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HUMAN SETTLEMENTS ROLE TO MITIGATE CLIMATE CHANGE

by Arch. Paolo Motta

Abstract

Purpose of this article is to underline the relevance that human settlements have on climate change and the negative impacts produced by the actual uncontrolled urbanization toward metropolises and megacities. The analysis of the actual situation of many of these huge urban agglomeration and the most evident impacts highlight the need of balance between human settlements and environment, the importance of a human presidium spread on territories, and the opportunity offered by the ongoing great connectivity infrastructure projects to mitigate urban concentration and revamp minor settlements. Therefore the proposed actions are relevant as they can represent a tool to reduce the rising trend of un ruled use of land and resources by huge megalopolis & metropolis worldwide and at the same time to enhance human settlements in rural and marginal territories. This will also help the protection and valorisation of cultural heritage both tangible (patrimony) and intangible (traditions), the preservation of traditional landscapes and of the natural soil, water, forest resources. Experience of metropolis, expected to grow in number and size in short future, is mainly negative and the long-term impacts unpredictable, but already atmospheric pollution and water shortage are rising, with no defined intervention strategies. Wild urbanization, without any respect of the existing peculiarities and possible sustainability, is determining permanent damages for the environment, being one of the main climate change responsible.

Keywords

SETTLEMENTS -PRESIDIUM- TERRITORIES -PATRIMONY -ENVIRONMENT.

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Urban Settlements & Climate Change

For many centuries human settlements have coexisted in relative balance with the territories surrounding every single city and village. Following the various industrial revolutions and the need to have workforce settled not far from the production plants, started a progressive and

increasing urbanization process which, however, until the middle of the last century was acceptable with limited impact on the environment.
The exponential growth of urban areas and productive settlements of the last decades, accelerated with the birth of huge metropolises and megacities in all continents, has definitively broken the previous fragile balance; and the impacts that urban areas have on climate change go far beyond the 2% of the planet surface they occupy. Air, soil, aquifers pollution and environmental damages produced by big cities are evident everywhere and still rising, despite the repeated recommendations expressed by many international organizations and reaffirmed in the objectives of sustainable development of the UN HABITAT Agenda2030. (1)
In fact since last century urbanization has been growing without any real opposition and now is accepted that urbanization process as unstoppable, weak or late oppositions till now failed, and urgent mitigation measures must be evaluated and implemented to reduce negative effects on pollution, environment, land-use and progressive natural resources shortages, by reinforcing rural habitat and retain the smaller settlements inhabitants.
Experience of metropolis, expected to grow in number and size in short future, is mainly negative and the long-term impacts unpredictable, but already atmospheric pollution and water shortage are rising, with no defined intervention strategies. Wild use of territory, without any respect of the existing peculiarities and sustainability, is determining permanent damages for the environment, as one of the main climate change responsible.
Is therefore urgent a new vision to reduce increasing urbanization processes and favour the presence of human settlements anyway and wherever possible, saving local characteristics, cultural traditions, tangible and intangible patrimony, and any other necessary elements to assure sustainable territorial development and environment preservation.
Cultural heritage, especially natural and landscape sites, but not only, being also tangible patrimony directly affected by climate change, need that human presence remains spread over the territories, as permanent presidium on the environment through agriculture, ground retention, forest care, water regulation, and is necessary to restore all those activities that for centuries kept the balance between manhood and nature.
Current technologies can provide effective tools in achieving a sustainable territorial reuse and consequently reduce climate change through a spread network of compatible infrastructures, communication systems, renewable energies, and also play an increasing role in enhancing minor settlements, protecting natural environment, and preserving patrimony.

Minor cities, towns and rural settlements also cover a necessary function of human presidium on the natural environment, particularly evident in rural / marginal territories. Any territory needs different levels of protection and enhancement, articulating the degree of transformation through those quality parameters that the original inhabitants apply. From the implementation of a technology supported land-use of neglected/marginal territories, environment will have positive

returns also on local economic development by facilitating the permanence of inhabitants in their traditional settlement and the correct use of rural areas. Such a constant control and maintenance of the environmental resources reduces the risks of natural disasters such as floods, forest fires, desertification and so on.

Attention on these issues has globally risen since the Rio 1992 Conference, increasing till the 2016 UN-Habitat III Conference, where AGENDA 2030 was approved, with the 17 Sustainable Development Goals to be achieved for that date (1). But also in this document are provided partial and doubtful recommendations about urbanization, just general guidelines in Goal 11, but without operative details, nor a specific approach is found that can revamp the priorities inherent the ecological quality, sustainability and resilience of cities. Similar poor attention is given up to date by most other international institutions, including the E.U., lacking a serious debate on the important urban development topics.

Envisaged Measures

Among the 17 Sustainable Development Goals and objectives are relevant those related to infrastructure, cities and human settlements related, as in "Goal 9- Build resilient infrastructure, promote sustainable industrialization and foster innovation " that states that:" *Sustainable transport achieves better integration of the economy while respecting the environment. improving social equity, health, resilience of cities, urban-rural linkages and productivity of rural areas*" *(2)* and in "Goal 11 -Make cities inclusive, safe, resilient and sustainable" - where indicates as objective 11.A) *:" Positive economic support, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning" (3).* But there is not emerging an approach capable of re-launching the priorities inherent to the ecological quality, sustainability and resilience of cities, in light of the most recent developments in the green economy, the economy of sustainable development, the circular and bio-economies.

Close interrelation between mankind and the environment is, after these months of lockdown, clearly visible from the satellite photos, related to atmospheric pollution, which has fallen enormously everywhere due to the decrease in industries and traffic, previously an almost permanent phenomena in many of Asian megacities. Huge urban concentrations highly impact on climate, as all cities are heath islands and, also if globally their surface covers only the 2% of the planet, they are responsible for the about ten times more percentage on climate change. For example, due to wild urbanization and the immense building development of the last decades, the Indonesian capital Manila is slowly sinking and flooding; so the administrative function will be moved to reduce the actual immigration flows. The informal settlements that surround globally many metropolis offer inhuman life conditions under every aspects: overcrowding, lack of water and sanitary networks, waste, air pollution. Significant examples are in India, that hosts 13 of the world's 20 most polluted cities, affecting over 140 million people, based on a

2017 study, where pollution in the slums has increased reaching intolerable levels and determining serious lung diseases (4).

Pandemic & urban impacts

This pandemic and the lockdown of almost all urban areas has highlighted their influence on the environment and climate, where forced stop of daily activities produced a general decrease in pollution indices and the return in just a few months to the environmental levels of several years ago it is a clear sign. the renewed presence in the urban areas of birds and wild fauna, as well as fish in the waters of the city waterways, is another consequence of a reduced anthropic activity in this period.

In relation to the actual pandemic, reports from almost all countries show that Covid/19 grows where is a greater human concentration, as it is obviously more difficult to reduce its spread in large urban agglomerations than in smaller settlements. Updated data arriving from: "slums in India, "townships" in South Africa, "favelas" in Brazil, and in all other informal settlements, are confirming the difficulties to detect the contagion and to implement in those overcrowded contexts containment and social distance, measures that work better in smaller settlements. This is not the only pandemic or epidemic that has occurred in recent years, before were Crazy Cow, Ebola, SARS, MERS, Aviary, Porcine flu etc, nor will it be the last, given that all forecasts agree that will be faced more and more recurrent similar events, caused by man himself, as a consequence of the climate change. The lockdown, involving many countries globally in about two months, had relevant positive returns on the environment, restoring the natural values of many years ago.

This confirms that, if are applied different territorial and urban development models. the Sustainable Development Goals for climate change can be reached in the expected medium-term. This pandemic is also highlighting the values of smaller agglomerations, on one side for the easier containment and monitoring of the contagion and on the other the greater solidarity, cooperation and assistance among the inhabitants, who have a stronger social cohesion. For the previous considerations, the revival of the role of smaller cities and towns is not only possible but fundamental, as one of the tools to mitigate urbanization processes and keep inhabitants spread on vast territories, also as the human presidium of the natural environment, that climate change makes it increasingly necessary.

Mitigation Actions

The actual events should trigger a profound reflection on the model of urbanization itself and the need for an overall revision of the entire process, based on obsolete postulates and paradigms, that were defined almost a century ago in a very different context. The model of maximum proximity between home and work, a requirement for a considerable percentage of inhabitants, is now overcome by the new modes of home-working, e-learning, telemedicine, online-shopping

and anything else made available by new technologies. The needs of mobility have changed thanks to logistics, home deliveries and an efficient transport systems that, with the high speed train networks, have shortened the journey times between rural areas and urban centers where most of the superior services remain concentrated.

Modern technologies can provide effective tools for a renewed settlement model through the revival of human scale settlements, revitalizing and interconnecting disseminated towns and rural settlements, who offer adequate daily life-size and social cohesion among inhabitants, reducing the rising urbanization pressure towards massive megacities.

A network of smaller cities can't be replied elsewhere, not in large and always scarcely populated areas, but is applicable in a short time successfully in those territories where previously settled inhabitants have been emigrating. Is therefore necessary assume a completely different evaluation of minor cities and rural settlements role in defining the future territorial development as mankind landmarks on the territory, capable to mitigate the actual rise of new metropolis and megalopolis especially in emerging countries of Asia, Africa and Latin America. This new approach also modifies how to deal with the urban and territorial planning because it highlights the inadequacy of the existing rules that mainly identify some areas to be constrained and others transformed, through the provision of mainly quantitative tools as the zoning, without the necessary holistic approach integrated with other fundamental societal parameters, as those taken in account by the principles of SQA social quality approach.(5)

For these and other reasons is a priority need to focus on the enhancement of the characteristic elements and of the local urban/territorial assets (cultural, environmental, historical, etc..), to promote a strategy of long-term growth that will include agriculture, craftsmanship, advanced technology and every activity linked to local culture, with actions shared with all actors. Such a holistic approach as integrated territorial planning is not only necessary but adds value also to territories surrounding urban settlements, entirely considered as complementary asset to be protected and enhanced, overcoming the old traditional division and reducing inequalities between and urban and rural areas.

Conclusive Remarks

As previously stated, Covid-19 pandemic has highlighted the inadequacy of the current urban settlement model, accepted as the inevitable urbanization trend of mankind in the coming decades. Hence the need to identify alternative hypotheses, now even more possible thanks to new technologies. This difficult situation in which the whole planet is affected, when ended will certainly have significant consequences in many sectors not only on the economy, whose recovery will certainly not be fast. Forecasts from diverse sources all coincide that the impact of the epidemic will be higher that one of the Great Depression of 1929 and the entire process will take some years. Hopefully can be expected also positive impacts on many aspects of current globalized consumerist model, probably both for the pandemic truly global scale and

for the massive anticipated use of new communication and technologies, with repercussions on the daily lifestyle will be relevant and permanent. The Covid/19 crisis clearly put in evidence

the possible reduction of daily commuting, the availability of internet learning and home working, the efficiency of e-shopping and many other issues that can determine radical changes in transport, mobility and logistics, with a visible reduction, just in few weeks, of atmospheric and other pollutions in the big urban concentrations. Then the reduction, for a time still not foreseeable, of the national GDP of most countries worldwide, accompanied by a sensible reduction of incomes for large categories of population, will determine the consequent cut in many consumptions so far considered essential, which proved be superfluous. This "new normality" and the accelerated epochal change based on the widespread use of technologies in all sectors, can favor a desirable modification of the current global financial and economic rules, that are still based on 70 years old rules, established in a profoundly different context by the western countries. Accepting then that urbanization process is now unavoidable, as weak or late previous opposition failed, still measures to mitigate the ongoing trend must be evaluated and implemented as soon as possible to reduce negative effects on pollution, environment, land-use and natural resources shortages, with actions oriented to revamp the rural territories and retain or resettle inhabitants..

The negative impacts of large urban concentrations on climate change are confirmed dramatic and put in evidence by the pandemic lockdown that reduced drastically all the anthropic causes. Increasing urbanization affects the entire social and economic context for many inhabitants with the increase in the size of the cities where integration, social cohesion and the quality of daily and overall life are worsening. To this must be added all the sanitary and health disadvantages that the pandemic has brought to light, with greatest contagion in overcrowded metropolitan areas, due to the inevitable concentrations in the transport networks, shopping centers, working and service spaces all over .

So this exceptional situation represents an opportunity for a profound reflection, that can no longer be postponed, on current wild urbanization processes and settlement models that can be reviewed by the widespread use of renewable energies with the objective of reducing anthropogenic impacts both on environment and on climate change. The revaluation of traditional typologies, with spaces and orientations strictly related to the surrounding context, the use of natural and recyclable materials and environmentally friendly construction technologies are certainly an additional element to recover the lost balance in reasonable time.

This process will also positively reflect on the entire patrimony and heritage, both tangible and intangible, by re-evaluating and protecting monuments, urban spaces, natural landscapes, threatened by unbridled development, as well as recovering the intangible values and traditions still maintained by the inhabitants of the smaller towns.

The achievement of the SDGs of the 2030 Agenda and in particular, as regards the urban areas

of the objective n ° 14, is possible with a vast initiative shared globally and ICOMOS with all its scientific committees, which embrace multiple sectors involved, can consciously assume a leading role in raising awareness, information and coordination, and promoting a global campaign together with UN-HABITAT and other international agencies.

Arch. Paolo Motta
EURISPES-BRICS Laboratory member
ICOMOS Italy member
CIVVIH Scientific Committee member
ICTC Scientific Committee member
ICOMOS- SDG Working Group member

Biography

Architect specialized in Territorial and Town Planning, in the last fifteen years focused on Sustainable Urban and Integrated Development strategies and policies, with an holistic approach not only technical, but also with economic and financial evaluation, plus social and environmental issues. Acquired international experience for analyzing and assessing the multicultural contexts and issues. In the last years increased attention to historic patrimony, cultural heritage, sustainable tourism issues and identification of related new operational operational tools.

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