procedures are in place to avoid risks and reduce impacts on the environment and landscape. These activities require the input of diverse specialized knowledge and the involvement of multiple disciplines, as well as the confrontation with the issues and interests articulated by local stakeholders through a transdisciplinary and laboratory approach.
The course provides an understanding of the process and methods of assessing environmental impacts and the crucial importance of participation in this context.
It examines the integration of environmental impact assessment with participatory processes, emphasizing the significance of actively engaging the stakeholders in decisions that have an impact on the environment and collective well-being. By undertaking an examination of the principles, methodologies and regulations associated with Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA), the course equips students with the analytical tools necessary to

Co-funded by the European Union

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comprehend the ways in which public participation can enhance the sustainability of projects.
Specifically, the module aims to:

- Introducing students/learners to the role of public participation in Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) procedures
- Introducing students/learners to the role of evaluation for assessing the sustainability of EIA and SEA procedures
- Enabling students/learners to identify stakeholders in EIA and SEA procedures and engage them through PPL tools
- Introducing students/learners to the types and roles of stakeholders involved in EIA and SEA procedures
- Familiarizing students/learners with some methodologies and digital PPL tools in EIA and SEA procedures

2. Keywords

Decision Making; Digital Tools; Environmental Assessment; Impact Evaluation; Multicriteria Analysis; Public Participation; Stakeholder Engagement

3. Content

The course provides a comprehensive understanding of the procedural and regulatory framework for environmental assessment in the European Union, focusing on key directives such as the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) Directives (Table 1)[1,2]. These legal frameworks guide the integration of environmental, social and economic considerations into decision-making processes for projects, plans and programs, ensuring sustainable development practices across the EU.

[1] Partidario, M. R., & Fischer, T. B. (2012). Follow-up in current SEA understanding. In Assessing Impact (pp. 245-268). Routledge
[2] European Commission. (2005). *The SEA Manual: A practical guide to the application of the SEA Directive* (European Commission, Directorate-General for Environment). Retrieved from: https://ec.europa.eu/environment/eia/pdf/SEA_manual.pdf

Table 1: Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) (source: elaboration from Partidario and Fischer, 2004 and European Commission, 2005)

Aspect	SEA	EIA
Planning level	SEA is an overarching framework to enable comprehensive and forward-looking assessment of potential environmental implications at the policy, planning and programme level.	EIA represents a definitive approach to assessing the specific environmental impacts of a specific proposed development.
Spatial scale	SEA is undertaken at a larger spatial scale, such as an MSP region or sector-wide at a national level	Small spatial scale focussing on the maximum extent of the project boundary impacts (e.g. of a windfarm or aquaculture facility)
Level of detail	At the strategic scale, the complexity of plans mean that assessment of effects can only be articulated in general terms such as direction of travel (positive or negative).	At the small scale of EIA, sufficient detail of project design is required to enable quantification of impacts, and judgement on the significance of these.
Flexibility	Iterative and adaptive, informing changes to the plan based on assessment including review of alternative options to the plan.	Limited flexibility – mitigation measures can be proposed to address negative effects but there is limited flexibility to adapt the proposal.
Responsibility	Responsibility of planning authority.	Responsibility of proponent (e.g. industry).

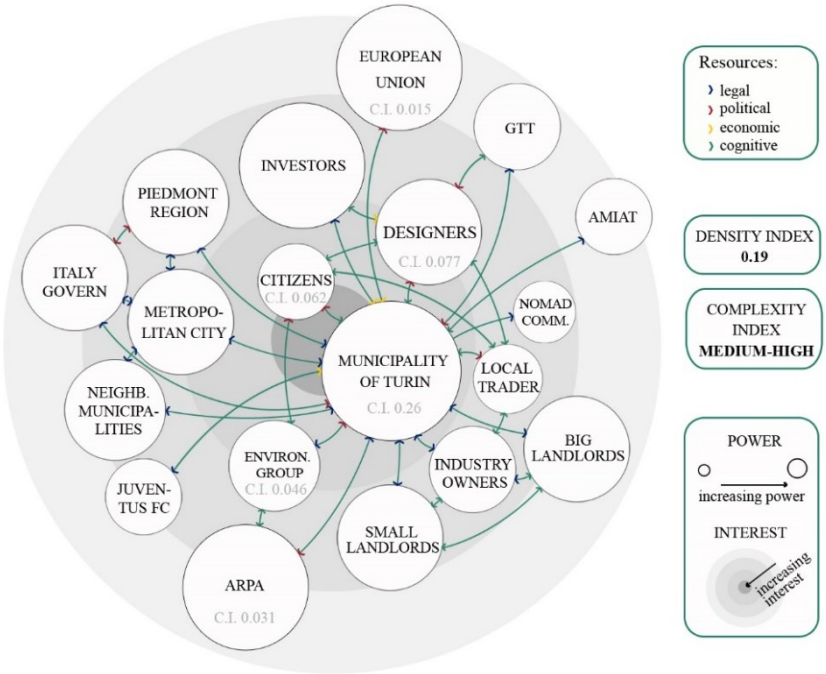
A key part of the course is the exploration of assessment methodologies that integrate sustainability into EIA and SEA procedures. Students will learn how sustainability is measured and integrated into these assessments, using various tools and frameworks that help to assess environmental, social and economic impacts, with the aim of achieving long-term, balanced outcomes. In particular, SWOT Analysis (Table 2)[3], Stakeholder Analysis (Figure 1)[4] and Multicriteria Analysis (Figure 2)[5] will be presented in detail to the students.

[3] Bottero, M., Assumma, V., Caprioli, C., & Dell'Ovo, M. (2021). Decision making in urban development: The application of a hybrid evaluation method for a critical area in the city of Turin (Italy). *Sustainable Cities and Society*, 72, 103028.
[4] Bottero, M., Caprioli, C., & Berta, M. (2020). Urban problems and patterns of change: the analysis of a downgraded industrial area in Turin. *Values and Functions for Future Cities*, 385-401.
[5] Ferretti, V. (2012). Verso la valutazione integrata di scenari strategici in ambito spaziale. I modelli MC-SDSS (pp. 1-174). Celid.

Table 2: An example of SWOT Analysis (source: Bottero et al. 2021)

STEEP components	STRENGHTS	WEAKNESSES	OPPORTUNITIES	THREATS
Society	Presence of historical rural heritage Proximity to high density residential areas	Health issues due in part to the site contamination Informal urban allotments (e.g. gipsy camps) Degradation of the architectures Neglected rural buildings (e.g. farm-houses)	Take advantage to historical and artistic assets. Open spaces can be used by different activities and education initiatives, in synergies with nearby places. Enhancing the landscape viewpoints	Obstruction of the landscape views Increase of social margination and marginality Abusive allotments in neighborhood Abandonment of the area
Tecnology	Waste of ex landfill is used to produce energy Area easily accessible from the highway Direct connection of the area with the airport Closeness to the metro line	Unused industrial structures Noise pollution from traffic Old industrial buildings Lack of bike lanes Lack of bike sharing Separation from nearby residential area Few public transports	Enhancement of the environmental management of the ex landfill area Adaptive reuse of the industrial buildings Development of new technologies for energy monitoring Regenerate the site for research R&D and renewable energy Connection of the area through cycle mobility to the city Improvement of public transport connection Enhancement of bike and electric car sharing points	Worse abandonement of the industrial buildings Increase of traffic and noise, air pollution High costs may limit the research of sustainable solutions. Creation of invasive structures and land take
Environment	Presence of extended green areas Presence of habitat and microhabitat annexed to the river Stura	High contamination by heavy metals and hydrocarbons, caused by the ex landfills Ecosystem degradation Industrial waste Air and water contamination Difficulty treatment of the groundwater flow	Inclusion of the area within a system of fluvial parks Increase of ecological quality Educational initiatives on waste recycling and reuse Potential use of the area to produce renewable energy. Inclusion into environmental projects, in network with other waterbodies that flow in the city.	Dry up of the river Stura and progressive groundwater pollution Occurrence of flooding events by river Stura Air contamination and pollution caused by abusive allotments Long time and huge funds to regenerate the area could limit the investors offers.
Economics	Rural and industrial vocation of the area Self-sufficiency of the farmhouses system (e.g. cultivation and cattle)	Lack of general services Progressive decommission of farmhouses Production of non-renewable energy by the industries Scarsity of funds for remediation of the area	Attraction of local activities thanks to the increase number of turists and citizens Refurbishment of dismissed industrial sites Reopening of indutries to increase the job demand in the area Producing renewable energy on site to reduce the high costs Promotion of tourism, workplaces, infrastructures initiatives in the area.	Private land owners that want to make profits No remediation funds Abadonment of the industries may decrease the job demand in the area Worsening situation in terms of quality of life in the area.
Policy	Strategic position in the city recognized by local policies Presence of regulations for protecting the existing cultural heritage Taxes and subsidies for green technology Periodic environmental monitoring of the area	Complexity of the bureaucratic problem Few flexibility of the current municipality plan of the city.	Take advantage to the strategic position can gain more important role inthe city. Subsidies and tax reduction guaranteed by the law can incentive to invest in the area. Participation of local community into a transparent negotiation process with the potential investors.	Potential adoption of too sectorial policies.

Figure 1: An example of Stakeholder Analysis (source: Bottero et al. 2019)



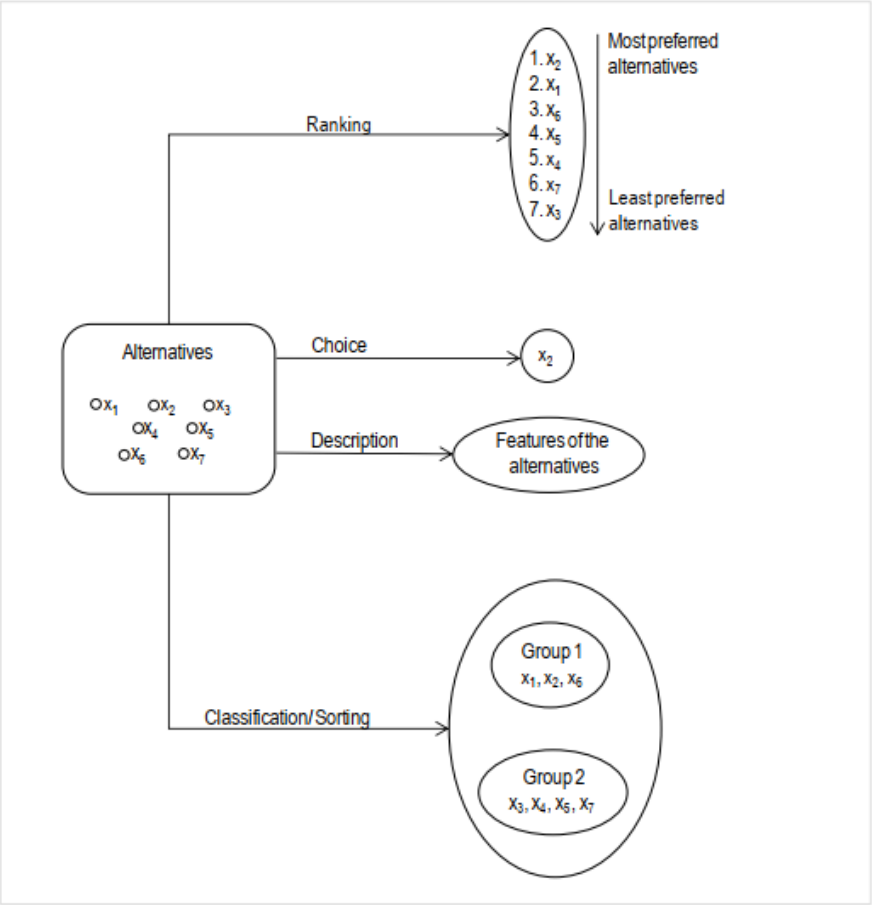


Figure 2: Multicriteria Analysis taxonomy (source: Ferretti, 2012)

The course also systematically presents the stages and means of integrating public participation into environmental procedures. Public participation is an essential element of the EIA and SEA processes, allowing stakeholders, including local communities, developers and government agencies, to have a say in the planning and implementation of projects (Figure 3)[6]. By involving the public, the assessment process becomes more inclusive, transparent and responsive to societal concerns, contributing to more robust and socially acceptable decision-making. In particular, the so-called "Conferenza dei servizi" (i.e., service conference) is of particular importance. This is a process that involves various public agencies and competent authorities in reviewing, discussing, and making decisions on projects or plans that may have a significant impact on the environment. The service conference is convened to facilitate coordination among different institutions and allow for a shared assessment of environmental impacts and possible mitigation measures to be taken.

[6] Organization for Economic Cooperation and Development (OECD) Core set of indicators for environmental performance reviews 1993. A Synthesis Report by the Group on the State of the Environment. Environment Monographs 83. OECD, Paris. (http://lead.virtualcentre.org/en/dec/toolbox/Refer/gd93179.pdf)

Therefore, students will be introduced to the different stakeholders involved in EIA and SEA procedures. These include not only project proponents and regulators, but also a wide range of local communities, environmental organizations, industry representatives and experts whose interests, concerns and perspectives must be taken into account in the decision-making process. Understanding the roles and influence of these stakeholders is crucial to developing effective engagement strategies and managing conflicts of interest.

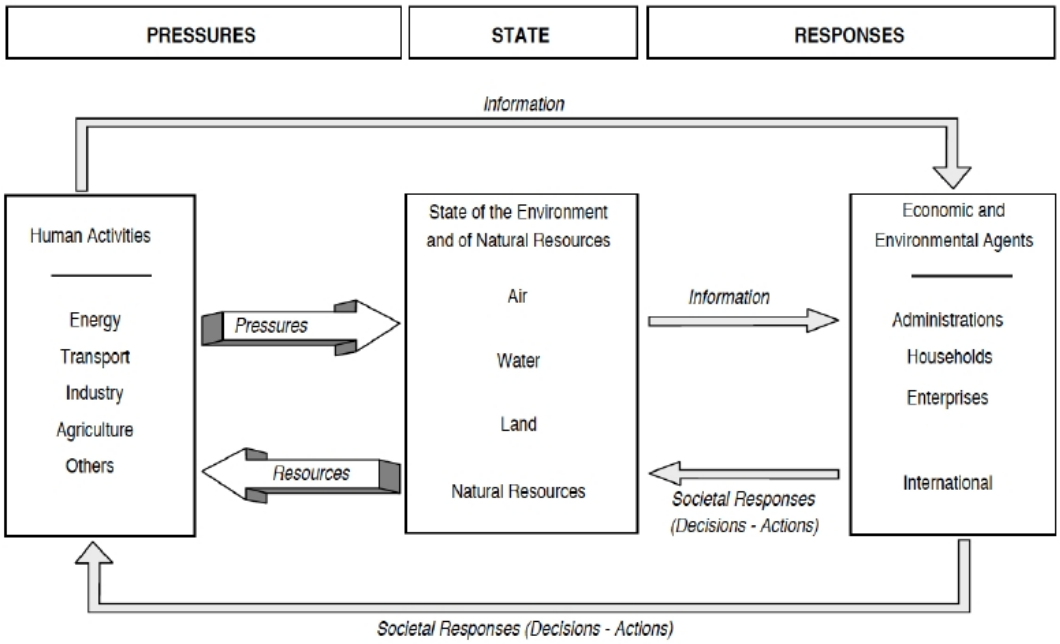


Figure 3: EIA procedure and stakeholders engagement (source: OECD, 1993)

The course also identifies various public participation tools, both digital and non-digital, for the design, implementation, monitoring and evaluation of sustainable projects, plans and programs within the EIA and SEA frameworks. Methodologies such as multi-criteria analysis (Figure 4) and tools such as surveys, focus groups and online platforms are introduced to help students understand how they can facilitate participation. These tools are designed to efficiently collect and analyze public input, ensuring that stakeholders' needs and objectives are captured and integrated into the decision-making process.

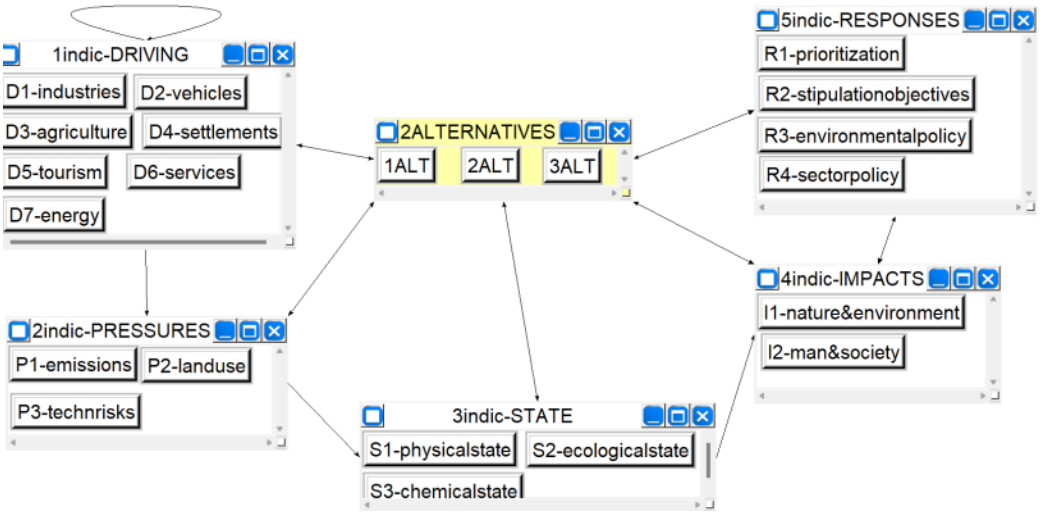


Figure 4: An example of MCDA structure of criteria and alternatives (source: Own elaboration)

To ground the theoretical knowledge in a real-world application, some case studies will be presented to illustrate how public participation tools and methodologies have been successfully applied in EIA and SEA procedures (Figure 5)[7]. These case studies will include examples such as the siting of infrastructure projects, such as incinerators, hospitals and the development of wind farms, where stakeholder input plays a critical role in ensuring that decisions are made with a full understanding of the potential impacts and benefits (Figure 6)[8].

[7] ESRU - Energy Systems Research Unit (n.d.). Environmental impact of small-scale renewable energy systems. University of Strathclyde. https://www.esru.strath.ac.uk/EandE/Web_sites/11-12/Small_scale_renewables/environmental.html

[8] Caprioli, C., & Bottero, M. (2021). Addressing complex challenges in transformations and planning: A fuzzy spatial multicriteria analysis for identifying suitable locations for urban infrastructures. *Land Use Policy*, 102, 105147.

Figure 5: Example of an impact evaluation applied in a EIA procedure (source: ESRU, n.d.)

Significance of Impacts				STAGES OF THE PROJECT				
				Equipment Production	Transport	Installation	Operation	Decommission
ENVIRONMENTAL CONDITIONS	PHYSICAL	SOIL	Soil Quality					
			Erosion					
			Landscape					
		WATER	Rivers					
			Costal Zone					
			Subsurface Water					
		AIR	Air Quality					
			Odor					
			Visual					
			Noise					
	BIOLOGICAL	FLORA						
		FAUNA						
		ECOSYSTEM	Quality					
			Destruction					

Impact	Color	Description
High		Unacceptably high impact.
Medium		Significant impact.
		Significant impact which can be reduced if mitigation measures are employed.
Low		Low impact.

	Location	Mobility	Environment	Social	Priority
Location	1	0.2	0.333	0.333	0.081
Mobility	5	1	1	3	0.399
Environment	3	1	1	3	0.360
Social	3	0.333	0.333	1	0.159
Consistency index	0.042				

Figure 6: Set of weights assigned by a stakeholder in an urban decision-making process (source: Caprioli and Bottero, 2021)

A key element of the course will be a tutorial on DecSpace (Figure 7), a digital public participation tool. Students will learn how to use this platform to design, implement and monitor public participation processes, gaining practical experience in engaging stakeholders and gathering data on their preferences and concerns.

Figure 7: DecSpace interface and example of weights assignment (source: public project on DecSpace)

The course culminates in a practical activity where students will be involved in mapping the stakeholders involved in a real change process within the EIA and SEA procedures.

This exercise will allow students to apply their acquired knowledge to identify key stakeholders, simulate their needs and objectives, and use the PPL tool to facilitate participation and decision-making. In particular, students will be tasked with interpreting the perspective of each stakeholder by employing a multi-criteria decision-making approach. This method allows them to systematically assess and evaluate various factors that are relevant to the decision at hand. The multi-criteria approach involves assigning 'weights' to the different factors involved, which helps to quantify the relative importance of each factor in the context of the evaluation. The factors themselves are derived from the careful structuring of the decision problem, which is done by breaking down the overall issue into smaller, more manageable components. These components are organized according to the specific objective of the evaluation, as well as the criteria and subcriteria that guide the analysis. The criteria represent the broad categories or aspects of the decision that need to be considered, while the subcriteria provide a more detailed examination of the individual elements that contribute to each criterion. Once the criteria and subcriteria are established, students will assign a numerical value to each criterion, which reflects its importance or relevance to the stakeholder in question. These numerical values serve to quantify the degree of importance that each stakeholder places on a particular aspect of the decision, allowing for a more objective and structured comparison of different factors. By using this process, students are able to develop a more nuanced understanding of the preferences and priorities of each stakeholder, ensuring that the final decision is made with a comprehensive and well-informed consideration of all relevant factors.
Through this hands-on experience, students will develop a deeper understanding of how to effectively integrate public participation into environmental assessments and how to use digital tools to support sustainable planning and development.
This comprehensive approach ensures that students are not only familiar with the procedural aspects of EIA and SEA, but are also equipped with the practical tools and methodologies necessary to engage stakeholders and promote sustainability in decision-making.

The main contents are synthesized as follows:

- Overview of the procedural and regulatory framework of environmental assessment in the European Union;
- Outline of the evaluation methodologies to include sustainability in EIA and SEA procedures;
- Systematic presentation of means and phases for the integration of public participation in environmental procedures;
- Presentation of the different stakeholders involved in the EIA and SEA procedures
- Identification of digital (and not digital) PPL tools for designing, implementing, monitoring and evaluating sustainable projects, plans and programmes within the EIA and SEA procedures framework;
- Presentation of some case studies where PPL tools and methodologies are applied within EIA and SEA procedures;
- Tutorial of the PPL tool called DecSpace;
- Practice work: mapping of the stakeholders involved in a real transformation process within EIA and SEA procedures and application of the PPL tool by simulating their needs and objectives.

4. Case studies

The course will present a number of case studies in which public participation (PPL) tools and methodologies have been successfully integrated into Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) procedures. The case studies will demonstrate how these participatory tools facilitate stakeholder engagement, assess potential environmental impacts, and contribute to more transparent and inclusive decision-making processes.

In particular, the case studies presented will address complex decision-making problems in urban and territorial contexts, where the balancing of various interests and the addressing of the concerns of different stakeholders is especially challenging.

To illustrate, one case study examines the location of incinerators[9], a highly contentious issue due to concerns about environmental impact, health risks, and public acceptance. The decision-making process surrounding the siting of incinerators involves a number of stakeholders, including local communities, environmental groups, public health experts, and government authorities. In this instance, the utilisation of participatory tools in EIA and SEA can facilitate the collation of input from these disparate groups and enable the assessment of the social, economic, and environmental dimensions of the proposed projects.

Another case study focuses on the environmental assessment of a wind farm[10]. The case study will highlight the potential environmental impacts of wind farms, including effects on local wildlife, biodiversity, and the landscape, as well as social considerations, such as noise and visual impact. Through this case study, students will see how participatory methodologies help ensure that diverse stakeholder concerns are considered, promoting more sustainable and socially accepted outcomes in renewable energy development. The case study will also illustrate the role of public consultation in addressing potential conflicts and building support for the project, demonstrating the integration of both environmental and social sustainability in the decision-making process.

A further case study concentrates on the location of a new hospital within an urban setting[11]. This decision requires specific consideration of a number of factors, including accessibility, public health requirements, land use and environmental impact. The decision-making process for such projects frequently entails the balancing of competing priorities, including the operational requirements of the hospital, the well-being of the surrounding community, and the environmental sustainability of the area. PPL tools within the EIA and SEA processes can facilitate the provision of essential feedback from local residents, healthcare professionals, urban planners, and other

[9] Bottero, M., & Ferretti, V. (2010). An analytic network process-based approach for location problems: the case of a new waste incinerator plant in the Province of Torino (Italy). *Journal of Multi-Criteria Decision Analysis*, *17*(3-4), 63-84.

[10] Bottero, M. C., Ferretti, V., & Valle, M. (2009). La valutazione di Impatto Ambientale per il progetto del parco eolico di Lucera (FG). In Valutazione e sostenibilità: piani, programmi, progetti (pp. 119-130). Celid.

[11] Caprioli, C., & Bottero, M. (2021). Addressing complex challenges in transformations and planning: A fuzzy spatial multicriteria analysis for identifying suitable locations for urban infrastructures. *Land Use Policy*, 102, 105147.

stakeholders, thereby ensuring that the decision reflects a broad spectrum of views and needs.
The case studies will illustrate the pivotal function of public participation in facilitating more efficacious and democratic decision-making in the context of urban and territorial planning. The integration of PPL tools into the EIA and SEA processes enables decision-makers to guarantee that projects are not only environmentally sound but also socially acceptable, economically viable, and responsive to the needs of the communities they affect. Through these real-world examples, students and practitioners alike will gain a deeper understanding of how participatory methodologies can be applied to address complex, multifaceted challenges in urban and territorial development.

5. Assignments

The group assignment involves the completion of a specific task utilizing a digital tool, i.e., DecSpace. In this activity, each group of students or learners is required to design an online questionnaire that serves a particular public participation purpose. The assignment aims to foster a deeper understanding of how public engagement works in a decision-making process. As part of the project, each group begins by mapping out all the relevant stakeholders who play a role in the decision-making process related to the topic being investigated. To map and identify stakeholders in a systematic way, each group will apply one or more stakeholder analysis tools, such as the power-interest matrix or Social Network Analysis (SNA). These tools will be used to create a comprehensive stakeholder map, which will serve as the basis for further analysis.
Once the stakeholders are identified, each group then focuses on one specific stakeholder, analyzing their interests, influence, and potential impact on the decision-making process. This allows the students to gain insights into the complexities of stakeholder involvement, their needs, and how they might affect or be affected by the decisions made.
In this phase, students will interpret each stakeholder by using a multi-criteria process to assign 'weights' to the various factors involved. In particular, factors derive from structuring the decision problem, according to the objective of the evaluation, criteria and subcriteria. Then, each criterion is given a numerical value that reflects the importance of each aspect to the stakeholder in question. These values are then entered into the DecSpace system, which allows the results of the multi-criteria assessment to be visualized and analyzed in a structured way.
The groups are then expected to interpret their findings about the chosen stakeholder and present their analysis to the rest of the class. This presentation is followed by a class discussion, where the students share their insights, compare their different approaches, and engage in a collaborative dialogue to explore the implications of their findings on public participation and decision-making. Through this exercise, learners not only deepen their understanding of stakeholder mapping and engagement but also improve their ability to present and discuss complex ideas in a group setting.

6. Summary of Learning

The expected learning outcomes of this course are the following:

- Understanding the role of public participation in EIA and SEA procedures
- Ability to make informed decisions through PPL tools and methodologies within EIA and SEA procedures
- Practical knowledge of a digital PPL tool for supporting participation in EIA and SEA procedures
- Apply the methodologies presented during the course to case studies by simulating the work of a professional team

Q1: What is the role of public participation in EIA and SEA procedures?
A: Public participation in Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) procedures is essential to ensure that the voices of stakeholders are heard, and their concerns are taken into account in decision-making processes. It contributes to more informed, inclusive and transparent decisions by taking into account different perspectives on environmental, social and economic impacts.

Q2: How can PPL tools and methodologies help in making informed decisions within EIA and SEA procedures?
A: PPL tools and methodologies provide structured ways to gather and analyze input from various stakeholders. By using tools such as surveys, stakeholder mapping, and multicriteria decision analysis, it is possible to take into account and evaluate the interests, concerns, and influence of stakeholders, leading to more balanced and effective decision-making in EIA and SEA procedures.

Q3: What practical knowledge will students gain about digital PPL tools for supporting participation in EIA and SEA procedures?
A: Students will gain hands-on experience with digital tools designed to facilitate public participation in EIA and SEA processes, such as DecSpace. These tools enable efficient data collection, stakeholder engagement, and analysis, helping users visualize complex information and make informed decisions through digital interfaces.

Q4: How will students apply the methodologies presented in the course to real-world case studies?
A: Students will have the opportunity to apply the methodologies learned in the course to a real-world case study. By simulating the work of a professional team, they will use stakeholder analysis, PPL tools, and decision-making frameworks to evaluate alternatives, assess impacts, and propose solutions in complex urban and territorial planning scenarios, within the EIA and SEA framework.

Q5: How will this course prepare students to work as part of a professional team in the field of EIA and SEA?
A: This course will help students develop essential skills for working in professional teams by engaging them in collaborative exercises, role-playing, and discussions. They will learn to integrate different perspectives, apply the methodologies presented,

and contribute effectively to team-based decision-making processes, simulating real-world scenarios encountered in EIA and SEA procedures.

Quiz

Q1: Environmental assessment methods are:

- ☐ Qualitative methods
- ☐ Quantitative methods
- ☐ Qualitative and no monetary methods
- ☒ **Qualitative and quantitative methods**

Q2: Environmental mitigation is defined as:

- ☒ Measures aimed at improving the conditions of the affected environment, but which do not reduce the impacts specifically attributable to the project
- ☐ **Technical measures aimed at reducing the expected environmental impact**
- ☐ Creation of new infrastructure in the area of intervention, recovery of parts of the municipal territory, financial transfers
- ☐ None of the above

Q3: SEA was first introduced by:

- ☐ Directive No. 337/85
- ☒ **Directive No. 42/2001**
- ☐ Legislative Decree 152/2006
- ☐ Piedmont Regional Law n. 40/1998

Q4: The EIA was first introduced by:

- ☒ **Direttiva n. 337/85**
- ☐ Direttiva n. 42/2001
- ☐ D.lgs 152/2006
- ☐ LR Piemonte n. 40/1998

Q5: The Environmental Report:

- ☐ It coincides with the Environmental Impact Study
- ☒ **It coincides with the SEA technical elaboration**
- ☐ It coincides with the technical elaboration of the EIA
- ☐ None of the above

Q6: The Ecological Implication Assessment:

- ☐ It is always integrated with the EIA
- ☐ It is always integrated with the SEA
- ☐ **May be integrated into the EIA or SEA**
- ☐ Is not integrated into the EIA or SEA

Q7: What are environmental impact matrices?

- ☐ **They are tables that cross-reference project actions with environmental components**
- ☐ They are compiled exclusively with numerical data
- ☐ They are useful for the development of environmental impact checklists
- ☐ They are tables that include the weights assigned by the stakeholders

Q8: The term 'environmental impact' means:

- ☐ The impact affecting humans, fauna and flora
- ☐ The impact affecting the natural and cultural heritage
- ☐ **All the modifications that a project produces on the environmental-social-economic system**
- ☐ None of the above

Q9: What is the purpose of SWOT Analysis?

- ☐ To map the stakeholders
- ☐ **To organize the information collected**
- ☐ To weigh the criteria
- ☐ None of the above

Q10: Which of the following is NOT a multi-criteria analysis?

- ☐ Analytic Hierarchic Process (AHP)
- ☐ Multi-attribute value theory (MAVT)
- ☐ **Cost-Benefit Analysis (CBA)**
- ☐ Promethee method

Q11: Multicriteria Analysis is:

☐ **A family of methods that allows several alternative options to be evaluated on the basis of different aspects**

☐ A family of methods that makes it possible to assign relative weights to the power and interest of the stakeholders

☐ A family of methods that allows to evaluate in monetary terms several alternative options

☐ None of the above

Q12: In a multi-criteria analysis, weights:

☐ They do not allow the opinions of the different stakeholders to be included

☐ They allow the opinions of the different stakeholders to be included

☐ They allow values to be assigned to the different stakeholders on the basis of their power and interest

☐ None of the above

Q13: The power-interest matrix is used to:

☐ Identify the needs of the stakeholders in a decision-making process

☐ To weigh the identified criteria in a decision-making process

☐ To map the relationships between the stakeholders in a decision-making process

☐ **To map the influence and involvement of the stakeholders in a decision-making process**

Q14: Within a decision-making process, the stakeholder is:

☐ A decision-maker within the decision-making process

☐ A person/group directly or indirectly involved in the decision-making process, but who does not necessarily make the decisions

☐ **Both of the above**

☐ None of the above

Q15: In multi-criteria analysis, the purpose of normalization/standardization is to:

☐ Assign criteria to a single unit of measurement (e.g. meters, kg)

☐ **Assign criteria to the same value range (e.g. 0-1)**

☐ Weight the criteria

☐ Add information to the criteria

7. Bibliography

Bottero M., Mondini G. (a cura di) (2009). *Valutazione e* sostenibilità. *Piani, programmi, progetti.* Celid. Torino.

Davoudi, S. (2014). Environment, Sustainability and Climate Change. In: Nadin V., Hart T., Davoudi S., Webb D., Vigar G., Pendlebury J., Townshend T. (EDS.). *Town and Country Planning in the UK.* London: Routledge.

European Commission (2017). *Guidance on Public Participation in Environmental Impact Assessment (EIA) and in Strategic Environmental Assessment (SEA)*.

Fischer, T. B. (2010). *The theory and practice of strategic environmental assessment: towards a more systematic approach*. Routledge.

Ministry of Housing, Communities & Local Government (2009). *Multicriteria Analysis: a manual.* Department for Communities and Local Government. London. http://eprints.lse.ac.uk/12761/1/Multi-criteria_Analysis.pdf

Morgan, R. K. (1999). *Environmental impact assessment: a methodological approach*. Springer Science & Business Media.

Noble, B. F. (2010). *Introduction to environmental impact assessment: A guide to principles and practice.* 3rd Edition. Oxford University Press.

Suškevičs, M., Ehrlich, T., Peterson, K., Hiiemäe, O., & Sepp, K. (2023). Public participation in environmental assessments in the EU: A systematic search and qualitative synthesis of empirical scientific literature. *Environmental Impact Assessment Review*, *98*, 106944. https://doi.org/10.1016/j.eiar.2022.106944

8. Glossary

Decision-making process: it is a series of steps undertaken to identify, evaluate and select the best solution among a set of alternatives. It entails the collation of information, the analysis of options, and the selection of the most suitable solution to a problem or goal.

Digital tool : it is defined as a website or application that enables stakeholders to engage in a project. It is accessed via a digital interface or otherwise relies on digital technology to function.

Environmental Impact Assessment (EIA): it is a process used to evaluate the potential environmental effects of a proposed project or development. The aim of the EIA is to inform decision-making and to minimise negative impacts on the environment.

Evaluation procedure: it is a systematic process employed to assess the effectiveness, quality, or impact of a project, programme, or policy. The process entails the collation of data, the analysis of outcomes, and the formulation of informed judgements to direct decision-making processes, based on predefined criteria.

Multicriteria Analysis (MCA): it is a family of decision-making methods that evaluates and compares different options based on multiple criteria or objectives. It helps select or prioritize alternatives by assigning weights to criteria and objectives, scoring each option according to its performance.

Stakeholder participation : describes the process of involving individuals, groups, or organisations that have a vested interest or stake in a particular project.
Strategic Environmental Assessment (SEA): it is a process that evaluates the environmental impacts of policies, plans, and programmes. The aim of the SEA is to integrate environmental considerations early in decision-making in order to promote sustainable development.