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ADAPTIVE CITY

Adapting to climate change through a new conception of time into the process and project outcomes.

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Climate change is a threat and, at the time, a new challenge for the CITY 'of the twenty-first century, projected in a scenario of evolution of contexts and of great uncertainty. Compared to this, the Government of the Territory, and the URBAN ARCHITECTURE are called to give new answers.
And 'now widely recognized by the international scientific community, and particularly by the *Intergovernmental Panel on Climate Change* (IPCC), that the cyclical changes in natural, historically found in the past few millennia, it is superimposed contributions, decisive and specific activities of human . Key role in the increase of temperature recorded in the distortion of the precipitation patterns, raise the level of the seas, and in the increased frequency and intensity of extreme events, which increase a number of risks at the local level, for territories and cities.
This new scenario, characterized by high uncertainty, undermines an apparatus of paradigms, now inadequate to provide useful responses to address risks which often cross the imaginable. The traditional town planning has ensured that human activities in the area were designed and sized with the assumption implicit or explicit, that the situation and the environmental conditions and land remain constant and not change over time. Theoretical assumptions, and the government of the territory, together with the obsolete mode of construction of the city, bring us a territory, especially in reference to our country, inert and inflexible, unprepared for changes, and unable to muffle the shots, even for the ' unauthorized building and the wicked, uncontrolled land consumption trend. A region highly vulnerable, when cities suffer impacts, often and unfortunately, disastrous.

Amidst this scenario, there is in fact the city, the place where you are performing main human activities and where the population is denser, **the place where the most severe effects occur due to the prevalence of the artificial over the natural, and therefore where the resilience must be ensured almost exclusively by men**. The identification of the risks they are exposed populations and property, the assessment of their vulnerability, and the formulation of strategies to combat the problem are, therefore, an important test, to strive for quality of life of Most of the world population. While they have contributed greatly

to climate change, with their consumption, externalities, emissions of greenhouse gases, cities and local governments in the broadest sense, can play an important role as laboratories for experimentation with new policies that reduce greenhouse gas emissions (mitigation strategies) and make it more resilient than the contexts unavoidable impacts, that even with mitigation, can not be avoided (adaptation strategies).

There are many cities, American and European, which are introducing the issue of climate change in their urban policies (to name a few: Los Angeles, Chicago, New York, San Francisco, Toronto, Stuttgart, Malmo, London, Rotterdam ...) making unpublished instruments (plans climate adaptation plans, sustainability plans), which have structured a complex palimpsest of adaptation strategies, integrated actions to reduce emissions of greenhouse gases, according to what is being defined as a "policy of protection of climate", while far fewer experiences of urban design with specific adaptation goals. In our country the debate and research are clearly lagging behind, even if you are outlining the experiences of the first applications of the topic into plans and programs.

Putting the issue of climate change at the center of urban policies, opens a scenario that asks the disciplines of urban planning and architecture with respect to their roles, and methods of construction of the city opposite the ability to adapt to a changing climate:
- Introjecting factor in planning climate, how it changes the look to the land?
- What characters will take the planning to meet the uncertainty imposed by climate change?
- Then again, what IDEA CITY 'is looming?

The hypothesis that motivates this reflection is that the introduction of the variable climate, and more specifically the objectives of adaptation in urban and territorial policies, profoundly alter the land and look at the geography of risk. Adapting cities to climate change, underlying the confrontation with the not always predictable, which accuses the traditional baggage of analysis and planning tools and design, according to the need to search for information, data and constraints, not only in the past and present, but especially in the future because it is relative to it that we must mobilize and give answers.
This binds to a second hypothesis, namely that the city, facing the risks posed by climate change, can not be more inert and stable: it is a "complex system", the city will be more resilient, as will be able to incorporate the skills necessary to activate the processes of regeneration and adaptation with respect to the phenomena of evolution of contexts, including sudden. In this context, the condition of constant mutation, was normal, while the phenomena of stability must be considered as phenomena that increase vulnerability. Concept that distorts the way we are accustomed to think, tend to assume the stability condition as normal and ideal (there is very dear to the concept of steady state condition), and identify changes in the phenomena to be investigated to understand its causes. This invites a reflection on the inevitable revision of the instruments of government of the territory, which can no longer be considered in a static state, but dynamic concept that must be internalized and metabolized by the disciplines involved. And on the ways in which the climatic factor and more deeply the risk factor, should characterize the entire process of designing the project until its synthesis, structure and physical forms translated into functional space.

Through the experiences of planning and design, made in this field, you can define the first response, according to a series of more specific issues that characterize the complex issue of adaptation, are useful addresses the formulation of a new approach to the design of city.

The static character of the traditional urban context in which it operates, are challenged by an **INEVITABLE UNCERTAINTY**, with which, more generally, all the disciplines related to the evolution of the processes of land transformation, must necessarily confront. **The uncertainty, traditionally seen as the condition with respect to which the planning and the territorial government had a decisive role, or at least "mitigativo" today is called to raise awareness of preventive action, but even more deeply, to influence the planning and programming process, giving new meaning to the action, including design.**

The words of Rem Koolhaas, a few years ago, the role of urban planning as a "STAGED UNCERTAINTY", resonate more than ever confirmed and resignified of sense. Planning and design are to fulfill their task of governing the territory, writing and rewriting of space assets, in a state of "indeterminacy" and "possible mutation," and there would be no escape to the disaster, the inevitable consequence of events extreme, if not through a conscious adaptation to future contexts in which it operates.

The necessary revision of the disciplines, passes inevitably through A NEW THEORY OF TIME. In traditional approaches to planning, as well as in much of current practice, the time is generally thought of as a linear sequence, and ordered that, through a series of predetermined actions (problem identification, setting goals, selecting strategies, mobilization of resources, shares), connects decisions and results. But even more simply, time is a continuous dimension, which unfolds in a succession of more or less predictable events. For this, the project lives in a "single long", sighting a single horizon, against which targets are set and requirements.

Adapting to climate change disrupts this conceptual approach because, after all, is a prospect of development of the scenarios that we move: is the process of adaptation, both outcomes, should be affected by this opening of horizons and provide various services relation to changing contextual conditions. In practice, switching to a conception of time:

_MULTIFORME, How time is perceived, how it is used, which conveys knowledge, such as mobility;

_MULTIDIREZIONALE, Ie which does not proceed through the accumulation of a series of actions or predetermined successive transformations, but must include the ability to change the order of actions in response to demands also unexpected;

_NON RICORSIVO, in the sense that it bases its legitimacy on the reproduction of a model routinely indifferent to context, but must strive to be open to it and suffer a constructive mutation (Cottino Zeppetella, 2010).

In this way, what gives rise to the process, not the sequence of actions arranged in a strict timeline, but is the presence of necessity, urgency, opportunity and ability to produce an "open system" and linking problems and solutions , decision makers, technicians, and choices, with the intention to anticipate the changing context and be prepared for unexpected events

Giving importance to the new time dimension assumes that adaptation involves a change in the ways of interpreting the city and take action on the policies, plans and projects, combining the requirements of certainty and spaces can adapt to change. According to such a conception of time, plans and projects must be "**action-oriented reports for the Future**", taking into account the contextual nature and its possible

evolutions. It is not just to recognize that the arrow of time may suffer unplanned deviations, above all, that is no longer possible to think of time as an arrow, but as a continuous interweaving of events (Fedeli, 2010), which make it totally ineffective a project that does not know how to recognize and cope with the mutation. In this way, is chasing a moving and dynamic planning (Hiller, 2007), intersecting the multiple temporality of the project with multiple conditions of a scenario where it is realized: interiorising and then deal with uncertainty in the process and expressing it in a constructive flexibility.

The theme of FLEXIBILITY, greatly investigated in the history of urban planning and architectural design of the above, through adaptation, takes on a meaning extreme, radical, that exceeds the size thresholds and time by which the processes, devices, technologies and everything the wealth of business tools, are used in the territory. This is not to identify a number of possible configurations, but you need to operate in such a way that the action or intervention including physical, are "open process" that is capable of metabolizing the change dictated by external forces, bridging the gaps between INERTIA AND MUTATION. Whether it concerns the process of planning or design and the possibilities of interaction of the different actors involved in the path, whether dealing with spaces, their profiles, and in general the ability of recipients to appropriate, that meets their needs, process flexibility and flexibility of the spaces are united by a reconceptualization of the project as a process or, in other words, as a more profound and unprecedented "reflective conversation with the context." The project, designed as a space, not a "finished product", rather than an activity that unfolds over a period that extended from the initial formalization of a hypothesis and beyond its completion.

The research from which this article was extracted, has demonstrated the relevance and importance of the theme transcalare, the need to introduce it in the disciplines of urban planning and design, but even more deeply, can herald a "new concept of the city", which inevitably subtends an unprecedented vision of urban ecology: **a city that metabolizing the scenario in which mutation is projected to be sensitive to change by setting it as far as possible, and making the subject project.**

Making design theme of adaptation to the urban scale is a necessity, to be achieved through two related arguments: the first concerns the RISK, and mitigation of potential impacts through projects and actions that metabolizzino the theme, from the earliest stages of conception, up to the outcomes translated into spatial structures, the second concerns the MUTATION OF MICRO-CLIMATE CONDITIONS, with which we must confront in the design of open spaces and built the system, to improve the welfare conditions, especially in relation to increases in temperature and to 'increased frequency of heat waves. Two aspects that underlie third and fascinating topic and that is the new RELATIONSHIP BETWEEN THE CITY 'AND NATURE, between artifice and nature, which inevitably adaptation, introduces and implements.

The case of the redevelopment of the neighborhood in Malmö Augustenborg, for example, shows how the problem of flooding has been solved very efficiently, while also avoiding costly works. If the surgery had affected only the existing sewerage system, no longer sufficient to accommodate the flow of water, probably, in addition to creating significant earthworks would have been much more expensive, while remaining 'technical solution, a single hydraulic response, and would not affect on the design and quality of the new space. The decision to design a system for collecting water runoff and, in parallel with the existing traditional system, reactivating the soil impermeable, has solved the problem and, at the same time, has given new meaning to space, making the process more fluid funding.

This concept of **activation in response to the possible evolution of the climate, and validarsi will be extended across the city, but most will cover the project in areas at risk, particularly in places where the city meets nature, water, the catchment areas, the coast.**
It 's where you SPACE "PLACE OF MUTATION" and it is here that the PROJECT WILL ACCEPT THE MUTATION, consciously control it for the safety of those who enjoy, lives and uses that place, and partly realize it. Faces and interpret the comparison between city and water, between city and nature, bridging the gaps between inertia and change, between static and evolution, which inevitably carry the two opposing realities over time.

The redevelopment of a section of the river Scheldt, Antwerp (winner of the Master Plan public is signed by the study PROAP and Portuguese working group Italo-Belgian Wit + Drecta + Idroesse), gives us a foreshadowing space consistent with what you are saying. The construction of defense works dall'esondazione, fixed structures of protection, would do more than ever, inconvenient, and not only with respect to the relationship between city and river. The use of technologies likely to be more expensive, perhaps capable of technical resolution than a threat, would not contribute to the quality of an important and flexible space, negating the potential value of landscape inscribed there.
This experience, along with the project RIVER + CITY + LIFE study in Toronto Stoss Landscape Urbanism, where the flooding problem is solved through an extraordinary project of soil, leaving the possibility of expanding the water level drawing new configurations, have produced the "SPACES OF CONTINUOUS WAIT", why the event it can change the look, you probably use. But surely, it is the expectation of a mutation that is not scary, capable of giving new meaning to the place.

In this way t**he fear of risk becomes positive, design theme, the space becomes a function of time and TIME BECOME THE TRUE MEASURE / SIZE OF SPACE: a layered dimension, where things do not coincide and, between "order and unforeseen" , the space between inert and dumb, and new landscape areas at different speeds because they most times of the city overlap one another, even canceling, in a new way each time.**

The introduction of the theme of flexibility, makes the project an open, willing to change over time: the mutation, including expansion and reduction, it materializes, it is space, function, offering the possibility of "LEAVE THAT OPEN AS LONG MOMENT THE RULE IS BORN ", at least until his present and future of design choice.

And then, in the city ADAPTIVE project now being proposed, special attention should be placed on the quality of micro-climate in the open spaces and built, so to be achieved at different scales, urban, neighborhood and individual product. The city requires actions that establish the environment and the climate a mutual relationship, and this is reflected both in the need to adapt to new climatic conditions, but also the need to reduce everything that contributes to the formation of a local climate slightly comfortable. We are far, indeed, we place ourselves in opposition to the city of 900, inert, static and unable to react to stress. The city that is looming and towards which we must strive for, is a sensitive city that knows how to mitigate impacts and reduce their responsibilities, anticipating the possible change, transforming his contribution "active-negative", in "active-positive ". And this should happen in a necessarily complex, entrusting to the open spaces a more important role, not only as a means of crossing and distribution, but as plot, chassis and safety valve through which the city can breathe, affecting the climate and setting it consciously between the tissues. Similarly, the architecture of the buildings, the tissue more or less dense, will also take action,

tending to sustainable construction, not only creating value and bringing a more intimate relationship with the climate, taking advantage of the benefits in terms of contributions exposure and sunshine, but it can reduce your weight over the city, to the bitter end, projecting a vision of active energy production, expression of the case and architectural integration between adaptation and mitigation.

Picture *1.* View of the district in Malmö Augustenborg and foregrounds the duct system and water collection, made to fit the rise to an increase in the frequency of intense rainfall and flooding risk

Picture *2.* Images of the riverfront redevelopment project in Antwerp, the study by PROAP. The new system draws topographical locations, platforms and stopping places: holding together the heterogeneous elements that confront, and adapt to possible flooding.

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Picture *3.* RIVER CITY + LIFE + project in Toronto Stoss Landscape Urbanism of the study. The flood risk is addressed through new soil morphology.

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