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Municipal planning instruments in the new metropolitan dimension. The resilience of indicators to measure the performance of cities in the new administrative and territorial dominions

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Abstract

The concept of resilience evokes the approach to change and adapt effectively necessary to continue to ensure prospects for sustainability in the face of environmental change, economic and social factors that have rapidly invested territories and the living environment of local communities. It will come to define resilient cities, if the same will be redesigned so that it can absorb external shocks of different nature (natural and anthropogenic disasters, climate change, the economy and social changes) and answer these requests/renewing and contingencies adapting to the changing product. In light of this resilience it can be considered an enabling factor being the third millennium city. It is a performance indicator and more. The dynamics that we live in a time asynchrony in relation to responses and mitigations that cities offer, put us in front of incalculable challenges. How many and what challenges may be accepted by the planning instruments and how to give effective responses in terms of reorganization of the mission of the plan when you open a new horizon (metropolitan) of territoriality of the analyzed processes?

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1. The indicators of resilience in the experiences and state of the art

State of the art on the experiences and good urban planning practices, is deduced when it comes to translating into operational and supportive words, the rhetorical dimension of the concept of resilience through building of projects (tools, solutions, actions ...), emerging knots and difficulties that depend on a lack of analysis of applications and phenomena associated with this concept and therefore also of its potential¹. Resilience, however, is a skill that can not be imposed from above with strategic processes, but which must be pursued with suitable policies and instruments, stimulated within social structures and relationships that govern daily life. This can happen if they are also adopted appropriate policies and planning instruments performing or encouraging productive and more sustainable industrial processes but also making important means of adaptation strategies to build a more vibrant and innovative company in the short and long term. My solicited questions are many:

-What the virtuous city that will decide the geography of the planet according to their resilience rating, that is, the ability to recover from natural or environmental disasters in general, preparing / adapting before and after, remaining unscathed from the events, more or less restrictive, which will be developed and which will suffer events failing to create a resilient city model?

-What Are the urban planning strategies to be put in place for to stimulate stimulating the cycle of urban resilience in smart logic, calling for the definition of a resilience rating meant² as the capability to avoid or recover from catastrophic events, or epochal social changes, adapting before and after what will happen but not only, and which parameter to measure the performance indicators of the governments which administer the territory.

The Guardian recently published a list of the most resilient cities developed the London-based property company Grosvenor³ which drafted with a double ranking: one of the 50 most resilient city and the one of the 50 most vulnerable. The Grosvenor report identified some indicators to be used to measure resilience: climate, environment, resources, infrastructure and communities, between the second governance, institutions, technical, planning and financing system. In many practices related to the tension of British cities (today spread around the world) the issues of resilience and ecosystem properties are explicitly mentioned. Despite their differences and redundancy, modularity and hierarchy/organization and feedback processes, these principles are the basis of the construction of strategies and actions towards "resilient communities"⁴.

1.1. Planning instruments and performance of cities in the new administrative and territorial dominions

Many new planning instruments provide – should contain – insights on the conditions of resilience. These questions come directly from in the strategic environmental assessment procedures, but also from in the spirit and logic of sustainability plans and analytical survey of the environmental factors. The elaborate knowledge of municipal structural plans in Calabria, drawn up under the LUR 19/02, relate to both the so-called state of fact reconnaissance, schedules, programs and projects in the pipeline – sector plans, punctual variants, the system of constraints and invariants territorial-, that the wording of the first programmatic elements relating to the future land use, and the planning strategies for the pursuit of goals that underlie it. In particular, the drafting of the territorial diagnosis as a synthesis of the state of fact and of the problems identified, and the main issues raised, highlights the need to ensure the return to the in safety condition and retrofitting of the existing city. It is in this process that the concept of resilience enters preponderant assuming the role of "status" active and enabler to *building an idea of resilient cities*. In the case of the *Municipal Structure Plan of Reggio Calabria*, the *Cognitive Framework* reports the

¹See Colucci A., Cottino P. (2015). *Resilienza tra territorio e comunità. Approcci, strategie, temi e casi*. Collana "Quaderni dell'Osservatorio" n. 21.

²See Moraci F., Fazio C. (2015). *Tre Crediti per la resilienza urbana a costo zero*, Urbanistica Informazioni n. 263.

³The three most virtuous are Canadian cities, Toronto, Vancouver and Calgary (Canada) which recognize vulnerability and adaptive capacity and five Americans, in order: Chicago, Pittsburgh, Boston, Washington, Atlanta DCE.

⁴Such experiences show significant aspects innovation bottlenecks, particularly with regard to processes, the bottom-up policy and the active participation and empowerment of local communities.

synthesis resulted from already being performed participation activities during listening activities (conceived as introductory through forums and focus groups which progressive approach to the needs of the city, to the formation of DP, Preliminary Document), and expressed by the municipal administration and strategies identified by the designers⁵ to envisage future scenarios and structures in order to choose the one altogether more "powerful", even in the "metropolitan city perspective".

Reggio Calabria, in fact, has been high since the law no. 42/2009 (law on fiscal federalism) between the "underground city." In the Preliminary Document of the Municipal Structural Plan is also summarized the system of objectives to be pursued in the future of the municipality, both in general and specific, related to the environmental and territorial balance, the gradual abolition of major natural hazards, the new functions and the improvement of the mobility system and the resulting infrastructure, upgrading of urban-residential system - widespread need, but particularly strong in some parts of the city - at the system development of the places equipped for productive activities, to the enhancement of certain fundamental structure the municipal area in the new domain of the metropolitan dimension, such as the value of the landscape, the tourist potential of coastal and inland areas, along with the cultural one, and finally to the enhancement of the urban perimeter. The Preliminary Document identifies the operations and the increased salience of urban projects that will arise from the structural level and will take a more complete design through configuration when the actual PSC shall set out the Territorial Areas Unitarians.

Among them: new interventions of urban transformation, urban renewal in the peripheral areas with safety the area, the upgrading of squatter settlements, the 'identification of areas for productive activities of mixed type, such as parks and / or business park functional also to the metropolitan dimension, strategic sites tie hypothesis of development, functional and morphological promiscuity, the younger urban framework strengthening realizing garrison forms of the countryside and developing their receptivity in rural areas.

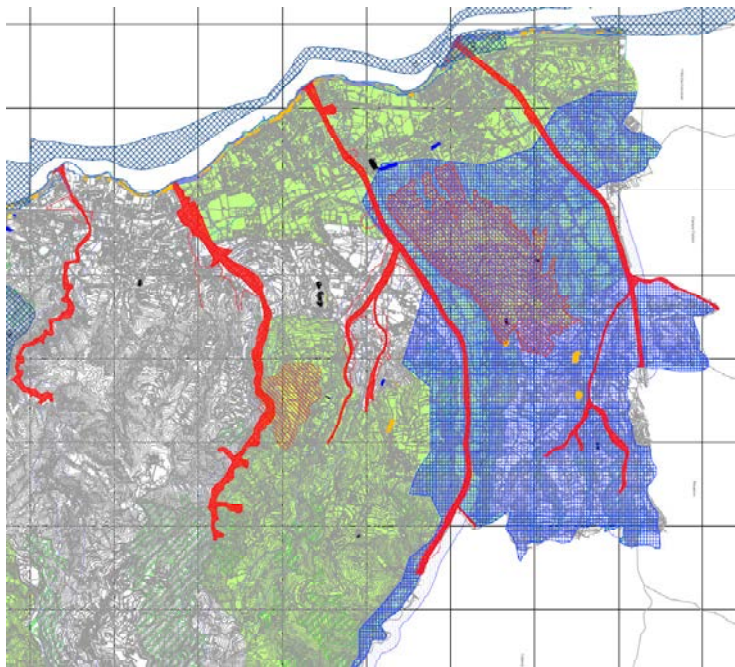


Fig. 1. Extract from the Charter of Constraints of the PSC of Reggio Calabria, 2010

⁵ The preparation of the PSC of Reggio Calabria was entrusted RTP proff. F. Karrer, F. Moraci, L. Colombo.

Among the key concepts associated with the concept of resilience and that emerged from the study of other structural plans drawn up in Calabria or by the urban planning instruments developed in other regions, some could (or should) be aspects of study and reflection for the territorial project: the recognition of Environmental slow variables (and attention to temporal variables associated to the threshold), adaptation, flexibility and innovation (understood as learning skills, experimentation and development of local rules/planning able to comprehend the changes), the memory and the knowledge and skills of the concept of resilience to project strategic visions "pro-active" and "positive" and then give a strategic and active of the dimension than potential factors of crisis.

Resilience involves a change of cultural approach, and not just technical, towards complexity that can not forget the principles and properties at the base of ecosystem resilience.

1.2. The properties of resilience of complex systems

Resilience, in the definition by the Rockefeller Foundation and its president Judith Rodin can be defined as "the ability of an individual, community, institution or system within the city to survive, adapt and grow facing crisis scenarios".

The characters of urban and territorial transformation should belong and characterize the processes (and thus the design strategies) aimed at strengthening the property of resilience of complex systems are dynamic and incremental and type:

-multi target and sector. Strategies and practices, while acting or from a single aspect, should have effects and impacts (positive) on multiple components of the territorial and urban system. To strengthen the resilience properties of complex systems is necessary, in fact, to develop strategies of "multiple targets", capable of responding to the complexity and uncertainty and, therefore, to consider the multiple components of territorial systems (environmental, ecosystem, social, economic, governance, etc.), by identifying and bringing together all potential resources;

- *multi-level than the temporal and spatial dimension.* The strategies have to deal with more temporality (which often require different solutions: recovery, transition, adaptation, evolution) and must include the different spatial scales and complexity of valuing the local dimension (recognizing the skills and responsibilities), and understanding the spatial dimension (also global) urban metabolic fluxes.

It introduces, through the analysis of vulnerabilities and resilience elements of landscape-environmental and territorial system, a dynamic dimension in the reading of the context that integrates the classical method of assessment based on the use of environmental indicators specific to individual components.

One can identify the following specific objectives (defined on environment-biodiversity relationships; nature-tourism-culture) to pursue for a resilient city model:

- carry environmental monitoring to check the status of the environment, habitats, the most vulnerable species and endangered species;
- implement policies for the protection and restoration of degraded habitats;
- restore and enhance those elements of the landscape or those areas that, after processing caused by economic and social needs have suffered a decline and abandonment process;
- implement a strategy to reduce the impact of climate change on species and habitats used, with particular reference to migratory species and to mountain environments;
- implementing policies to prevent natural hazards such as landslides, floods, and slow ignition such as desertification, erosion, promoting the maintenance and recovery of natural conditions;
- a better understanding of the value of ecosystems and the services offered by them, with the identification of potential beneficiaries and actors who have a real role in the management of these systems;
- to promote activities aimed at enhancing the natural heritage (defense against abandonment) through innovative ways to direct involvement of young people and local populations, implement actions for the promotion of new business activities on the territory aimed at the sustainable development of the area; promote forms of sustainable tourism through the use environmentally friendly;
- face an increasingly structured through mitigation actions and procedures from the adaptive capacity from

the bottom;

- increase the adaptability of all the systems that have influence in the urban context exposed to vulnerability, generating a large scale approach that considers in an integrated urban settlements, the ecological system in which they are inserted, the socio-economic system and the characteristics territorial;
- recognize, value, preserving the role of ecosystem services that become preventive mechanisms for both natural hazards quick primer (landslides, floods, etc.) that slow triggering (desertification, coastal erosion, etc.), for effective mitigation of the same;
- monitoring programs that allow you to evaluate the consistency of the species and map the current and probable sensitive areas that can arise as a result of climate change and to implement specific protection measures;
- to promote the use of energy for urban activities, thus parameterize the production, waste disposal, the sorting cycle and utilization for biogas;
- turn interactive platforms through selected parameters and data from different sources, by service providers and implemented by the users (community) of the city through a resilient and interactive decision-making model that allows you to develop urban dynamics and the "questions" of the city according to needs variety;
- manage and analyze real-time information, to define the optimal solution for the best understanding of how a city. Improve the management and the management of natural and socio-cultural resources through the enhancement of resources and factors of territorial competitiveness by developing the management skills and innovative interaction;
- provide for protective measures and risk control by developing a technological infrastructure is aimed at forecasting of particularly intense meteorological events;
- set in existing sensitive urban nodes and subject them to "computer" checks and /or structural for all sources of risk (pollution, technological risk, social segregation ...). Compare the environmental performance of different urban areas with human presence in them.

This can happen if you are also taken appropriate mitigation policies, such as the promotion of a smart mobility to reduce emissions or encouraging productive and more sustainable industrial processes. Just so all aforesaid conditions -to control, prevention, mitigation- may constitute opportunities for development and innovation. This challenge must be met creatively making the adaptation strategies an important way to build a more vibrant and innovative company in the short and long term. It is therefore necessary to identify the contribution being resilient cities not only in relation to environmental issues of sustainability and environmental efficiency, but also with respect to the context, the dynamic dimensions of "limits" territorial and socio-economic.

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