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Urban sprawl processes characterize the landscape of the areas surrounding cities. These landscapes show different features according to the geographical area that cities belong to, though some common factors can be identified: land consumption, indifference to the peculiarities of the context, homogeneity of activities and building typologies, mobility needs exasperatedly delegated to private cars.

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SCENARIO ANALYSIS

TOWARD A CHANGE IN THE USE OF THE SOIL CONSUMPTION PARADIGM

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ABSTRACT

The processes of urbanization affecting the modern world have seen the explosion of the city and the transformation of compact and well defined structures in agglomerations with a seamlessly expansion. This has sparked a number of social and economic consequences that have impacted on the city, on the urbanized areas, and on the surroundings. The usage of the term “sprawl” to define the process of expansion of the human agglomerations dates back to eighty years ago, about, and from that period countless researches were done on the argument, also if it is open the question about the future trends of the city; if it is clear that the expansive model is still winning, it is equally necessary to identify new models that can better interpret the needs for a new attention to the territory and its environment. For this purpose the paper explores the feasible use of the scenario analysis as tool for defining the potential evolutionary paths of the city. Particular attention is placed on the construction of de-urbanization’s scenarios, namely the set of reorganization’s hypotheses of urban structures focused on the compaction of their physical size and on the maximizing of the number of residents and users.

The paper seeks to deepen the possible trajectories of de-urbanization and of urban and territorial reorganization stretched to reverse the diffusion and expansive processes at the metropolitan level. The paper initially defines the characters of the processes of urbanization, also with reference to some research’s models. The second part investigates the use of scenarios for the construction of evolutionary trends. The third, finally, examines the trends comparing the processes of urban growth and of de-urbanization.

KEYWORDS:
Soil consumption; Sprawl; Scenario analysis

1 THE CITY EXPLOSION

The processes of urbanization affecting the modern world have seen the explosion of the city and the transformation of compact and well defined structures in agglomerations with a seamlessly expansion. This has sparked a number of social and economic consequences that have impacted on the city, on the urbanized area, and on the surroundings.

The utilisation of the term "sprawl" to define the process of expansion of the human agglomerations dates back to 1937, as Nachiba and Walsh (2004), and from that year countless researches, papers and books were done on the argument.

Nevertheless, it is open the question about the future trends and the possible evolution of the city.

If it is clear that the expansive model is still winning (and may be expected to keep it, given the intrinsic conditions governing today's economic processes), it is equally necessary to identify new models that can better interpret the needs for a new attention to the territory and its environment.

For this purpose the paper explores the feasible use of the scenario analysis – also if at a preliminary phase – as tool for defining the possible evolutionary paths of the city. Particular attention is placed on the construction of de-urbanization's scenarios, namely the set of reorganization's hypotheses of urban structures focused on the compaction of their physical size and on the maximizing of the number of residents and users. In the paper it is used the expression de-urbanization for to define the process of controlled reduction of the size of the cities, attended by processes of concentration and re-naturalization. Other expressions are similar but not equal. For example "exurbanization", used by Van den Berg *et alia* (1982), define the phenomenon of transfer of people and activity from the urban centre towards the periphery, while "peri-urbanization" defines the spatial expansion of a city (Piorr *et alia* 2011). These two expressions are strictly connected with the expansion of the city, not with its reduction.

Historically the de-urbanization processes are not a novelty. At the peak of its power Rome, centre of one of the largest ancient empires, had over a million of inhabitants, while at the time of national unification (1870) it had fewer than 100,000, spread over a much smaller urban area bounded by the Aurelian Walls (Author …); such cases occurred frequently throughout history, even with more radical processes that led to the physical disappearance – and often of the same remembrance – of the cities.

The problem is present at European level. A recent communication of the Commission (COM(2011) 571), with the significant title of "Roadmap to a Resource Efficient Europe", says that «In the EU, more than 1,000 km² are subject to 'land take' every year for housing, industry, roads or recreational purposes. About half of this surface is actually 'sealed'. The availability of infrastructure varies considerably between regions, but in aggregate, every ten years we pave over a surface area equivalent to Cyprus. If we are to reach the state of no net land take by 2050, following a linear path, we would need to reduce land take to an average of 800 km² per year in the period 2000-2020. In many regions soil is irreversibly eroded, or has a low content of organic matter. Soil contamination is also a serious problem. The use of land is nearly always a trade-off between various social, economic and environmental needs (e.g. housing, transport infrastructure, energy production, agriculture, nature protection). Decisions on land use are long term commitments which are difficult or costly to reverse. At the moment, these decisions are often taken without proper prior analysis of such impacts, for example through a Strategic Environmental Assessment. The EU agricultural, energy, transport and cohesion policy reforms will provide the opportunity to set the framework and the right incentives for public authorities and land owners to achieve this objective» (point 4.6).

The paper seeks to deepen the possible trajectories of de-urbanization and of urban and territorial reorganization stretched to reverse the diffusion and expansive processes at the metropolitan level. For this purpose the paper initially defines the characters of the processes of urbanization, with reference to the

historical evolution and to some research's models. The second part investigates the use of scenarios for the construction of evolutionary trends. The third, finally, examines the trends comparing the actual processes of urban growth with the hypotheses of de-urbanization.

2 CITIES AS EVOLVING ORGANISMS

At the beginning of the industrial revolution the urban structure of the European city (and not only) consisted of a compact nucleus (the town) at the centre of a territory used as a producer of goods (especially food) for the city. The countryside was generally depopulated and the inhabitants who did not dwell in the city lived in smaller and distinct urban centres around it. However, the city concentrated almost all of the local population and all the commercial and cultural exchanges (Fig. 1, above left).

The industrial revolution extends the size of the city on the territory, although it tends to maintain its firmness. The urban periphery arises and begins the first welding with neighbouring towns (Fig. 1, above right). From the late Seventeenth century starts the age of the urbanization.

A series of studies considers urbanization as a «diffusion process starting from the growing urban centres that affected the countryside in concentric spheres of differentiate influence» (Antrop 2004, 10). The reality is much more complex and the influence of the transportation infrastructure and, more in general, of the technological changes are very high. The consequences are several. In particular, it arises also the awareness of the technical and cultural break that the urbanization brings with it, break that it is analysed by scholars such as Sitte (1889) and Viollet-le-Duc (1867-1872), and that emphasizes the radical contrast between the creation without design of the ancient city, almost inspired by an undefined external body, and the technical construction of the modern city, between the physical irregularity that echoes the irregularity of the human spirit and the regularity enforced on the modern city.

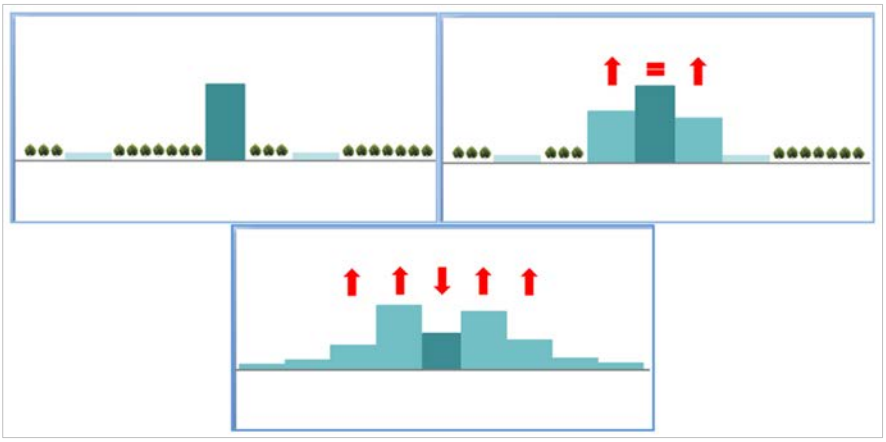

Fig. 1 The growing of the city from the beginning of XIX century

But the city continues to grow. The processes of economic transformation, services spread and access to a variety of communication vehicles expand the urbanized space shattering the administrative boundaries and encompassing cities before autonomous. Large extensions of country become urbanized lands. At the saome time, stabilization– if not reduction – processes start in the dimension of the population that lives in the downtown areas (Fig. 1, below).

At this stage the city keeps to grow, even if it loses population in the central areas that start. Just the central areas (or downtown, or historical centres) start to become the symbolic location of processes of urban

reorganization, first implemented in simplifying authoritarian reconfigurations, then achieved with more careful attention to the history of the places, with the will to create a new representative city, physically "clean" and socially "bourgeois".

The process of expansion is greeted with great emphasis by the town-planning culture of early twentieth century. Le Corbusier (1967, 74) wrote: «The cities will be part of the country; I shall live 30 miles from my office in one direction, under a pine tree; my secretary will live 30 miles away from it too, in the other direction, under another pine tree. We shall both have our own car. We shall use up tires, wear out road surfaces and gears, consume oil and gasoline. All of which will require a great deal of work-enough for all».

The rationalist ideology, for which the city is the engine of progress and, therefore, must be constantly in development, observes that the city does not evolve, but is the product of a process that adds new clusters without form or soul, in a continuous and desperate research for a sense of belonging to a community, or *Heimatsgefühl*, again quoting Sitte.

For this reason, a segment of the town-planning culture does not recognize itself in the rationalist hypotheses of an ever-expanding, because it will lead to the death of the city. Mumford writes, about New York (1945, 37): «In the course of imperialistic expansion, the metropolis, as Patrick Geddes put it, becomes at Megalopolis, concentrating upon bigness and abstract magnitude and the numerical fictions of finance; megalopolis becomes parasitopolis, dominated by those secondary pecuniary processes that live on the living; and parasitopolis gives way to patholopolis, the city that ceases effectively to function and so become the prey of all manner of diseases, physical, social, moral».

This process of expansion without stopping arrives unabated to this days, also if with a different awareness. At best the discussion is faced with a city-region in search of new meanings of being, disconnected from random or sectoral processes that have nothing to do with their intrinsic qualities, and, often the expansion is related to a process of continuous occupation of new soil based on any kind of programming or planning.

Not to mention, however, that the impact of the size of the territorial dimension over the urban dimension means that today the liveableness of an urban system depends on the extent of its diffusive part: it, for size and dynamics, can increase or decrease the importance of its quality factors.

3 ELEMENTS OF SCENARIO ANALYSIS

A scenario is a narrative description of a consistent set of factors which define in a probabilistic sense alternative sets of future conditions (Huss 1988). The scenario analysis allows to describe the possible development of different phenomena (land use transformation, environmental evaluation, business, ...), assuming alternative developments – or scenarios – of some driving variables (Postma, Liebl 2005). The scenario approach is part of the family of the simulation techniques and it allows to choose between different coming trajectories belonging to the scenario that corresponds, more than any other, to a set of events that could take place. Moreover, it represent a way to the knowledge, obtained using different approaches and methodologies.

For a proper use of this technique is necessary that: a) the scenarios meet to different states reaching from the object of the analysis; b) a limited number of independent variables define the scenarios; and c) the independent variables must be able, when combined, to represent in detail the different situations that may occur in the selected timeframe (Damodaran, s.d.). A possible representation of a scenario development is formed by the following steps (Postma, Liebl 2005, 164), also if the structure of the analysis has a wide freedom of composition and it is, usually, calibrated on the case that you are looking:

Step 1: Identify focal issue or decision.

Step 2: Identify the key forces in the local environment.

Step 3: Define the driving forces.
Step 4: Rank by importance and uncertainty.
Step 5: Select the scenario logics.
Step 6: Flesh out the scenarios.
Step 7: Identify the implications for strategy.
Step 8: Select leading indicators and signpost.
Step 9: Feed the scenarios back to those consulted.
Step 10: Discuss the strategic options.
Step 11: Agree the implementation plan.
Step 12: Publicize the scenarios.

Normally, to each scenario is assigned a probability of occurrence that reflects the greater or lesser credibility for the realization of the assumptions; in fact, in a scenario analysis, we estimate the results under various conditions, with the intent of giving a better sense of the risk linked to a forecast.

An extreme version of scenario analysis considers the results in the best and worst case. In this case we can estimate the results if everything work to perfection – a best-case scenario – and if nothing does – a worst-case scenario. In practice, there are only two solutions of the analysis, and each input is set to its best (or worst) possible outcome estimated with those values.

In relation to the utilisation of the results by the decision makers, two modalities are to consider: first, the difference between the best-case and worst-case can be used as a measure of risk, considering that the range in value should be higher for riskier situations; second, actors as the public administrations can control the potential effects of their planning previsions by looking at the worst-case outcome.

It is to underline that the normal version is more generalized. In general, in fact, best case/worst case analyses are not very informative, because they restrict the case to the extreme situations and because these situations are often paradoxical (Postma, Liebl 2005). In its most general form, the value of a forecast could be computed under a number of different scenarios, varying the assumptions about variables.

A scenario analysis has four critical components: the first is the determination of the factors that will be built around the scenario; the second is the determination of the number of scenarios to analyse for each factor; the third component is the estimation of the characters under each scenario; and the fourth is the assignment of probabilities to each scenario.

The output from a scenario analysis can be presented as values under each scenario and as an expected value across scenarios.

4 URBAN TRAJECTORIES AND URBAN MODELS

In the first section of the paper we have done some considerations on the evolution of form and dimension of the city. From these considerations derive two possible future trajectories.

The first foresees that the urban sprawl continues without limits advancing with the same evolutionary paths of the past. The territories external to the urban core are increasingly urbanized and transformed from agricultural or natural areas in areas for residences, trades, manufacturing, or infrastructures. This makes possible the extension of the consolidated city, which expands to the suburbs (Fig. 2, left).

In a second hypothesis, the urban sprawl is limited and avoided, the city concentrates its activities in smaller places and parts of territory go back green. This trajectory assumes that it can check and change the urban evolutions forcing them to directions that will lead to a densification of the urban structures and to a re-naturalization of parts of the territory, the most strategic from the point of view of the environmental control (Fig. 2, right).

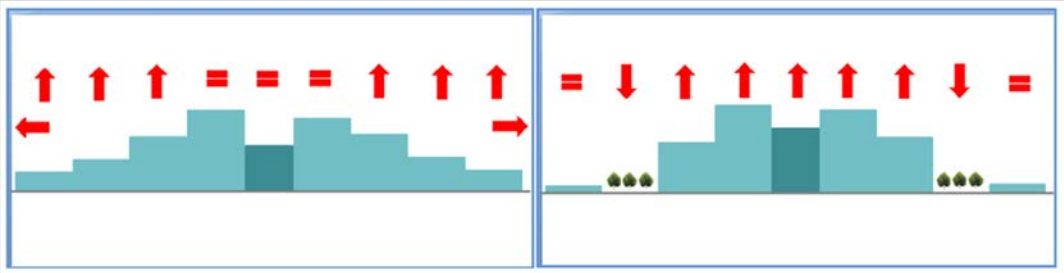

Fig. 2 Two scenarios: sprawl or restraint

The two trajectories are analysed by many studies that, taking into account the potential evolution of an urban structure, place themselves in terms of continuity or change in the growth model.

For Batty, Barros and Sinesio-Alves (2005), «what might appear to be in equilibrium is their physical artifact, their structures, buildings and streets, but the economic and social rationale for what goes on inside them is in continual flux». The object that appears to be in equilibrium but it isn't, is just the city. The authors describe two categories of patterns of urban development. The models of continuity belong to the first category; they apply to the processes of developing the same algorithm used in the past for growth. The transformation's models belong to the second category, and they suggest an evolution that change their trajectory, for various but contingent reasons, bringing out formal and functional characteristics completely different from the previous ones.

The continuity's processes in urban development can be associated to a modular principle of constant growth or to a principle of stochastic growth. In the first case, the hypothesis is that the city consists of cells that multiply themself with homogeneous characters and repetitive structure. «Idealistic Renaissance towns were often patterned in this fashion as templates for an urban utopia based on classical architectural principles». In the second case, the growing of the city is assumed in accord with a stochastic principle, dependent on a time function; the form is not modular but cellular, with a 360 degree development with random probability.

The processes of model's transformation, as mentioned, lead to new paths. Belong to these paths the one that it transforms a city into a metropolis, namely that transforms unidirectional flow patterns and trends in bidirectional or tangential flows, no longer passing through the centre (Fig. 3). According to the authors, «the metropolis as the connected pattern of settlement that fills an entire space where everyone can connect to everybody else either directly or indirectly. Connection in this sense is simply the ability to circumnavigate the system, from one side to another if you like».

The transformation of growth's pattern from modular or cellular takes place at a certain time for the presence of external processes such as, for example, the development of small towns around the city, or the birth of new agglomerations. We can also see the transformation of the growth's pattern as another proof of the processes of self-organization, processes based on the assumption that an organization endures until it reaches a radical, technological, or functional change which leads to another organization.

A nearly classic model that describes the evolution of the city is the Urban Life Cycle Model, by Van den Berg *et alia* (1982). The model is focused on the evolutionary trends of a city divided in two sub-areas: the centre (core) and the periphery (ring), in addition to a functional urban area around it. The two sub-areas undergo non-stop evolutionary phenomena.

This model is based on classical assumptions: the first is that innovation favours the evolution of the city; the second is that the urban system evolution is gradual, and the same innovation causes the replacement of the activities for which an agricultural city becomes industrial and then tertiary.

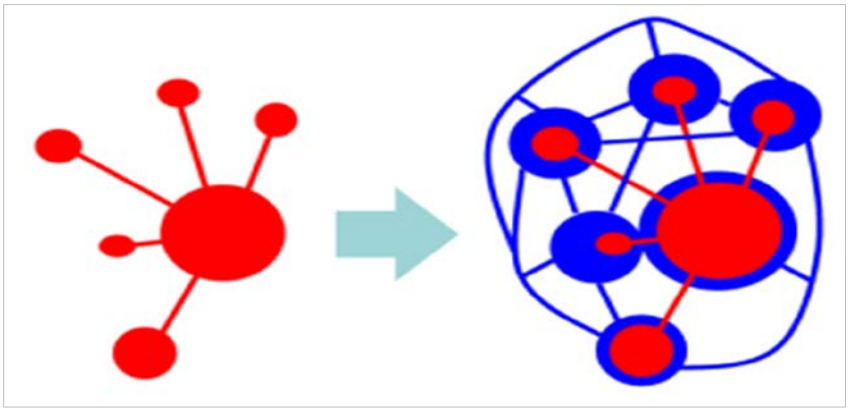

Fig. 3 The change of paradigm in the organization of the urban space: from the city to the metropolitan area

The model evolves following four stages. The first is the “urbanization”, characterized by strong population growth in the centre of agglomeration. The second is the “sub-urbanization”, which is still a process of population growth that affects the peripheral crown and it is characteristic of the urban diffusion processes. The third is the “ex-urbanization” step, a phase of decline in population and jobs; this process occurs primarily in the central part, due to diseconomies of this part of the city. Finally there is a fourth step, known as “re-urbanization”, during which the city recovers the lost positions and resumes its development cycle.
It is evident that this model describes some urban processes, but not all. For example, it focuses on the city without taking into consideration the around space. In this space there are more urban centres each one with different times and ways in the transformative changes, enough to decree the death of some of them and the overdevelopment of others. Another consideration is that there is scarce consideration on the modalities of construction of territorial network’s systems, from which derives a division of functions and roles that is well associated with a model of controlled de-urbanization.

5 ABOUT THE URBAN EVUTIONARY SCENARIOS

The process of formation of the metropolis is only one of the potential scenarios due to changes of the development model. New models may arise as a result of crisis phenomena and among these there are the models of de-urbanization. The relevance of these models descend from a specific question: the survival of an urban structure can derive by the reduction and reorganization of the urban space? It is conceivable that is possible a spatial organization based on smaller and concentrated towns?

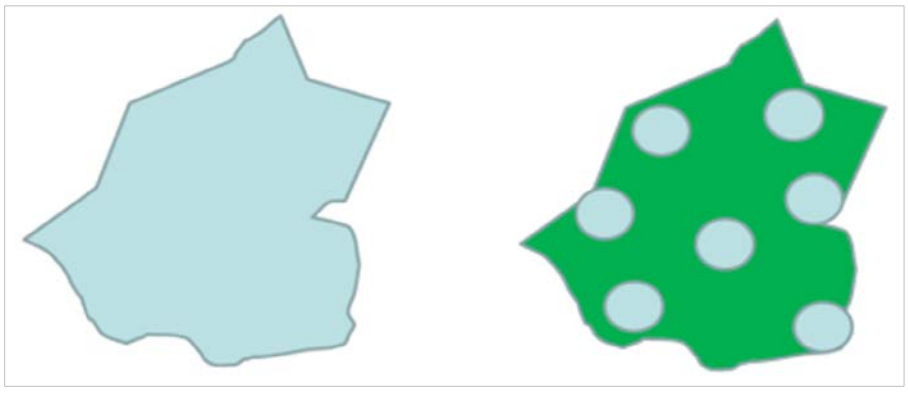

Fig.4 The change of paradigm in the organization of the urban space: from the expanded city to the compacted city

The questions lead to build a borderline scenario according to which a single large urban/metropolitan structure pass into one or more compact urban cores surrounded by a green matrix resulting from reforestation and re-naturalization of the territory. It would therefore switch by a wide and undifferentiated agglomeration to a city's archipelago in which urban centres are clearly delineated (Fig. 4).

In a scenario analysis the evolution of an urban structure can be considered as an attempt to build a trajectory of potential transformation starting from the Scenario 0, that is the city today, with its uncontrolled sprawl, the pollution, more costs in terms of dwelling, daily life, and mobility.

The structure of the analysis schedules that it is necessary to define the borderline conditions where the scenarios work. After this first phase the conditions must be applied to the hypotheses of densification and re-naturalization, but also to the model of urban diffusion, more strong at the present time (Fig. 5). Why densification can be a basic hypothesis for a new model of city? Because it is the base for to change the urban development model: the automobile city and the public transport city are deeply different because their philosophical and physical forms are different; the automobile favours the low density city, while the public transport favours the high density city and the concentration of the settlements. It is interesting how both the models have more detractor than admirers and that the planners are to the search of an ideal model that is neither low nor high density.

Particular attention should be placed on the uncertainty of the analysis, because, to its own characteristics, it could be considered a "wicked problem" (Rittel, Webber 1973). Wicked problems are «aggressive challenges that are both messy and circular. By messy, we mean that there is no definitive statement of a wicked problem. Instead the different perspectives of diverse stakeholders will result in contradictory definitions. Meanwhile, changing resources and political ramifications are constantly shifting the problem solving context so that there are often competing solutions to any wicked problem. Possible solutions to any aspect of a wicked problem are likely to reveal or create an even more complex problem – this is the circular aspect of wicked problems» (Wilkinson, Eidinow 2008).

With the above considerations, in this analysis we use seven steps.

1. Characterization of the goal of the analysis: definition of the impact trajectories on territorial sprawl, on densification and on re-naturalization.
2. Choice of the driving forces: the driving forces define the elements that mainly influence the evolution. In this case we use five driving forces: 2a) cost of fuel and energy; 2b) impact of new technologies on the change of the mobility parameters; 2c) role of public transport; 2d) effectiveness of the administrative control of the territory; 2e) income distribution.
3. Choice of a set of indicators for every driving force.
4. Depiction of Scenario 0: use of the driving forces for to define the current situation.
5. Depiction of Best-case Scenario: evolution using positive trajectories in the pattern of the driving forces.
6. Depiction of Worst-case Scenario: evolution using negative trajectories in the pattern of the driving forces.
7. Analysis of the results: impact of best-case and worst-case scenario on territorial sprawl, densification and re-naturalisation.

Particular attention can be used for the choice of the driving forces (step 2). Urbanisation is a complex process with an exponential growth since the end of 19th century. This process is related with the introduction and the use of new modes of transportation, that have allowed the mass transport: railway and automobile, in particular. If we consider the character of the current mobility as the main driving force of the

sprawl model of urbanisation, we can speculate a change in the evolutionary trajectory only if the factors at the base of the model change. If the main factor is the automobile mobility, the change it is possible only if the easiness of the movement is contrasted by a shock that makes difficult the use of the personal transportation means. For this reason most of the driving forces that we consider are very strictly connected with the movement easiness.

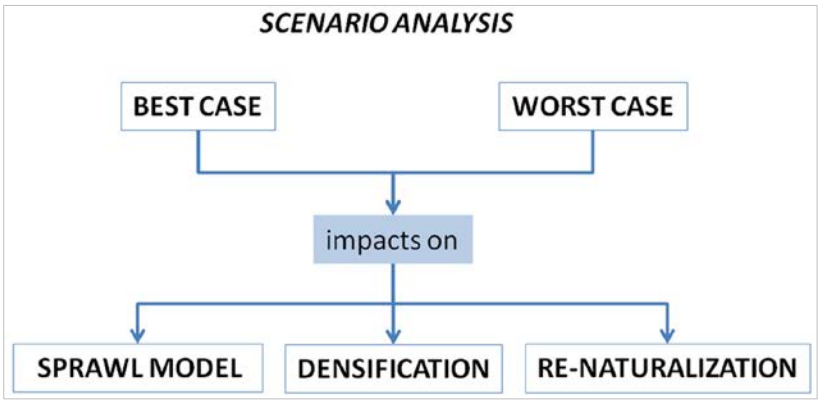

Fig. 5 Methodological structure of the application of the scenario analysis to the de-urbanization processes

Also for the technological changes we must do some considerations; the impact of technology can be verified because a technological change can exacerbate or restore the degradation of an environment (two different impacts); moreover, it can have secondary impacts, for instance, on social changes or on other driving forces.

A latter consideration is related with the effectiveness of the planning control by the public administrations. At the moment there are some questions marks on the ability of these structures in the control of the sprawl and in the management of the transformations.

The specific characters of the driving forces to be considered for the construction of the two extreme scenarios could be as follows.

For the best-case:

- the cost of fuel is stabilized thanks to the find of new reserves and to the consumption's containment policies;
- the contribution of new technologies has a significant impact on the fleet of vehicles with a market share that reduces progressively the consumption of petroleum products;
- the cost of local public transport increases with the aim of increasing quality and frequency;
- control of the territory is largely removed from local government and is centralized for to increase the protection of sensitive areas and ecosystems;
- redistribution of wealth reduces the number of families below the poverty line.

For the worst-case:

- the costs of fuel increases dramatically;
- the cost of public transport increases with the increase of fuel price and the reduction in government grants;
- the contribution of new technologies applied to mobility is inadequate to affect on the composition of the vehicle's fleet;
- local public services, especially education and healthcare, are subject to appreciable reductions in the quality of supply;

- control over territory is weak and does not contradict the land consumption;
- the percentage of families in poverty is growing.

Essential are the steps 5 and 6, where you take into account the analysis for the extreme cases (best-case/worst-case). From these assumptions follow the step 7. It results or a drifting situation or a strictly controlled situation, especially from the point of view of planning. We could say that the occurrence of the worst-cases leads to the extreme land degradation, while the occurrence of the best-cases is the starting point for a process of urban transformation in the direction of de-urbanization.

But it results also a paradoxical situation due to the observation that the occurrence of the best-cases can positively influence all the three hypotheses, while the occurrence of the worst-cases could favour the densification processes at the expense both of the sprawl model and of the re-naturalization processes that, in this case, are too expensive (Fig. 6). Once again the political decisions will be decisive for the trajectory's choice.

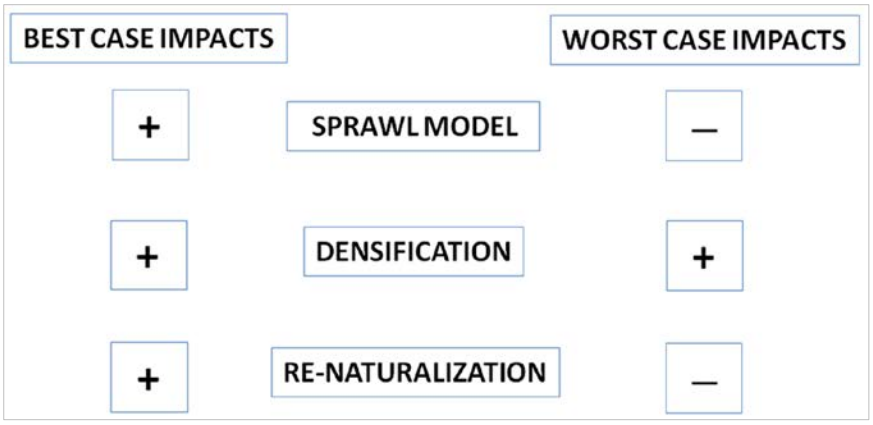

Fig. 6 Scenario analysis: possible influence of the two limit-cases on the three hypotheses of urban organization

It is clear, however, that the evolutionary trajectory can be better characterized by intermediate values of the factors in which best-cases are put beside by worst-cases, or in which the various factors do not reach the extreme states.

6 DENSIFICATION AND RE-NATURALIZATION

The building of the scenario hypotheses in a case as this must take into account the economical conditions in which a country as Italy works.

We previously mentioned how the characteristics of mobility are essential to define possible scenarios; these characteristics are closely related to the manner in which the mobility takes place. In a recent number of Nature, Murray and King (2012) have analysed the problem of the oil provision for our country. Article states that «another powerful example of the effect of increasing oil prices can be seen in Italy. In 1999, when Italy adopted the euro, the country's annual trade surplus was $22 billion. Since then, Italy's trade balance has altered dramatically and the country now has a deficit of $36 billion. Although this shift has many causes, including the rise of imports from China, the increase in oil price was the most important. Despite a decrease in imports of 388,000 barrels per day compared with 1999, Italy now spends about $55 billion a year on imported oil, up from $12 billion in 1999. That difference is close to the current annual trade deficit. The price of oil is likely to have been a large contributor to the euro crisis in southern Europe, where countries are completely dependent on foreign oil» (435).

Next to this problem is that of the costs of the re-urbanisations. The breakdown of a building means costs of breakdown, of transport to landfill, of clear up of hazardous materials, of reconstruction of the vegetation cover, of displacement of activities and of the properties. If you extend the discussion to a wide territory the costs of territorial reorganization start to become prohibitive.

For these reasons might seem risky to deepen the problem of the de-urbanization, especially in a difficult economic situation. But do not forget, moreover, that a share of the Italian crisis derives from its territorial inefficiency, which in itself represents a cost to the nation's economy.

After the definition of the factors taking to the determination of the best/worst case, it is necessary to consider the urban and territorial actions on which they can be applied, with the aim to build a process of city's reorganization aspiring to the reduction, or annulment, of the soil consumption.

These actions can be classified as: a) action of densification, and b) action of re-naturalization.

The action of densification can be realized on different areas; the more usable are the underutilized. In these areas is possible to include new functions, compatible with the existing functions. The inclusion causes growing processes, or, alternatively, substitution processes. From the social and economic point of view the densification can result very positive both for private than for public subjects. The advantage are for the real estate development, for the continuity in the use of the space, for the presence of varied functions, for the reduction of the shifts (Moccia 2010).

Another type of areas that could be subject to densification are the derelict areas. The case, however, is different because these areas can present strong problems of soil's utilization, due to the pollution and the transformation's costs.

For the use of the densification's actions it is possible to foresee three main phases: 1) identification and characterization of the underutilized areas; 2) selection of the suitable thresholds for the densification and 3) use of innovative solutions (low energy's consumption and low emissions) for the urban planning and for the building's design.

Opposite to the densification are the re-naturalization's activities. This hypothesis interests the spaces with low building density, and with a considerable natural or agricultural mould. In these areas the actions to carry forward will consist: 1) initial prohibition of any activity leading to the growing of volumes and activities; 2) afterwards reduction of volumes and functions with removal of that not directly necessary for the agricultural activities or for the management of the natural spaces.

The re-naturalization activities are, at present, extremely difficult for social, financial and political aspects.

From the social point of view it can be assumed, in terms of principle, at least initially, a significant support from the public; is likely, however, that this support can fall into when you move from statements of principle to the actions itself. In financial terms the whole cost of the action it is very high, both for the public subjects than for the private ones. Finally, in political terms, this type of action should be supported by activities of the public administration that are both strong and long-term.

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