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Researching in geography, it is possible to match science, theory and practice of the territorial development [1]

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Sommario: *Per contrastare la crisi, le politiche e le direttive europee, nazionali e regionali sono state incrementate, influenzando e modificando i contenuti della pianificazione economico-territoriale, per includere obiettivi prioritari comuni, come coesione, sostenibilità, competitività, policentrismo, ecc.*
Dal 1995 al 2006, la ricerca geografica italiana ha sviluppato un nuovo approccio teorico-metodologico e una strumentazione GIS in grado di valutare ex ante la sensibilità territoriale di politiche e programmi, definita Sustainable Territorial environmental/economic Management Methodological Approach (STeMA).
Dopo un periodo di sperimentazione e di revisione critica, questo approccio teorico è stato discusso per sostenere diverse ricerche europee e applicato ai programmi LIFE, ESPON, CADSIS, e alla Carta di Lipsia e Europa 2020 dal punto di vista geografico, riducendo i rischi di impatto e gli effetti (positivi o negativi) sul capitale iniziale territoriale (capacità o sensibilità).
Il contributo, ripercorre le questioni teoriche alla base di STeMA, si concentra sugli aspetti scientifici relativi alla Valutazione d'Impatto Territoriale (TIA) e alla Valutazione Ambientale Strategia (VAS) della politica regionale e sulle scelte di pianificazione regionale che la rendono coesa, sussidiaria, competitiva in sostenibilità alle diverse scale NUTS 1, 2, 3.

Abstract: *By the access of new countries, European policies and directives are increased as well as national and regional ones, influencing territorial and spatial planning and modifying it for including common priority objective as cohesion, sustainability, competiveness, polycentrism, etc.*
From 1995 to 2003, the Italian geographical research has developed a new methodological theory able to assess the territorial sensitivity of policies and programmes; and since 2004 it includes the competitiveness and cohesion assessment (Prezioso, 1995; 2003; 2006; 2007; 2008; 2009, 2010).
After an experimental period of texiting and critical review, this theoretical approach, called Sustainable Territorial environmental/economic Management Methodological Approach (STeMA), and its tool GIS, were discussed for supporting several European applied researches onto LIFE, ESPON, CADSIS, Cohesion, Leipzing Charter programmes.
The paper goes back over the STeMA theoretical questions, focusing on scientific questions relative to the Territorial Impact Assessment (TIA) and the Strategy Environmental Assessment (SEA) of regional policy making and European policy inclusion in planning choices for obtaining a cohesive and competitive development in sustainability in different target areas individuated at NUTs 1, 2, 3.
In order to define this IV generation methodological protocol and its selected use of common scientific indicators, some words will be spent looking at the territorial diversity and testing it from the territorial point of view. The latter can be considered as the initial territorial capital or capacity building or sensitivity by which assessing impacts and effects (positive or negative) of integrated EU policies, to do endogenous corrections.
Finally, in order to reduce these risks, the paper arranges those rules (governance) and those procedures/laws (compliance) to which the territorial government is due, transferring new geographical address in planning culture, making subsidiary orientations, procedures, standards; they transform interests of investors, enterprise systems, interest-taken, citizen and citizenships on the "best practise" way.

1. General reflections for addressing key research questions

Starting from the inclusion of new countries in 2004, territorial diversity is discovered itself as an important characteristic of 27 European Member States. This seemed to generate more options in global competitions (ESPON, 2006) and, at the moment, it could discover itself as able to manage impacts and effects of the global crisis (ESPON, 2010).

Before and after 2009, a lot of words were and are spent about the European policy capability to catch these goals; but only recently the idea is

reinforcing to develop them by the territorial and economic planning, for creating a new balanced – sustainable and cohesive - growth, using in planning practice new conceptual terms and phenomena (as polycentrism, urban drives, rural areas, ultra-peripheries, and so on) from applied researches, in opposite to current ones (Territorial Agenda 2007, 2010 in course).

EU cohesion and sustainability objectives orient all new topics. Thus, the theoretical study of geographical phenomena is attended to engage solutions for several polices (Energy, Climate Change, Demography, Global Economic Competition, Accessibility, Health, Social inclusion, Urban habitat, etc.); their integration in a plan is considered a fundamental base of competitiveness.

From a lot of time, academic researches and practical projects are in course to verify how urban strategic planning is able to offer solutions to the reduction of CO_2 during the city's reconstruction after destroying events (earthquakes, wars, etc.). Recent EU documents and applied researches: Europe 2020 Strategy (EC March 2010), Lipzing Chart 2010, V Cohesion Report 2010, Territorial Agenda, 2011, ESPON Programme 2013 are supporting this approach to the urban recovery, with particular regard to the medium-small cities' size and to their positive reaction in front of the economic and financial crisis.

Changing the planning policy paradigm through and towards cohesion and integration, new and more complex theories are needed. They should be able to take in account both specific characteristics of EU member states (social, cultural, economic, technological, and so on); and the heritage and value (territorial capital) for EU in the overall; researching how they have to be harmonise – specially referred to the sustainable development of the cohesion policy – testing them from the territorial point of view.

Different geographical scales and the diversity of national/regional legislations need to be considered, because they produce a substantial gap to make them closer to EU Directives goals.

Three key drivers for growth are able to be implemented through concrete actions at EU and local levels:

– smart growth - fostering knowledge, innovation, education and digital society (continuing effort stated in Lisbon Agenda);
– sustainable growth - making our production more resource efficient while boosting our Competitiveness (following Gothenburg Agenda commitments);
– inclusive growth - raising participation in the labour market, the acquisition of skills and the fight against poverty (as confirmed by V Cohesion Report).

Through a long theoretical and practical process, founded on geographical and planning backgrounds (Prezioso, 2004, 2007, 2008, 2009, 2010), it was possible to develop a IV generation method, named Sustainable territorial environmental/economic Management Approach (STeMA). It is able to consider socio-economic and territorial diversities as the *initial territorial capital* or *capacity building* of a geographical region (at NUTs 2, 3, 4), by which assessing impacts and effects (positive or negative) of integrated EU policies and planning choices, to do endogenous corrections.

Sustainable development, territorial diversity and disparities, social inclusion are asked to translate into local targets EC reflections to manage the economic crisis and to look beyond, giving endogenous strategic planning solutions to point as younger generation employment, the GDP (urban added value) investment in R&D, the "20/20/20" climate/energy targets, the decrease of the risk of poverty.

2. Sensitivity of different types of territories and regions

The debate in course onto EU highlights different territorial effects generated from EU policies, Directives application, and regional/spatial plans. Differences reflect the socio-economic, cultural diversity of geographical regions and the relative capability of cohesive development, thus requiring a differentiation in the interventions.

In this context, the ex ante assessment of territorial sensitivity is seemed able to sustain policy makers in this hard work.

STeMA provides an accurate overview on the effects of the main EU policies and Directives' application. It takes into consideration different aspects of the selected directives such as their transposition in Member States legislations, the key issues of the procedure, their relationship with other EU legislation and policy issues, their effectiveness and the opportunities for their improvement.

It takes into account the possibility to use all so-called "Consultations" (public and environmental authorities, etc.), on which the Commission (2009) points out. They include a variety of instruments i.e. public announcements, publication in official journals or the press, public meetings, internet surveys and questionnaires to encourage an appropriate management of possible conflicts between Directives.

STeMA considers also the links existing between single/sectoral policies/Directives and other EC law instruments. Connections will be found not only, i.e., with the Habitats and SEA Directives but also with other directives (namely Water, Nitrates, Waste, Noise and Air Quality Directives) which fix requirements for the establishment and assessment of P&P in fields deeping the EU policies.

3. Review of geographical literature and concepts at the base of STeMA

The literature on the plan's assessment, with particular regard to the Environmental and Territorial Impact Assessment (SEA and TIA), is massive, especially after the framework developed by Dir CE/2001/42, European Commission (COM (2002)276) and the more recent publications of guidelines (SEC (2009)92). Also *IPPC* documents, *Territorial Agenda* (2007) and *Green Paper on Territorial Cohesion* (2008) sustain this point of view, as well as past and present European research programmes (see in particular the ESPON experiences 2006 and 2013).

Particularly, the Territorial Impact Assessment (TIA) use has been already proposed in the European Spatial Development Perspective (ESDP, 1999) also if, in that context, the concept has not been well defined: it could be used as an instrument for spatial assessments of large infrastructure projects (e.g. airport plans, highway plans, etc.) and as basis for integrated spatial development strategies on environmental sensitive areas, too. In the ESDP, this concept is clearly related to assessments of project impacts, rather than plans or programmes. As a spatial planning instrument, TIA is considered applicable to any spatial scale (ESPON 2006 projects 2.1.2 and 2.2.1).

In some EU countries, TIA is considered as an integrated part of regional planning practice, although in several cases it is possible to identify particular studies, which are perhaps comparable in scope and purpose with policy impacts. This may happen, for example, whenever national planning bodies need to evaluate possible national or regional operative plan proposals. TIA is a tool or a procedure for assessing the impact of proposed spatial development in front of spatial policy perspective objectives on a region or on a large territory (INTEGAIRE, 2005; NORDREGIO, 2005; ESPRID, 2007).

From the beginning, TIA included (and still includes) all aspects of spatial planning: environmental, social, economic and cultural; but at the same time it values impacts of proposed policies on specific sectors like job opportunities, the housing market, the regional economy, the cultural heritage, tourist attractions and accessibility, too.

Some examples of Territorial Impact Assessment models were from EU national, regional and sub-regional planning levels (e.g. expressly and firmly fixed in German planning law). It has included economic, social, and cultural aspects in addition to environmental concerns:

- *Alpe Region project* (by BBR and Alpine Research Institute, Garmisch-Patenkirchen, 1998-2000);
- *Walloon Region of Belgium (*Regional Planning, Housing and Heritage, Ministry of Walloon Region, Belgium, 2001);
- *Slovenia* (Town and Spatial Planning Association of Slovenia, 2001);
- *Greece* (Greek Planners Association, 2001);

Others applications were occasion of matching science, theory and practice of the territorial development:

- *Italian Province of Rome* (Territorial provincial General Plan, 2003);
- *The Territorial Strategy of Lisbon/Gothenburg* (2006);
- *The Italian Cohesion Report* (2006);
- *POLY.DEV project* (by Italy, Slovenia, Slovakia, Greece, Bulgaria, 2007);
- *The "Tor Vergata" Campus: integrated sustainable planning for a better Capital City* (2009).

These last were developed by STeMA and have anticipated the TIA goals:

- European Council 2001, in Gothenburg: within the agreement on applying assessment process to the EU strategy for sustainable development, where social and economic aims agreed upon the Lisbon EC strategy in 2000 (and their subsequent review and actualization, by the Renovated Lisbon Strategy in 2004) including a territorial dimension;
- European Council 2002, on the Laeken Declaration 2001;
- European Commission, 2005: *Within the framework of the Better Regulation package and the European Sustainable Development Strategy*, where the Commission outlined several concrete actions to improve the way it designs policies. One of these tasks is Impact Assessment, on which the Commission introduced the new method in 2005;
- European Communities 2009: *Impact Assessment Guidelines*, SEC (2009) 92;
- Report 5 (14th September 2009) from the Commission to Council, the European Parliament, etc on the application of the Directive on SEA COM/2009/0469 final.

The Commission's attitude towards these pur-

poses is pragmatic (see Table 1), as well as the result of their experimental application in regional plans.

However, both Strategic Environmental Assessment (SEA) and Territorial Impact Assessment (TIA) are processes, aimed at structuring and supporting the development of programmes and policies. They identify and assess the problem and objectives pursued at different geographical scales. They identify ex ante the main scenarios and options for achieving the objective and they analyse their likely ex post impacts on the economic, environmental, cultural and social fields. They outline advantages and disadvantages of each option and examine possible synergies and trade-offs on the base of the real territorial context.

The role of SEA and TIA as key tools to help the EU institutions to design better policies and laws has been recently confirmed by SEC(2009)92 and COM/2009/0469. Moreover, TIA is an aid to political decision, not its substitute. It informs decision-makers on the impacts of proposals, but it leaves them up to make their decisions (European Parliament, June 2005).

At the same time, few studies seem to analyse in deep the sensitivity concept and its application to European policies and their impacts to the regional

Tab. 1. European documents and initiatives for the Impact Assessment application to territorial policies.

1987	Bruntdland Report (Our Common Future)
1990	Green Paper about Urban Environment
1992	Document from Europe 2000 Committee about European urban structure
1993-97	Indications from European Council, Committee of Regions, Spatial Development Committee
1994	URBAN initiative promoted by European Parliament (not by Commission)
1994	Documents from Europe 2000 Committee about new European urban structure
1994	Leipzig: territorial Ministers' informal meeting under German presidency
1995	European Sustainable Cities document (published 1997)
1996	Venice: territorial Ministers' informal meeting under Italian presidency
1997	Towards an Urban Agenda in European Union
1998	Noordwijk: territorial Ministers' informal meeting and formal presentation of European Spatial Development Perspective (ESDP) draft.
1999	First Structural Funds Reform European Spatial Development Perspective (ESDP) final
2000	Lisbon Council (ten-years strategy)
2000	Nice Treaty
2001	Göteborg Council
2001	White Paper on European Governance
2003	Laeken Declaration
2003	Intergovernmental Conference
2004	III European Cohesion Report
2004	New European Constitution Enlargement (+ 10)
2005	Territorial Impact EC Directive
2006-08	IV European Cohesion Report Enlargement (+ 2)
2007	New Structural Funds
2007	Leipzig Council and Territorial Agenda
2008	French Green Paper on Cohesion
2009	New Leipzig Chart (in progress)
2010	Revisited Territorial Agenda (in progress)
	Europe 2020
	Revisited Green Paper on Cohesion
	V Cohesion Report

development, overall studying the impact on man and environment of the major accident hazards (i.e. risk assessment of LAS in agricultural soil, 2003; Consequences Assessment by Pipelines, 2008, etc), called "environmental safety".

In economics terms, the sensitivity analysis studies the ratio between economic dimensions and business variables identifying the equilibrium match point.

In geographical terms, it means to study the ratio between a territorial dimension and a policy/program/project supply identifying the equilibrium match point (capacity building) or sustainable limit.

To tailor potential effects of policy option to a territorial point of view, as to test sensitivity of different territories to receipt that option, consequently become the only opportunity to pursue significant cohesive goals by scientific contributions. It requires an ex ante assessment of policy makers choices.

STeMA proposal is able to measure, through the Strategic Environmental Assessment (SEA) and Territorial Impact Assessment (TIA) procedures, the sensitivity that selected plan actions or EU Directives have on the territorial competitiveness in sustainability and cohesion. These actions and policies should have an high representativeness in main fields of the present European political debate: i.e. Climate change, Energy, Environment, Innovation and Research, Demography, Competitiveness, Entrepreneurship, Labour Market and Employment, social inclusion, etc. And according to STeMA the most relevant of them were already selected producing administrative plans.

4. Indicators, indices, data

In STeMA specific experience and application, SEA and TIA are proposed as support for an integrated vision of the national, regional and subregional dimension of the impact of each policy by indicators/indices measures, like:

1. General socio-economic-environmental indicators (such as population, GDP, labour force, employment and CO_2 emission);
2. European strategies as the Lisbon Strategy (indicators on the competitiveness, growth and job creation) and Gothenburg Strategy for Climate Change (impacts on CO_2 emissions and hazard risk) and;
3. Cohesion phenomena (such as balance, polycentrism, accessibility, opportunities for development and territorial cooperation, etc.);
4. Quality indicators (such as Accessibility, R&D, energy, etc.).

At the moment, in Europe, researchers and institutions' points of view are various (see also the ESPON Seminar about it, 2008):

a) traditional indicators (like GDP) are not exhaustive to explain how wealth is distributed onto regions and it helps cohesion;
b) the indicators' polarization is made without territorialisation;
c) some territorial indexes, like ETCI, could be manipulated, excluding demographic situations, education, employment and life expectancy, from the cohesion calculation;
d) territorial indicators for cohesion remind to complex visions, so we should design a territorial base and adopt a systemic approach and a method to impact assessment, to identify territorial indicators;
e) time dimension is fundamental to measure cohesion status and progress;
f) it's wrong to implement only a few and simplified indicators in cohesion measure;
g) some experiences of Territorial Impact Assessment (TIA) and new methodologies could help cohesion characteristics to be identified.

By these reflections and the comparison with: the ESPON database, the EURASTAT database, the Directive analysis and EU Reports, statistical experts (Carbonaro, 2006) have produced in STeMA a new metadata collection and made able to select an appropriate and synthetic list of indicators and indices oriented to measure the territorial positive or negative sensitivity at the NUTs 2 and 3 level.

STeMA represents an interdisciplinary arena to experiment and to match a Multilevel Governance and a Multiscalar Approach from different scientific fields, as well as the role of territorial indicators to maintain comparable information in particular to territorial diversity.

A support for operational GIS tool for territorial impacts, policies' implementations and orientations was developed.

Instead policy makers suggest:

1. the use of traditional cohesion indicators included in past ESPON reports;
2. the development of policy composite indicators able to measure regional policies in terms of attractiveness, labour market, accessibility, too;
3. territorial cohesion as the aspect of sustainable development that minimises conflicts. It cross-refers to costs of environmental protection, environmental externalities, environmental performance or economy, policies' assessment and solidarity. So, it's necessary to change the approach and to use indicators for policy processes too.

STeMA applies this measuring process of the effects of different options to some selected policies; this choice is supported by the results obtained within the ESPON 2006 and 2013 thematic and cross-thematic projects (applied research) and as well by the results of the study monitoring territorial development based on key indicators (EU documents and Directives).

For example, the sensitivity assessment of some EU Directives has sustained the critical revision of three main and relevant pillars of the European Cohesive Policy in Italy: Environmental, Social and Cultural Quality (including Climate Change, Energy, Nature, ozone, soil, health and safety, social inclusion, confidence, tourism, heritage, landscape, etc); Innovation and Research (including, education, ICT and TEN-T, research, knowledge, Human Capital, etc.); economy (including entrepreneurship and productive systems, labour, employment and market, fiscal pressure, population migration and mobility, use of funds, etc.) (Prezioso, 2007-2009).

5. Methodological issues

Some methodological approaches (Hague, 2001; Prezioso, 2003, 2005, 2006, 2009, 2010; Camagni, 2006, 2009; Radej, 2008) face some issues to contextualize (territorialisation) TIA procedure, measurement and tool, in order to compare different territorial dimensions of EU strategies in policies concerning environment, climate change and innovation and research. ECOTEC Model, Tequila Model and now also TIP TAP Model, STeMA Model had been yet proposed to solve these problems in some ESPON projects 2000-2009[2]; by obtaining ex ante territorial/spatial values, linking these to regional typologies and building quantitative and qualitative relations matrices to get ex post weighed values of policy impacts, particularly on the cohesion regional level and its potential objective to the EU 2007-2013 framework.

In addition, *Intergovermmental Panel on Climate Change IPCC*, based in Geneva, Switzerland, establishes the IPCC as able to provide the decision-makers and others interested in climate change with an objective source of information about climate change in according to World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

Other approaches, as AHP (Giangrande, 1990) and more recently MIA (Radej, 2008) and the PBL-TIA strategy (Evers, 2009), have conceptualised and applied this tool, to assess the impact of Cohesion and Energy policies to the regional development.

Between them, only STeMA can achieve this operation by the control and the knowledge of qualitative-quantitative impact values. These last ones are produced by effects of policies and programmes and built on territorial (economic + social + natural + cultural) indicators. Using correlation matrices it is possible to assess the risk degree of overtaking potential (carrying) capacities (threshold) and the improvement of policy performance.

We believe that this approach is the most efficient, and the most scientifically honest, because any model we would propose for impact analysis could be insufficient to capture all questions, almost by definition and, thus, could be unusable for concrete policy making.

6. Some conceptual references

STeMA includes values and compares the main well known theories, in addition to both theoretical and operational models of Territorial Impact Assessment presented and applied at critical discussion in Geography.

STeMA works using a systemic-qualitative/quantitative approach. By this method heterogeneous components (scientific fields) are put in relation. Each one of them has a specific task and carries out functions in a relatively independent way; the interaction between different territorial components is realised by a system of information in a cyclical, dynamic, continuous process, which transforms quantitative values in qualitative weights.

This approach uses a set of relevant clear and comparable quantitative and qualitative indicators, strongly with chosen European directives.

The aggregation of all territorial parameters is defined through a macro-systemic vision, where different disciplinary corpus like economy, climate, water, natural resources, public health, noise, cultural heritage, and so on, contribute as components and a series of reference subsystems come out of them.

Moreover, STeMA is a bottom up process standardised by a specific methodological approach, namely *Sustainable Territorial Environmental/Economic Management Approach*. It is organised into logical passages (steps), so that it can be applied at regional (meso) and national (macro) scales and to reach different policy objectives (see, e.g., its experimental application at ESPON 1.1.2 project, ESPON Lisbon/Gothenburg project, Interreg - Cadsis projects about polycentrism) as in the case of the Italian national cohesion Report, 2006.

In order to make this procedure clearer and more user friendly, it is useful to list clearly some axioms that explain reasons why STeMA, MIA, PBL-TIA are best approaches to analyse the sensitivity of EU territorial diversity.

Here they are briefly recalled.

In the case of STeMA:

– it is based on a multidisciplinary and interdisciplinary methodological vision, therefore it requires support from a number of disciplines and a knowledge that is larger than that of traditional studies about competitiveness and sustainability;
– it 'works' according to a systemic-qualitative and quantitative logic and in a perspective of 'total quality management';
– it integrates trans-national competences, knowledge and languages by using tools of complex knowledge;
– it pursues strict adherence to both the objective of sustainability and territorial 'bottom-up' development;
– it allows for continuous adaptation and updating of data;
– it is able to calculate sensitivity of policies/directives (impacts and effects, both positive and negative) in territorial systems.

In order to do it simple and operative without renouncing the scientific conceptualisation and theoretical suggestions, STeMA was reduced to 10 simplified hypothesis:

1. *territory* is an artificial system (language agreement) composed of biotic and a-biotic elements (set theory);
2. Territorial system = environmental, economic, social system = human + natural system (see: Geogescu-Roegen close and open cycles; Aristotle syllogisms; von Bertanlaffy, 1966; and so on);
3. Territorial system as cycle can be studied into administrative or sectoral boundaries (e.g. the region by van der Velde, 1997) or by interaction between systems (NUTs3 horizontal co-operation or scientific knowledge system as atmosphere, hydrology, economy, etc.);
4. In order to know territorial system, it is needed to understand the *process* that links the elements between them (vulnerability) and *status* (criticity or status quo);
5. System is composed by single elements named *indicators*.
   - the cross between indicators is named category;
   - the cross between categories is named sector;
   - the cross between sectors is named (spatial) typology;
   - the cross between typologies is named determinant or component.

This statistical organization, classefied since Linneo, is the base to built the browser of data useful for the STeMA-GIS (Prezioso, 2006; Prezioso, Ottaviani, 2009);

6. Study of territorial system begins at time $\mathbf{t_0}$ (now!); this is considered the STeMA start-up that takes on this as the initial equilibrium situation (historical synthesis of processes). It is named *initial configuration of the territorial system* or *initial sensitivity*. It is measured as *Beginning Territorial Value* (BTV);
7. Each system can be de-composed into subsystems to be studied by the previous criteria (see *Set General Theory*);
8. Each territorial system receives external inputs (*impacts*) to changing. It changes and reaches a new equilibrium position into the limits of its resources reproducing (sustainability as active conservation of resources). If the changing goes over these limits, the system changes itself in another and different system;
9. The limits of system reproduction represent the territorial sustainability limit. This final position is named *Final Territorial Value* (FTV)
10. BTV – FTV = δ or territorial carring capability, it is at the same time the actual planning demand and offer (working in/by Total Quality Management too).

Over this, the development paradox was born: a planning offer that would use more resources than available ones, does not produce development.

Box 1. How STeMA works.

STEP ONE: Definition of Policies/Directives and the relative determinant/indicators.
STEP TWO: Select or calculate of key policy relevant indicators.
STEP THREE: Summarize the information contained in the elementary data (frequency distributions - grouped data into classes for quantitative variables and transform qualitative variables in quantitative too).
STEP FOUR: Indicators proxy.
STEP FIVE: data/indicators territorialisation.
STEP SIX: ex ante assessment.
STEP SEVEN: calculate of direct positive/negative effects.
STEP EIGHT: build up of alternative scenarios.
STEP NINE: Leave policy maker to choose appropriate territorial policy solutions with the help of TIA for Directives aknoweldge at regional level and recalculate the scenario.

Slovenian evaluation society (SDE) has been developing new impact assessment method - Mesomatrical Impact Assessment (MIA) since 2006. This

effort is a response to observed and experienced difficulties of evaluators to provide policy-makers' with useful conclusions from the assessment.

In large part this is a consequence of evaluators' inability to summarise and synthesise their conclusions beyond bare description of the assessment results.

MIA is a generic name for a new family of impact assessment (evaluation) methodologies. It is based on the most conventional impact assessment matrix approach (from Leopold, 1971 to day), that assesses impacts of each policy measuring effects – on the base of declared and objective criteria. In our case: territorial positive/negative effects.

Territorial Impact Assessment is currently a voluntary and proactive choice; SteMA and MIA can assist policy makers to choose appropriate regional policies/programmes/projects (i.e. through Structural Funds at regional and local level), assessing these choices ex-ante and producing simulated scenarios).

STeMA can be included in the family of quanti-qualitative econometric models as MIA, because it works at different geographical scales, integrating different issues managing the complexity. In the respect of traditional approach, MIA, as well as STeMA, are transcalar or mutilevel (micro-meso-macro or project -programme- policy or -subregional-regional-national, etc.).

So MIA puts forward a procedure that always requires assessing at least three (but for a practical reasons not more than four) scopes and three scales (micro-meso-macro, such as in Dopfer, Potts and Fosters, Prezioso, Radej), called EIA-SEA-TIA (see the relative EU Directives).

B. Radej (2008) confirms what the STeMA experience affirmed (Prezioso in 3.3. ESPON project 2005, Third Interim Report): lesson learned using MIA is that the standard multi-criteria evaluation produces insufficient and misleading results. Standard impact assessments finish their otherwise respectful efforts exactly where the summative evaluation in meso-matrical context really sets off. Assessment of 'specific impacts' (intersection between a particular policy measure and a particular assessment criteria) shall be seen only a preparatory phase for the evaluation of complex phenomenon – it only constructs the micro base that informs evaluation with quantification of causal relations between individual policy measures and individual assessment criteria (Leopold's causal view). Results obtained at this level of assessment do not yet enable evaluative learning and do not inform policy makers holistically.

In the case of PBL-TIA (EVERS, 2009, p. 10), it is organised in steps as well as STeMA:

Box 2. How PBL-TIA works.

Step 1: survey of the situation

a) Determine the policy phase on the basis of relevant documentation and procedures where the Commission itself formulates policy options.
b) Determine significance.

Step 2: analyse problem and context

In the second step, the problem to be solved by the proposed EU policy needs to be addressed. How did this problem arise and what are the driving forces behind it? What is expected for the future? Is the proposed policy the only solution or are there others? In this case, there is a variety of problems that have been attached to territorial cohesion, such as balanced economic development, making optimal use of territorial capital and improving the coordination of sector policies.

Step 3: identify alternative policy options

In the case of territorial cohesion this step was performed on two levels because there are still many uncertainties about which problem is being addressed. First, a possible interpretation is identified and then, within this interpretation, potential policy options are elaborated.

Step 4: estimate impact

For this step, a number of questions are posed for each possible interpretation.

Bare facts do not speak for themselves in complexity, until they are inter-related such as in correlation matrix (derived from the Leontief's 'relational' view) where they obtain their meaning through a multi-relations (say, impact of economic measures on environment criteria relative to the opposite impact of environmental measures on the economic criteria).

STeMA, MIA, PBL-TIA were developed in different periods: the first since 1995; the second one since 2006.

Of course these approaches are not perfectly integrated with the AHP (ANALYTIC HIERARCHY PROCESS) or Multicriteria Approach (on which some other Impact Assessment Tools are based), overall for the evaluation of projects at the territorial scale (Giangrande, 1994). Nevertheless they recognise to due a lot at this method.

AHP (Analytic Hierarchy Process) is a helpful method for the multi-criteria method (MCDA, Multi-Criteria Decision Aid), it was developed by Thomas Lorie Saaty at the end of '70 (Saaty 1977 and 1980). Nowadays several applicative examples of this method already exist in different sectors (Golden *et al.* 1989) and influence weights organisation in STeMA.

The AHP method could be used to determine the relationship between project's benefits and costs, when it isn't possible evaluate, exclusively in monetary terms, advantages and disadvantages deriving from its realisation (Saaty 1980 pp. 113-120, Saaty and Kearns 1985 pp. 178-200, Saaty 1990). Giangrande applied it

to the evaluation of big territorial infrastructures in some EIA (Environmental Impact Assessment) studies where all costs and benefits belong to the intangible category of costs, it means to those extra-market goods for which it is impossible or complex to do simulations able to identify the price (Giangrande, 1994). The method, in general, permits to evaluate action priorities which could be, depending on cases: programmes, intervention strategies, plans, projects, but it is based on axioms and theorems' demonstrations, strictly fixed a priori (Saaty 1980 e 1986). It doesn't make flexible to estimate impacts face to territorial diversities in European contexts.

7. Few conclusive words on the STeMA recent and potential application

The most important expected innovative impact of the IV generation plan development would be a major inclusion of the EU cohesion policy through the measure of the main priorities, namely *sustainability*, *convergence*, *competitiveness* and *territorial co-operation*.

Through STeMA and through the innovation that such a participated methodology would bring to the EU debate, we expect to obtain the following detailed results:

1. to review and unify methods of Territorial Impact Assessment in EU countries; to adopt the experimental use of this strategic instrument applied to policies, programmes, plans at different subsidiary level of constitutional country organisations, reinstating Community Initiative Programmes under the Impact Assessment objective to reach a better country/regional/local co-operation;
2. to include the modernisation of public institutions and town-country relations by new forms of co-operation based on Territorial Impact Assessment adapted to an enlarged EU;
3. to extend the same procedure to regions of each country;
4. to maintain synergy between the competitiveness and sustainability's objectives in urban-rural areas by drawing up appropriated strategic guidelines reducing impacts;
5. to apply specific norms to the private sector by setting up programmes in terms of impact assessment procedure and Total Quality;
6. to sustain cross-border co-operation through border, not through countries, in order to encourage innovation and breathe fresh life into co-operation; to study specific strategies about the offer of 'research/education on Territorial Impact Assessment';
7. to reinstate interim evaluations of programmes into regions, in order to monitor the development at a sufficient level;
8. to conditionality increase results of structural interventions instead of macro-economic and micro-economic developments, which do not necessarily bear any relation to programmes including Social Quality and Cohesion;
9. to introduce an innovative and certified way to make planning to build a common model to combat risk impacts, using TIA to build an EU knowledge at regional and sub-regional levels, in order to assess the project offer about climate change, energy, technology and other topics;
10. to research specific, innovation and technological supporters for Territorial Impact Assessment tools, jointly with technical assistance for the creation and the development of SMEs, considering the Access to the Intellectual Property issue posed by research organisations.

The last possible impact regards the European Union, if it will be more than a free-trade zone. In this perspective, cohesion policy could be confined to a redistribution of funds benefiting the least advanced regions or countries in order to offset income differences. As it stands, however, cohesion policy has very different aims; it is both a political and social and economic project. As a result, Territorial Impact Assessment is understood as an instrument geared to needs of a development model where solidarity and co-operation play an active role.

Regarding detailed results, we remind deliveries already identified in the theoretical and applied research:

a) A consolidated approach on concepts and methodology in the research in support of a territorial dimension added to the Impact Assessment;
b) Some progress about how a territorial dimension could contribute to the Impact Assessment strategy and what additional indicators could support a territorial cohesion perspective in relation to this strategy.
c) An analysis about basis of proposed territorial dimension indicators of the Impact Assessment for each 27-EU country including Iceland, Liechtenstein, Norway and Switzerland in the European covering too; conclusions at trans-national and European scale included.
d) A proposal on appropriate typologies of regions leading to a selection of representative samples of regions for a detailed study. This proposal should also include cross-border areas and large trans-national areas similar to INTERREG IIIB co-operation areas.
e) A proposal on the envisaged approach to region

case studies, region contexts and trans-national co-operation areas;

f) A production of an integrated procedure/tool (by patent) to make easier and more *user friendly* the Territorial Impact Assessment philosophy in EU;

g) A first idea on territorial cohesion priorities' implementation in support of the Territorial Impact Assessment strategy in EU policies.

Therefore, at the beginning of this geographical approach, particular attention is given to the development of technical and political agendas as results of this project, in order to be useful to address relevance needed to regional situations, such as further reviews of the Territorial Impact Assessment strategy and further definition and specification of territorial assessment in the 2007-2013 period.

Results, impacts and policy recommendations are always presented using the national, regional and trans-national levels approach of TIA; this project aims at a strong contribution, from the local up to the European level, to present issues of Territorial Impact Assessment and at the coordination of TIA procedures into a common framework.

Moreover the TIA Approach would define a more intense relationship with citizens and citizenships, by designing a suitable scheme of institutional, territorial and metropolitan governance, a goal declared in the EU White Paper 2001. This highlighted the relevance of political actors among citizenships; which is expressed by creating political 'arenas' in a specific geographic scale perspective.

The main work of TIA project focuses on comparative advantages of European regions, for instance in locating 'hot spots' and 'cold spots'. This project also focuses on the assessment of the economic performance of regions and their level of employment, as well as on the location of important development factors, such as R&D, accessibility, ICT, nature and cultural assets. By the Territorial Impact Assessment procedure, innovation capacity is shown to be variable across the EU.

Policy recommendations obtainable by TIA procedure refers to these research fields: Polycentric development, Urban-Rural Relations, Territorial dimension of the Lisbon/Gothenburg Strategy, Territorial cohesion.

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Notes

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[2] Namely, 2.1.2, 2.2.1, 3.1; 3.2; 3.3 and TIP TAP.
[3] In addition, other relevant policies could be considered: Agriculture (CAP), Development aids, Economic and monetary affairs, Education, Energy, Enlargement, Enterprise, Environment, Market and Trade (external and internal), Fishery, Institutional affairs, Regional policy, Transport.