

## Environmental Monitoring and Planning: Joining Forces for Facing Changes

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### 1 ABSTRACT

Planning is a continuous and dynamic process, which needs to be considered as a part of the whole decision making activity. Although law and regulation fixed procedures, its undetermined duration and the spread in time of its effects make it difficult to manage territorial transformations, in time and space. Moreover, during the implementation process, socioeconomic and environmental changes occur to the context and ask for plan adaptation.

To deal with time-effectiveness, the article focusses on the importance of monitoring since early stages of planning. To drive the process and modify contents when necessary, monitoring should effectively join planning. Environmental monitoring in particular seems to properly pose the bases for facing this challenge, following 42/01 Directive concerning the environmental effects of certain plans and programmes (Strategic Environmental Assessment Directive).

Changes enacted or simply unwillingly produced by plans or programmes must be kept under control within a common territorial framework. Beyond 42/01 Directive, the article argues integrated monitoring as a frame for testing the sustainability of overall changes induced by decision making at territorial level. It requires the definition of a governance scheme, describing subjects involved, roles and tasks for the implementation phase. The monitoring of a single plan should be considered as a part of the integrated system.

To make integrated monitoring effective, a common knowledge framework is to be defined, at proper territorial level, by public administrations. It must put in common certified data from different sources (context indicators), useful for environmental and territorial descriptions. It must also make metadata available for continuous updating.

Monitoring is a complex process involving planning and environmental authorities, stakeholders and the public. Assuming that participation should follow the whole planning process including the implementation phase, the article explores the potential breakthrough impact of monitoring in empowering participation processes.

Within this theoretical account, the article highlights the potential of integrated monitoring in supporting planning along time and within space(s), in accordance to recent Italian case studies coming from research activity by Poliedra-Politecnico di Milano – in collaboration with the Italian Ministry of Environment, Land and Sea and the Italian Institute for Environmental Protection and Research.

### 2 RESEARCH BACKGROUND

Poliedra – Politecnico di Milano since 2008 supports the the Italian Institute for Environmental Protection and Research (ISPRA) in a research activity on monitoring in Strategic Environmental Assessment (SEA) funded by the Italian Ministry of Environment Land and Sea. The activities are to be intended as a part of the whole themes covered by the State-Regions-Autonomous Provinces Meeting Table on SEA.

In a first phase, until 2009, a core set of indicators for SEA and a methodology for monitoring plans and programmes have been provided.

In a second phase, from 2010 to 2012, a testing activity of proposed methodology has been put in place in Italian Convergence Regions, through a careful selection of case studies.<sup>1</sup> It led to the definition of “Operational and methodological elements for SEA monitoring”.<sup>2</sup>

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<sup>1</sup> Following plans have been selected for testing:

- Apulia Regional Coastal Plan (safeguard of Apulian coasts. All local plans will have to comply with its contents for a territorial strip of around 300 metres from the coastline)
- Urban Municipality Plan of Monopoli (Apulia Region)
- Territorial Province Plan of Caserta (Campania Region)
- Urban Municipality Plan of Mercato San Severino (Campania Region)

At the same time, the Environment Agencies Network<sup>3</sup> continued working on the updating of the core set of indicators for SEA.

This paper represents a critical overview of research outputs, reflecting in particular on the role of monitoring for strengthening the inter-linkages between planning and environmental assessment.

### 3 DYNAMICS IN DECISION MAKING: GOVERNING COMPLEXITY

Decision making process can be described as composed by a multiplicity of plans and programmes characterized by procedural autonomy. They show own peculiarities relating to several aspects, which can be summarized as follows:

- Territorial scale and reference sector: every plan involves a certain territory. The same territory can be concerned by several sectorial and territorial planning instruments, such as regional, county and local plans, although through different roles, duties and scales;
- Implementation rules and tools: planning implementation can be direct – through tenders, public announcements, etc – or it can imply subsequent planning levels with specific implementation plans or programmes;
- Times: every plan has its own timeline. Furthermore, its influence and foreseen implementation tools can overpass expected deadlines and delay for an unpredictable time;
- Actors: plans concerning the same territory partially involve common actors and stakeholders, depending on the reference sector of the plan and on its territorial dimension. For this reason, participation activities should be properly structured, and should follow the whole decision making process chain.

To face real time planning and to deal with uncertainty, planning and evaluation activity are to be considered within their comprehensive container, the decision making process. It is dynamic by nature and links plans, policies, programmes and related implementation tools into a territory–tied system. The decision making as a whole deploys effects, both planned and unforeseen, on the territory it relates to.

This assertion partially shifts the attention from the long time often needed by planning and decision making process to become effective. Rather, it leads to concentrate on the territory planning refers to and on its relationship with the governing instruments. In this view external elements affecting concerned territory are to be considered for reaching further decisions.

In such a dynamic interaction, the assessment of territorial effects produced by a single plan or policy seems to be puzzling and particularly demanding.<sup>4</sup> The 42/01 directive introduces the obligation for plans and programmes to monitor the likely significant effects induced on the environment in areas affected by their implementation, even those unwillingly produced.

This sentence, simple and unquestionable in theory, implies several difficulties in practice.

An environmental context is part of a dynamic system. It undergoes continues transformations. It is really difficult to understand which part of such transformations can be ascribed to the implementation of a single plan addressing a certain territory. It is quite demanding even for projects subject to Environmental Impact Assessment, but in this case, depending on the type of works to assess, there can be observed effects or impacts directly produced by their development.

Reflecting on the planning process, this challenge requires even more efforts to be adequately engaged. The research activity carried on in this field underpinned at least three elements to be taken into proper consideration.

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• Urban Municipality Plan of Lamezia Terme (Calabria Region)

<sup>2</sup> <http://www.va.minambiente.it/monitoraggio/monitoraggiogas/costruzionedelsistemadimonitoraggiogas.aspx>

[http://www.isprambiente.gov.it/files/via-vas/indicazioni\\_per\\_il\\_monitoraggio\\_nella\\_vas\\_def.pdf](http://www.isprambiente.gov.it/files/via-vas/indicazioni_per_il_monitoraggio_nella_vas_def.pdf)

<sup>3</sup> The Italian Institute for Environmental Protection and Research works at National level constantly relating to Regional Agencies for the Environmental Protection within the so-called “Network of Environmental Agencies”. They created in 2011 a specific working group on SEA monitoring.

<sup>4</sup> In the article, the word plan will stand for both plans and programmes

The first one looks at the relationship among decision making, planning process and the territory they relate to. Once defined the scale of planning, the whole planning and policy instruments involving that territory should be taken into consideration for monitoring the environmental cumulative effects induced. In this vision, concerned territory is the focus upon which changes shall be continuously monitored and described through proper shared data and indicators.

The second element deals with planning processes involving a certain territory and their assessment. By law, environmental assessment procedures must be referred to a single plan, programme or project. But to proper pose the basis for adequate monitoring of their effects common provisions should be put in place and shared at territorial level.

The third one reflects on the need of defining environmental frames. They should be lens through which look at territorial changes and establish sustainability goals. The research in this sense underpinned the crucial role of sustainability strategies for driving planning and assessment processes. To be effective, they should be participated and shared at proper territorial level.

Synthesizing, territorial and environmental dynamics should be interpreted per se, delegating to the single planning component the demonstration of its contribution to changes underway. This step could bring to the full application of the strategic spirit of the SEA, unburdening the single planning and assessment process from context based analysis.

Focussing on plan or programme contents, plan contribution to the occurring transformations is to be continuously monitored and assessed. Assessment outputs could allow enlightening feasible adjustments during the implementation for reaching territorial and environmental goals.

Environmental assessment, even further when strategic, should become in this frame a picklock through which integrate and critically review the implementation by monitoring its real effects.

### **3.1 Sustainability in planning: giving substance to evaluation**

An integrated approach for framing all decision making elements is required to move towards sustainability. Italian law, by legislative decree 152/2006 and further amendments (framework law on environment), betokens sustainability strategies as common frameworks for environmental assessments at all level.<sup>5</sup>

By fixing their role, the legislator took the trouble to coordinate problems at different institutional levels.

Also, it challenged the formal approach to environmental assessment, overwhelmed by procedure, which is spreading among public entities in charge of the assessment. Furthermore, it represents an attempt of shifting questions arising from the issue of value from the single assessment instrument to a more comprehensive territorial level. In this sense, environmental assessment has a ground for learning by planning theory, where universal paradigms and approaches has been in time put under discussion.

The development of planning theory has not been about the adoption of a central paradigm, but about the gradual emergence of a more contested territory, where overarching theories have failed to convince the academic community that they are as universally relevant as they might claim. (Richardson 2005, 343)

Following this argument, the disappearance of universal approaches should lead to a more context-based inspiration for environmental assessment and planning. Also, it has to engage with competing multiple rationalities and with conflicts arising from the different values they represent and bring into the policy making arena. A tentative and collective ongoing process, led by the so-called adaptive management (Holling 1978). Intended in a wide sense, it allows establishing an iterative territorial learning process enriching knowledge and delivering short term outputs for management.

Therefore, a sustainability strategy shall be territorial, or rather concerning a proper territorial level, to be defined case by case. Its drafting process shall involve formal actors, stakeholders and the public to share a common vision on how to govern that territory and its complexity. The sharing does not exclude conflict. As

<sup>5</sup> Art. 34, legislative decree 152/2006 and further amendments: "Sustainability strategies are intended to frame environmental assessments foreseen in this decree. Such strategies, coherently defined at different territorial levels, ensure the dissociation between economic growth and its environmental impact. They have to be carried on through citizens' and third sector participation as representatives of different requests. They also guarantee the respect of conditions of ecological stability, biodiversity safeguard and the satisfaction of social needs linked to the development of individuals' potentials as demanding premises for competitiveness and job growth."

an arena where different values are put in place and represented, even though differently explicit, the strategy should negotiate some common goals. As sustainability general objectives have been defined at least at European level, the negotiation process should select the general aim fitting with the local context concerned. In other words, aims matching local issues, seen as both context strength and weaknesses, should be defined (fig. 1).

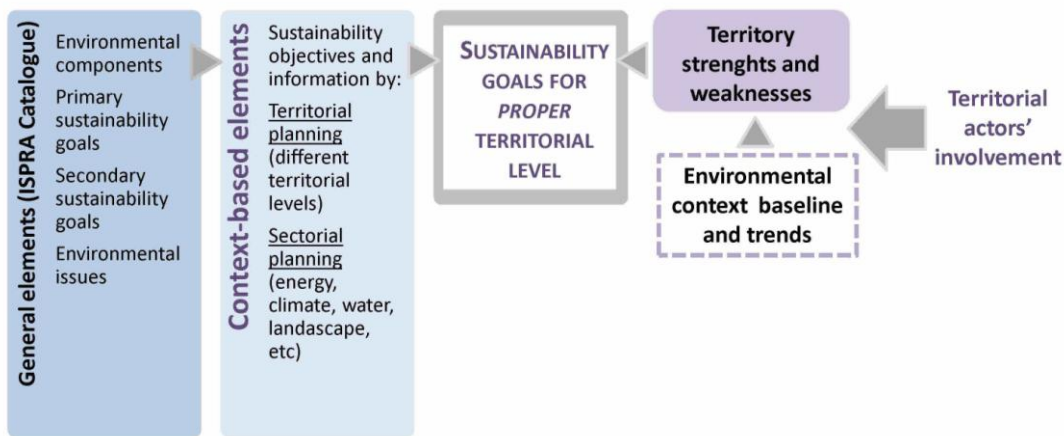


Fig. 1: definition of sustainability goals at territorial level

Once sustainability objectives have been selected, proper data and information shall be provided for monitoring their achievement. This means, at once, monitoring context changes through defining a baseline and the performance of decision makers towards sustainability. This also means thinking about environmental assessment as a tool for improving the chance of achievement fixed goals. This latter sentence implies a common challenge for planning and environmental assessment, which would delegate to sustainability strategy the background activity, common to all decision making instruments at territorial level.

Sustainability strategies are in this view the room where defining, coordinating and testing decision making implementation process (through plans, programmes, projects and related environmental assessments). They should make objectives available, as well as indicators and data (historical series, where possible), credible targets, information and communication protocols to be shared by all instruments.

The updating of the baseline, through monitoring of context changes and plans effects, creates a territorial-based knowledge continuously fostered by monitoring activity (fig.2).

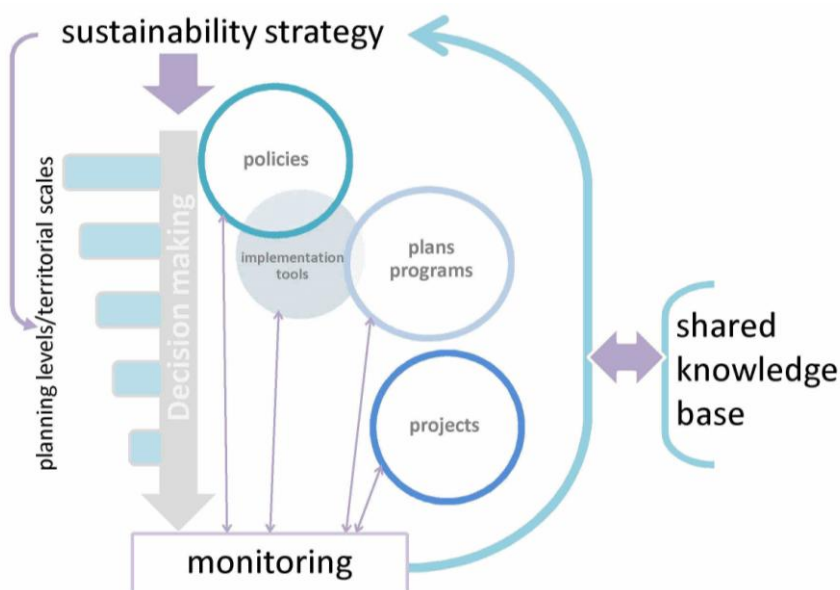


Fig. 2: Sustainability strategies, monitoring and shared knowledge: framing decision making process

The shared knowledge basis aims at supporting planning and environmental assessments, providing a reliable framework upon which starting reasoning about the contribution of the single instrument to common

goals and occurring changes. It also gives the floor for properly assess cumulative effects and to re-orient the strategy on real time. If the territorial vision is put under discussion, then the overall strategy should be revised. Consequently, and in a second phase, the single instrument should acknowledge revisions..

It seems to be describable as a matter of scale of governance: the strategy orients decision making process as a whole on a limited territory, interiorizing some values and conflicts by its participative process, as well as giving priorities and adequate tools for describing and fulfilling them. Disclosing in advance these crucial elements, the single plan or project and their assessment could “limit” to frame their contents under the shared vision, describing how, in qualitative and quantitative meaning, they contribute to its accomplishment.

Even though in Italy the general approach is fixed and shared by legislation, the role of sustainability strategies in practice is very narrow or fragmented.

It seems anyway a fruitful path towards a non-formal integration between planning and assessment. Sharing the background at the root could allow focussing within the planning process on integrating tools and approaches and making them dialogue at the proper territorial scale.

It is a step forward Therivel’s decision makers “thinking SEA” (Therivel 2012, 263), as it applies to the sustainability of decision making process as a whole and does not infer the uselessness of environmental assessment procedures. Rather, it implies the role of the territorial arena, to which the sustainability strategy refers to, in marking the opportunity for constructing environmental (and social) subjectivities and qualifying related planning and assessment system.

### 3.2 Monitoring and knowledge

The knowledge basis set by sustainability strategies is fed by monitoring. Its effectiveness is crucial firstly by the self-reference point of view, as effective monitoring of environmental effects induced on a territory. Furthermore, it is essential for drawing reliable scenarios for forthcoming decision making.

Monitoring and research programs must be designed not just to advance general understanding, but for their relevance to informing potential future decisions. (Parson 2001, 348)

According to Parson, policies (and therefore plans) should be informative. They should, among other goals, design decisions supposed to perturb environmental systems to generate a signal and be sustained for long enough to observe a response. Such observation implies and requires the definition of a monitoring system, intended to support and increase the informativeness of policies.

To follow this argument, institutions need to show the ability of sharing their own, often locked, knowledge, assimilating new knowledges deriving from different actors, both institutional and non-institutional. They also should demonstrate flexibility to respond to such new fragments or forms of knowledge. Finally, they need to assemble contributions coming from all actors into a common knowledge framework. These steps and abilities could allow policies acted by institutions to become informative, as Parson suggests.

To make the system work, the definition of rules and mechanisms for exchanging knowledge can’t be underestimated. They should mostly be selected through participative process accompanying the definition of the sustainability strategy.

The knowledge basis deriving from this approach – defined within the research shared knowledge basis – aims at supporting planning and environmental assessment processes. It works for increasing the quality level of assessments and planning, ensuring homogeneity and comparability. At the same time it aims at supporting public institutions in their demanding role of governing complexity on their territory. Far from being the solution, it must be intended as a tool for enriching and giving depth to analyses and evaluations.

The shared knowledge basis is a framework which can guarantee coherence to planning and assessments at different scales, avoiding duplications and waste of public economic resources.

In this view, strategic environmental assessments and related plans can share within the basis context analysis, coherence evaluation, environmental objectives and indicators, etc. Their duty is to adapt such common elements to their own contents and to transmit them to subsequent levels of project and assessment (Environmental Impact Assessment and Appropriate Assessment). The monitoring results coming out from every step of this structure should be able to feed the shared basis, in a process of territorial learning which main aim is to contribute to the spreading and sharing of produced knowledge.

Aware of the demanding challenge proposed, the research experience described in the following pages represents a first step conducted in Italy in this direction, oriented towards a problematic institutional integration attempt, involving national, regional and municipal level.

### 3.2.1 Framing environmental assessment: the ISPRA Catalogue

Italian framework law on environment establishes a direct involvement of Environment Agencies in monitoring activities.<sup>6</sup> Within the institutional framework set by the Ministry for the Environment, Land and Sea, the Italian Institute for Environmental Protection and Research, supported by Poliedra – Politecnico di Milano, started thinking about the definition of a core set of indicators for SEA.

After a two-year work, a so-called catalogue has been produced.<sup>7</sup> It aims not only at fulfilling the basic institutional request. Indeed it has been shaped for framing environmental assessment in a wider sense, waiting for the approval of national and regional sustainability strategies (Fiorletti 2012).

To define priority objectives, the European Strategy for Sustainable development (European Council 2006) has been analysed in order to extract strategic themes (climate change and clean energy, conservation and management of natural resources, sustainable production and consumption, sustainable transports, public health, cultural resources and landscape).

Following Eurostat scheme, strategic themes have been linked to primary sustainability goals, defined by the integration of EU sustainable strategy with the Italian Action Strategy for Sustainable Development (Ministero dell' Ambiente e della Tutela del Territorio 2002) and other strategic documents.<sup>8</sup>

According to sectorial European documents (Directives or Communications) and to national legislation, the secondary objectives have been defined, directly related to the priority ones, focussing on environmental issues, intended as specific environmental concerns to be properly reported at different territorial levels.

Every environmental issue is described by at least one context indicator. Every indicator is accompanied by a meta-information form, providing a description and details on the availability of data for population and updating among other characteristics.

Criteria have been defined for selecting appropriate indicators. Particularly relevant has been the data availability at national and regional level. Further implementation has been provided at municipal level through the testing activity on the Convergence Regions. The indicator significance towards the related environmental issue has also been ranked, as well as its level of updatability, the availability of historical series, the “scalability” of data. This latter criterion is particularly relevant and demanding at institutional level. It infers the willingness of all institutional actors involved in planning and environmental data production to make their knowledge available for guaranteeing the data covering at different territorial levels.

This still ongoing process led to the definition of 72 context indicators, describing 52 environmental issues. 53 meta-information forms are at the moment available. The updating and enrichment of the Catalogue, both for objectives and indicators, have been introduced into the formal duties of the Environment Agencies Network.

The Catalogue contents are supposed to be adjusted case by case for being used at territorial level, guaranteeing a common frame for comparing trends and situations. It undoubtedly is a long and complicated track, but the layout has been traced.

Several Regions participating to the the State, Regions and Autonomous Provinces Meeting Table on SEA did share and acknowledge Catalogue approach and contents. Campania, Apulia, Emilia Romagna, Piemonte and Marche, among the others, did start the construction of their own regional catalogue for environmental

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<sup>6</sup> Art. 18 legislative decree 152/2006 and further amendments: “monitoring is to be carried out by the “Autorità Procedente” (authority in charge of planning activity, A/N) in collaboration with the “Autorità Competente” (environmental authority A/N), involving the Environment Agencies system and the Italian Institute for Environmental Protection and Research”. (Every Region in Italy has its own Environment Agency referring to a common institutional network led by the Italian Institute for Environmental Protection and Research, A/N).

<sup>7</sup> Available at [http://www.isprambiente.gov.it/site/it-IT/Temi/Valutazione\\_Ambientale\\_Strategica\\_\(VAS\)/](http://www.isprambiente.gov.it/site/it-IT/Temi/Valutazione_Ambientale_Strategica_(VAS)/) (no English translation is provided).

<sup>8</sup> the Sixth Environment Action Programme (European Commission 2001), the European Landscape Convention, the European Strategy on Biodiversity (Biodiversity 2020) and the Italian National Strategy on Biodiversity



assessments. In some cases, the definition of such catalogues has been encompassed within European structural funding activities (Cossu e Kohan, 2012).

#### 4 INTEGRATED MONITORING FOR PLANNING

The proposed approach conceives the monitoring of a single plan as part of a comprehensive activity – an integrated monitoring system – falling within the decision process and the sustainability strategy defined at territorial level.

Every plan must be part of an integrated monitoring system aimed at estimating the achievement of sustainability goals, by demonstrating its contribution, both positive or negative.

In other words, monitoring activity of a single plan should enlighten through performance indicators its influence on changes underway, described by the movement of context indicators. Monitoring must accompany the plan all along the implementation process.

The integrated system is also a tool for the plan and for its SEA for framing subsequent monitoring of projects foreseen by EIA and Appropriate Assessment. It simplifies monitoring activities, making available reference objectives, indicators and data, and allowing a resource efficiency review.

From a methodological point of view, the whole monitoring process can be described as a three phases process (Laniado, Cossu, e Vaghi 2009), to be carried out during the plan implementation, whose results are described in monitoring periodical reports (fig.3):

- Analysis: acquiring information, calculating indicators and comparing them to the foreseen trends of environmental sustainability indicators and objectives, in order to verify any existing gap;
- Diagnosis: describing the reasons of the gaps identified (either due to unexpected changes in the external scenario or to problems in the implementation of the plan);
- Therapy: developing proposals for the re-orientation of the plan (concerning objectives, actions, conditions for implementation, timelines, ...) in order to make it consistent with sustainability objectives.

To allow monitoring to fully play the proposed role, some basic conditions are required. It must be designed to be a decision support system to be structured and managed through a careful definition of actors, roles, rules and instruments for their involvement (monitoring governance). Moreover, it must follow the plan enactment all along its life cycle, verifying at the same time the effects induced on the territory and the achievement of sustainability goals. Finally, adequate information on monitoring activities shall be provided, in terms of modalities, results and call for remediate actions when necessary.

The design of an integrated monitoring system is based on the definition of two main elements. The first one, highly technical, relates to the definition of indicators. They should not be defined per se and should not lead to infinite lists of good indicators. Rather, they should be limited in number but accompanied by all information needed for their continuous updating and for the data exchange among different institutions and territorial levels. Both context indicators and plan indicators should be defined, estimating the direct effects of plan enactment on territory. Context indicators are directly related to those made available from sustainability strategy for concerned territory.

A second element is necessary for monitoring effectiveness and deals with relational sphere. The monitoring governance has to be defined, establishing duties and roles of all actors involved, in addition to mechanisms and rules relating to timelines, resources, reporting, exchange information protocols, participation instruments.

From the technical point of view, the definition of an integrated monitoring system can be developed through some generalizable phases.

In a first step, given the background information by the sustainability frame (objectives and context indicators), the linkage between the execution structure of the plan, its actions and selected sustainability goals is to be drawn. The analysis has to be carried on through the estimation of effects produced on every objective. Every effect should be described to allow recognizing the ones to be kept under observation and to lead to the definition of one or more indicators – process or contribution indicators – to this purpose.

The research underpinned the potential of graphs in supporting the explicitation of different kind of nexus between actions, effects and objectives. It also aided in the translation of such relationship into indicators by representing entity and tipology of the effects to be monitored and by evidencing mutual relations.

It allowed visual returning of complex causal relationships and representation of cumulative effects, both direct and indirect, of more than one action on the same goal (fig. 3).

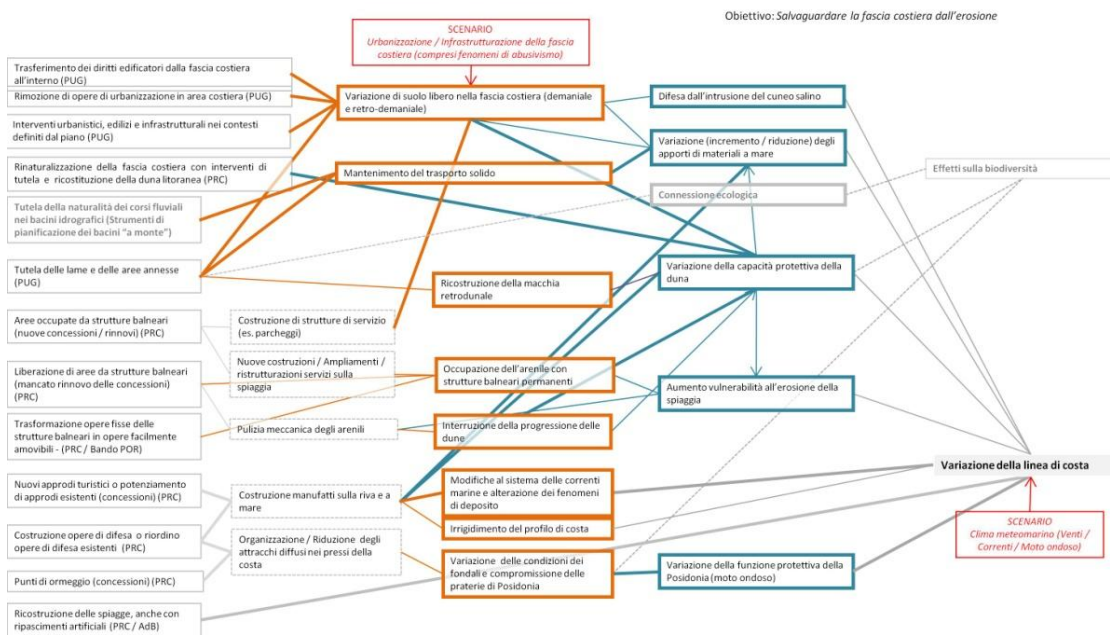


fig.3: graph for to defining performance indicators (process and contribution) in the integrated monitoring system proposed for the Apulia Regional Coastal plan

Similarly to the exposition on environmental effects, graphs have been used for defining indicators. To every action one or more process or contribution indicators have been linked. The linkage between performance indicators and context ones is also explicated.

Scenario elements, such as informal settlements, must be taken into account for properly assess the potential responsibility of all decision making elements in occurring territorial changes.

#### 4.1 Time and space. Exploring and keeping plan implementation under observation

An integrated monitoring system must embody all aspects concerning the effects induced by decision making elements active on a certain territory (spatial dimension) all along the decision making life cycle (temporal dimension). This requirement translates into the need of defining on one hand the territorial dimension of the plan to be monitored to find out all the plans, programmes and projects in force on the same area. On the other hand, it requires the punctual description of phases and implementation tools to properly define expected monitoring outputs by any of them.

The spatial dimension is crucial when working on an integrated system. It selects the elements of decision making process which will enter the system, defining their role and contribution, directly depending on their territorial dimension.

Within the temporal dimension nature and potential of indicators are to be considered. Both process and contribution indicators follow the enactment of the plan. The difference between them relates to the availability of reliable data during the implementation process. Information will usually become more useful and precise with the full accomplishment of the plan. Otherwise, to properly detect unwanted effects it is necessary to identify at an early stage potential negative impacts. For this reason, indicators change during the life cycle of the plan, acknowledging the progressively more detailed available data.

In a first phase, if necessary, process indicators can be used for estimating potential effects by first information available. They often can not be directly linked to the environmental objectives in terms of induced effects, but can act as a proxy. As information gets more reliable, contribution indicators can be defined, describing qualitatively or quantitatively the role of the plan in achieving sustainability goals.



This dynamism in monitoring structure implies the necessity of continuous adjustment of its contents. While defining clear mechanisms since the designing phase, peculiarities in enactment process must be taken into proper account (fig. 4).

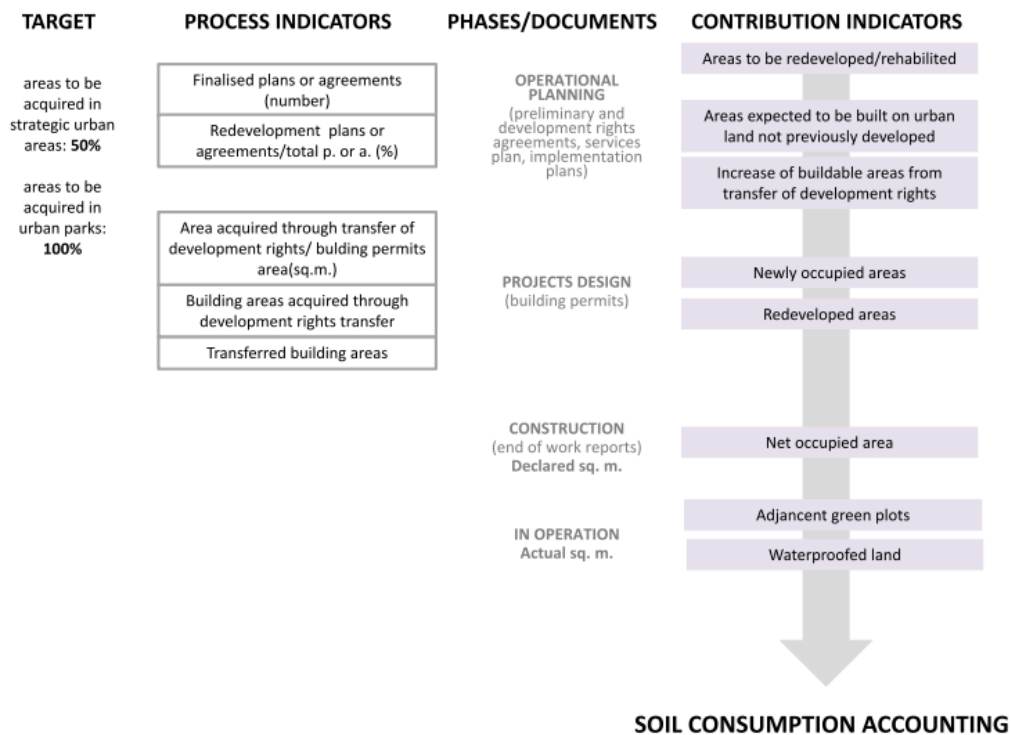


fig.4: integrated monitoring system for the Structural Municipal Plan of Lamezia Terme

#### 4.2 Actors, rules and conditions for monitoring effectiveness: “the governance”

Monitoring should allow institutional and non-institutional actors to express their own opinions and positions about the implementation through guaranteeing adequate environmental information. Active forms of reporting are all to invent in this sense, and crucial.

The belief is that, by implementing such principles of “good governance”, SEA may provide a useful meeting point between top-down and bottom-up approaches to sustainable development (Scott 2011, 69)

Technical structure alone can't guarantee monitoring effectiveness. Relational dimension needs to be properly considered to support the encountering of top and bottom and to deploy the whole potential of monitoring in intercepting and properly responding to fast changes.

The management of such a complex system demands the early definition, since the planning phase, of the actors involved and their respective roles; of rules and mechanisms necessary for performing such roles; of human and economic resources available and needed; of phases and timetables of the implementation process with specific time frames for reporting activities; of feasible tools for supporting participation of the public, environmental authorities and stakeholders, foreseeing appropriate paths when viable. Finally, it must enounce the way in which remedial actions should be undertaken when necessary.

This collection of information and decisions gives the opportunity to the technical structure of the system to stand and to avoid its transformation into an elegant proof of concept. Every governance element shall be defined and adjusted case by case.

Research activities showed the problematic nature of the relational dimension. The reluctance of public administrations involved did not allow defining a real governance system. Only few suggestions were sketched out and put before their attention, particularly focussing on potential actors to be involved and on their role. Only in one case, the sensitiveness of planning authorities towards monitoring and environmental issues did allow going beyond formal acceptance. Where awareness of problems, good disposition and consciousness of monitoring potential are provided, ground-breaking spaces open up. The work forward has to unavoidably deal with this dimension.

## 5 CONCLUSION

To deploy its potential, monitoring requires the clear definition of its governance. It seems to be a wider issue, overpassing planning and assessment borders, while entailing institutional and administrative layouts. In the near future, this seems to be the prior sphere for working, aiming at diffusing a real monitoring culture, as a prodrome of real – time responding planning.

Adaptive management is needed to make it possible. The monitoring culture should teach how to learn by mistakes and inscribe into territorial descriptions performances of plans and programmes. That means recognizing responsibilities and diffusing related information.

It also implies a completely different relationship with the public, transforming the actual approach to participation, seen as an plan-related tool, strictly limited in time and space. The role of sustainability strategies is crucial in this challenge, nor is doubtful the potential role of environmental assessment in supporting transparency and participation to the decisions.

Nevertheless, a forgotten peculiarity still waits for proper consideration. The updating of plans due to their real effects is a clear role ascribed by law to SEA. It opens the path to an overturning of separated logics actually underlying planning and assessment activity.

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