Building sustainable futures for postindustrial regeneration: The case of Taranto, Italy

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1. Introduction

In Italy, planning processes are often introduced by a Program document of objectives (DPP), drawn up in conjunction with the initial phases of a Strategic environmental assessment. This combination of preliminary processes seems to offer significant space for strategic approaches and even strategic plans, particularly at the local level.
Today, the case of Taranto shows a difficult yet privileged perspective in this sense, for planning processes that are both oriented towards long-term visions and sensitive to current dramatic problems. Today, the effect of decades of troubles is often reflected in citizens' search for immediate returns, against planning constraints. To build effective long-term strategies for social and environmental regeneration, the community requires new, realistic, shared, inclusive approaches, basing on historical roots and great potentialities that are still undervalued, up to date.
The present research shows and discusses the starting context of an innovative strategic planning process recently undertaken in Taranto, prodromal to the new Urban master plan, to replace the plan drawn up in 1976 to support the great industrial growth of the city. The work originates from the draft DPP of Taranto Master plan (PUG), trying to apply a systemic look at the complexity of the characters, instances and spatial-temporal relationships that structure Taranto case study. In particular, it uses a scenario-building approach (Jungk, Mullert, 1996), hybridized with a cognitive-map-based interaction model (Borri *et al*. 2005), to single out community shared visions on which to develop policy objectives and strategies to possibly structure the next Taranto master plan.
The paper is organized as follows. After the present introduction, the methodology of building up strategic scenarios within the DPP process is shown, briefly discussing some of the results obtained. General reflections and perspective actions are reported in the final chapter.

2. Materials and methods

Much has been discussed and written about Taranto problems, degradation, diseconomies, health and environmental damage (Camarda et al., 2014). Yet the present paper is oriented to explore and discuss social, environmental, identity, historical and architectural *structures* as resources for future development and regeneration strategies.
The current Master of 1976 was elaborated during years of great economic and social dynamism of the city and the whole Apulia region. It is dominated by industrial planning, expressed by large, mainly public industrial groups. In the 30000 hectares of the municipal territory, the industrial area is as large as the non-industrial urban area (1500 ha). This huge development is today challenged by increasing job reduction and dramatic environmental pollution, in the impressive architectural and environmental heritage framework of a tri-millenary city history.

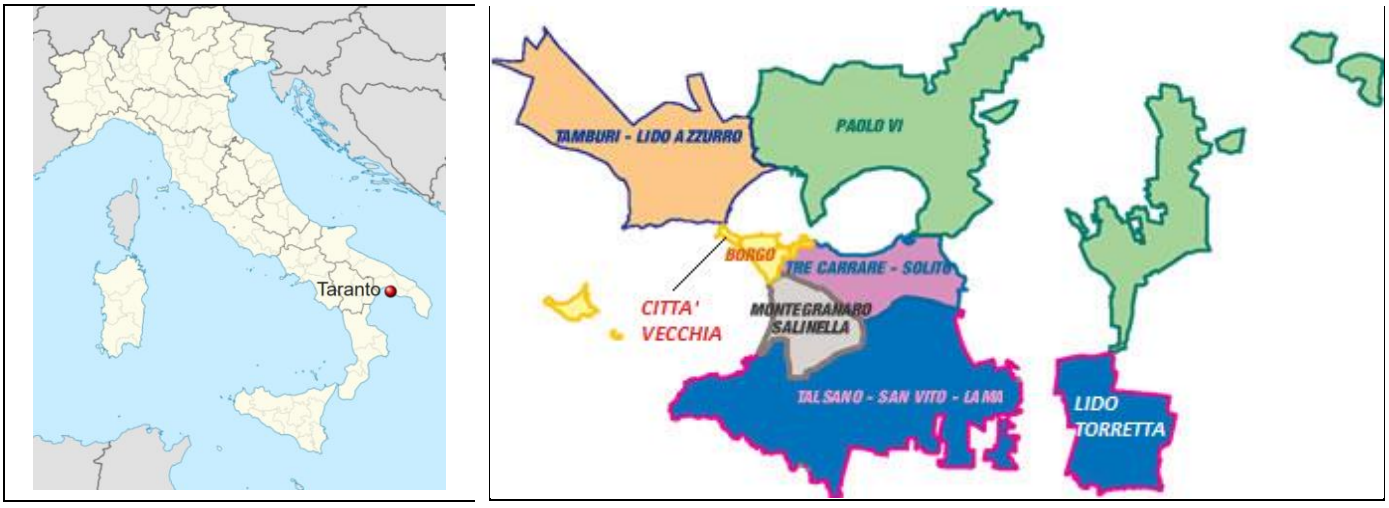

Figure 1 – Taranto and its districts of Taranto

However, the industrial program induced a social symbiosis between city and industry, able to resist the economic crises of the 1970s and 1980s, the persistent health tragedy, the environmental crisis finally erupting in the 1990s and

2000s. Such symbiosis has profoundly influenced lifestyles, behaviours and expectations of the local community, generating a growing workers' solidarity that became a flag of the Taranto community. On the other hand, a slow but progressive, tenacious increase of environmental awareness has grown, dramatically boosted by the disasters induced by pollution and its consequences in the health sector (Camarda et al., 2014).

This complex situation can be analytically dealt with only through an empathic and slow cognitive process, which characterizes the anthropological contact with communities strongly characterized in social and environmental terms (Sandercock, 1998; Herzfeld, 2005). In such circumstances, a claim emerges for an inclusive, shared, broad and long-term interpretation of processes and possible futures.

Figure 2 – Aerial view of Taranto area

Basing on this awareness, the master plan process started with a bottom-up, inclusive construction of a preliminary strategic document (DPP). It was to be founded on the participation of stakeholders, as agents of knowledge, to investigate on future development scenarios. The scenario building process for the future of Taranto began in the Inner city. This is the most representative place of the city and its community, both symbolically and substantially in many ways. In fact, the Inner city has historically associated the most intimate and peculiar identity of Taranto, with important social and environmental implications, and strong economic potential.

In general, it was a community-based interactive process for the building up of future scenarios (useful as a basis to draw the DPP), aimed at supporting policies and decisions on the socio-economic and environmental domains of the city. From a methodological point of view, the scenario-building activity originates from the so-called *strategic choice studies* (Friend, Hickling, 1997), structurally amended by the contribution of *future studies* (Lindgren, Bandhold, 2003). The scenario building activity was structured into two phases They were built on the first part of the original future-workshop approach (Jungk, Mullert, 1996) (figure 3) by adding cooperative, bottom-up, mapping steps to make concept relations explicit (figure 4).

Future Workshops		
PHASE	**CONTENTS**	**EXPECTED RESULTS**
1. Preparation	The issue to be analysed is decided and the structure and environment of sessions are prepared.	Summary of contributions.
2. Critique	Clarification of the issue selected, of dissatisfactions and negative experiences in the present situation.	Problematic areas for the following discussion definition.
3. Fantasy	Free idea generation (as an answer to the problems) and of desires, dreams, fantasies, opinions concerning the future. The participants are asked to forget the practical limitations and the obstacles of their present reality.	Indication of a collection of ideas and choice of some solutions and planning guide lines..
4. Implementation	Going back to the present reality, to its power structures and to its real limits, to analyse the actual feasibility of the previous phase solutions and ideas. Identification of obstacles and limits to the plan implementation and definition of possible ways to overcome them.	Creation of strategic lines to be followed in order to fulfil the traced goals. Action plan and implementation proposal drawing.

Figure 3 – The future-workshop process (Khakee et al., 2002, p. 586)

phase A - CURRENT AND PAST PROBLEMS *(CRITIQUE)*			
step	device	participants	transcriber
A.1	projector	introduction	
A.2	paper; PC	writing problems on paper →	mapping texts on PC
A.3	projector	commenting displayed maps	
A.4	paper; PC	adding/modifying problems →	reviewing maps
A.5	projector	commenting modified maps	
A.6	PC		storing final maps

phase B - DESIRABLE FUTURE IMAGES *(FANTASY)*			
step	device	participants	transcriber
B.1	projector	introduction	
B.2	paper; PC	writing images on paper →	mapping texts on PC
B.3	projector	commenting displayed maps	
B.4	paper; PC	adding/modifying images →	reviewing maps
B.5	projector	commenting modified maps	
B.6	PC		formatting final maps
B.7	PC		sending to planning process

Figure 4 – The Taranto map-based process

This use of cognitive maps encouraged critical and self-critical review of statements, cooperative identification of concept relations, thus enhancing a more aware grouping of problems and visions, and scenarios. In the first phase (*critique*), participants had to express problems and criticalities of their area, by means of brief statements on paper sheets. The results of this phase were simply stored in the planning files without explicit future relevance. In fact, the main result of this phase is just a reflexion on negative issues, as a stimulus to propose positive, desired futures (Khakee et al., 2002). The second phase (*fantasy*) was in fact introduced by a structural invitation to participants to free themselves from the negativity burden previously identified and to imagine their desired visions of the future. This phase was organized in the same way as the previous one, with statements concerning desired future images written on paper sheets. The resulting map of the fantasy phase is explicitly included in the planning process as a shared ontology of objectives, linkages and strategies toward the formal drawing out of DPP.

From an infrastructural viewpoint, meetings were set up in closed or open spaces, with participants sitting around tables equipped with PC desktops. A staff agent was devoted to use the PC, with the task of transcribing the statements that the citizens brought to the table. Each session was characterized by *creative* steps, in which participants generated

statements using pen and paper, and *transcription* steps, in which staff agents reported statements into a map-making processor on PC, showed maps using a projecting device, report cooperative interactions on maps. The presence of intermediate agents induces well-known problems of possible influences on cognitive processes, beyond her/his facilitator role (Khakee et al., 2002). Yet the management of interaction data in real time was critical in this map-based architecture, and could not be ensured by the uneven computer literacy of participants. To minimize influences, transcribers were young university researchers, well acquainted of the problem, who conformed to a strictly predefined behavioural protocol.

3. Results

The process was carried out in 8 local sessions extended for more than one year, involving the communities of the main districts of Taranto municipality. Participants were not selected at all, aiming at enhancing randomness in the composition of knowledge interaction arenas. All population was invited to join each session event by municipal notices with dates and programmes, posted on public walls throughout all city neighbourhoods. A synthetic outline of knowledge agents participating to each session is reported in figure 5.

place			participants	
sched.	district	location	#	profiles
1	Inner city	public hall	150	residents; local associations; fish sector
2	Lama San Vito	church yard	50	residents; students
3	Lido Torretta	public playground	50	residents; tourists
4	Talsano	church hall	15	residents
5	Paolo VI	church hall	30	residents; industrial workers
6	Salinella	church hall	30	residents; students
7	Tamburi	public hall	5	public officers; local associations
8	City Centre	public library	30	residents; scholars; students

Figure 5 – Locations and agents of each session

Real interactive sessions in city districts deviated from the original process in some cases, due to both limited time availability of participants, and the different degree of adaptation of the process in relation to the different districts analysed. As a limited example, due to space problems, excerpts from the San Vito critique phase (figure 6) and the Inner city fantasy phase (figure 7) are reported below.

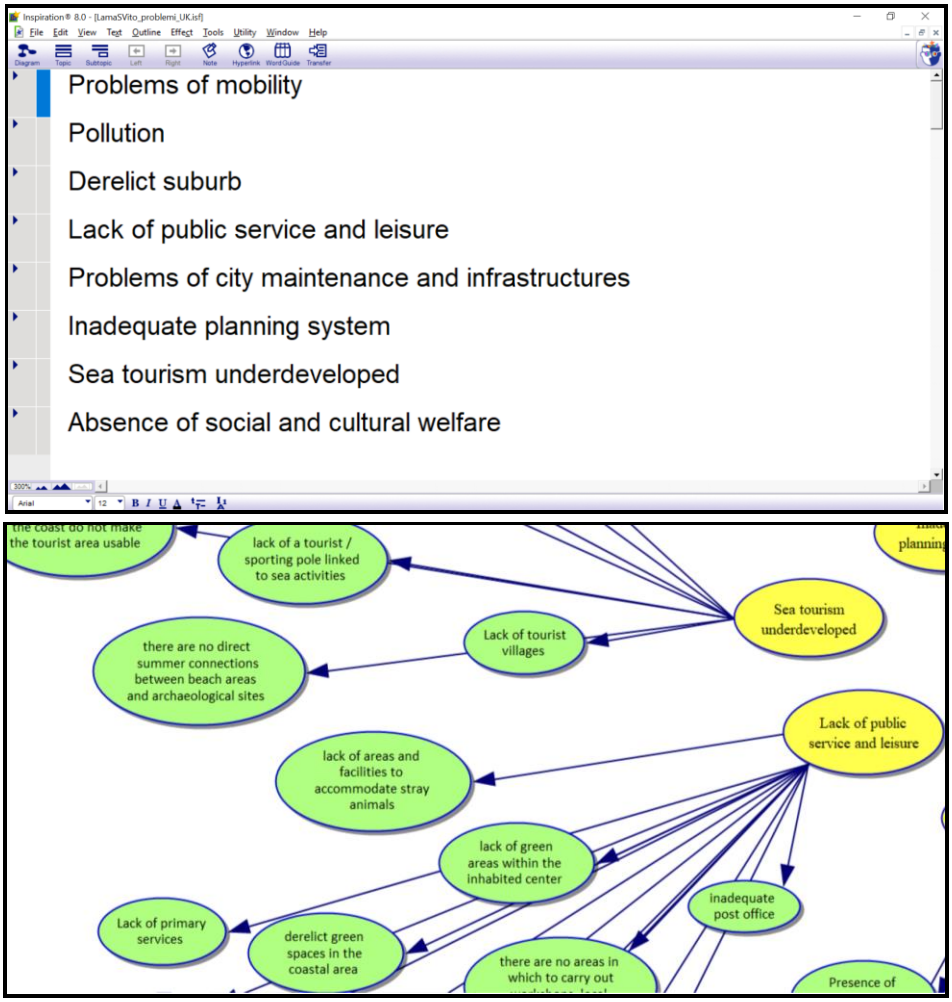

Figure 6 –San Vito session: grouped problems (upper) and their components (lower, excerpt)

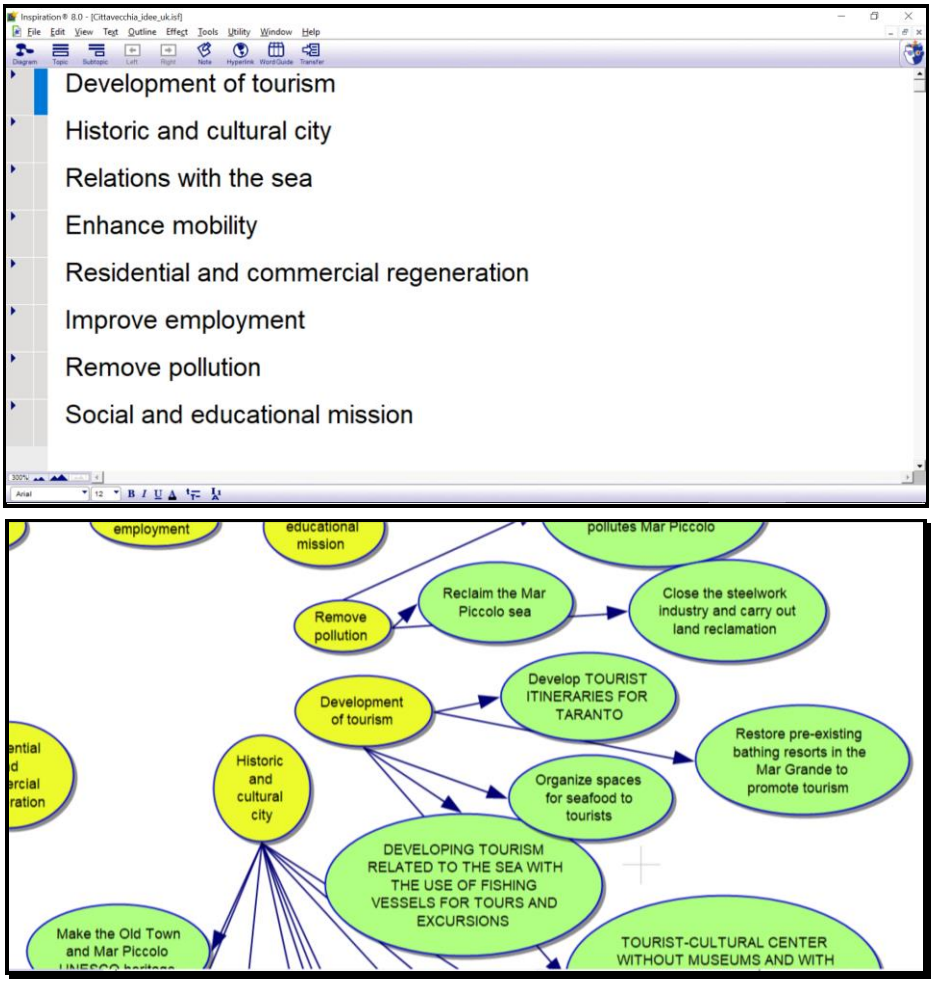

Figure 7 –Inner city session: grouped images (upper) and their components (lower, excerpt)

In the end, some results have proved to be transversal with respect to the generality of the districts analysed, while others represent issues and visions typical of individual districts or groups of districts.

Perhaps as expected, a general *fil rouge* unifying all results is certainly the environmental issue. However, it is present not only in the problems and/or expectations of the community, but also in the perceptions of the physical reality of the city. The natural environment persists in many of the representations of the city made by forum participants, apparently resisting the extreme consequences of a half-century industrial culture. These reflections show an unexpected and hidden presence of a certain environmental resilience in the community, in many ways.

It is for example the value assigned to environmentally valuable areas (green wedges, wetlands, ponds) frequently mixed to the urban fabric. It is also the case of the residential (often illegal) mixture between city and sea, or between cities and hill areas, still attractive even in the awareness of widespread marine and atmospheric pollution. A further example is the persistence of a diet based on local food products on land and sea, despite being frequently and notoriously contaminated. Arguably, they show up as features of crucial importance in the search for structural features of development for the coming decades.

A second character common to the contexts analysed concerns the worries about a lack of urban maintenance and the strong presence of expectations on the redevelopment of the existing historical and housing heritage, as well as on the provision of services to enhance this redevelopment and support housing. In these issues there is often the need for a more structural interaction with the sea, intended as an element of union and relation rather than juxtaposition or even separation.

A third common character concerns the potential for tourist attraction of the city, linked to different features in relation to the different characteristics offered by the territory. In particular, peculiar elements are represented by the widespread naturalistic attractions (wetlands, beaches and marine views, Mediterranean shrublands) and by the huge precious historical-archaeological heritage.

In the cross-analysis of the issues coming from the scenario building process, an intriguing circumstance emerges, showing up an apparently low relevance of the industrial problem within the cognitive mapping protocols. As a matter of facts, it was much less present than what possibly expected. In identifying the problems of the whole area and the

individual districts, the industrial problem often seems to be idiosyncratically absent, as if it were a common denominator on which it is not worth spending words, or a Big Brother who decides the final outcome of any plan. It is therefore difficult to deal with this thorny problem in a social context that is apparently reluctant to take it into account in the discourses around the future of the community. On the other hand, it is also difficult for the single results broadly emerged, to be used effectively without considering their relations with industrial culture.

	phase	agents involved	operational environment
1	Multi-agent construction of strategic scenarios	community participants; knowledge facilitators; planner (as supervisor)	local neighbourhood
2	Organizational timetable for scenario implementation	Political decisionmakers; planner	planning department
3	Formalization of scenarios toward DPP document	Political decisionmakers; planner	planning department
4	*Publication of DPP*		
5	Inclusive implementation of DPP into planning strategies	community participants; knowledge facilitators; planner (as supervisor)	local neighbourhood
6	Formalization of PUG strategies	Political decisionmakers; planner	planning department
7	*Publication of PUG*		
8	*Regional approval or rejection*		
9	*Publication and enforcement of approved PUG*		

Figure 8 – City planning process (elab. from Apulia region law 20/2001)

The cycle of meetings ended in 2015 and is still about to start again through cycles of repetition, trying to include lowly responsive districts. Subsequently, after the building up of map-based strategic scenarios, the next process step is their formalization into actual DPP lines. This phase implies decisions on implementation times and priorities, i.e., it is strongly dependent on the political attitude of the city administration (figure 8). The first round of community interactions raised a harsh political debate in Taranto administration, still under way. The delay in completing the DPP is largely due to such discussion – so preventing, however, new hasty and speculative planning decisions, as occurred in Taranto's past.

4. Discussion

This paper has tried to start a wide-ranging reflection on the characters and resources of an area in industrial decline, in many ways typical but still little studied in its complexity. The reflection is developed within a new institutional interest of the Municipality towards long-term planning actions. A rather unique area of action for a territorial strategy, particularly for a city development strategy, comes from analysis above. In it, the current revision of the Master plan follows an inclusive, participatory, visionary, scenario process, based on the territorial, environmental, historical, social resources of this interesting context.

The activity of building the strategic objectives for the future of Taranto in the medium-long term is a rare, interesting opportunity for a synthesis *à la Friedmann* between knowledge and action, in an intrinsically complex socio-environmental domain. In fact, if few experiences have been carried out to date in the contexts of our local communities, it is also true that the growing demand for real inclusion of environmental, social and cognitive complexity in local development is not trivial, after all. Witnesses to this multifaceted Taranto complexity are not only the dramatic occupational and health concerns, unsolved by decades reactive, emergency policy. In fact, at the same time, a convincing, tumultuous awareness of the environmental potentials and risks, both physical and economic, seems to have developed from below within the community. In the *Leontievian* input-output analysis of the wealth of Taranto, new *cells* have increasingly appeared regarding its ecosystem, natural and urban landscape, the quality of air and water but also of life, as well as historical and cultural heritage. The experience of interaction with the population carried out in the DPP process seems to largely confirm the growth of this collective awareness of the rich multiformity of problems, of issues, of concepts now ontologically rooted in the cognitive patrimony of the city.

It is an extraordinary discovery for the management of the city, which unveils development paths on which to structure the present and from which to structurally strive for the future. Moreover, these are new elements also in their

formal essence, being qualitative rather than quantitative, informal rather than formal, fuzzy and slippery in their management, even though clearly evident and recognized. On closer inspection, it is the typical essence of environmental complexity, often celebrated rhetorically but computationally feared by policy analysts and public managers.

The work of cognitive interaction in Taranto districts lies precisely in the wake of the most recent attempts, aimed at creating cognitive environments to support decision-making. The roles, the interactions, the behaviours of the agents, even in this embryonic study, define a system of knowledge that looks essential in urban and environmental planning and management processes. This circumstance draws an evident line of rupture with the exogenous strategy initiatives that have gripped the city up to date.

Within an agent-based approach consistent with these considerations, the case of Taranto DPP has developed themes related to the problems of identification, management and future use of local resources, potentials and opportunities. With this attention, being for the first time specifically methodological, inclusive and cognitively open (as compared to the political-economic determinism of an industrial monoculture), the city opens up to broader strategic models. Starting from (and no longer apart from) the socio-environmental complexity, a managing-oriented attempt of local development unfolds, based on the diffused, multiagent knowledge of a large and hitherto neglected heritage of environmental resources.

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