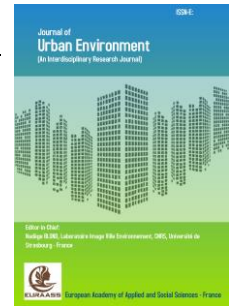
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Editorial Note

Transforming Urban Systems

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Global trends show that the world's population is growing with 250,000 new human beings per day, or 100 million a year. This significant growth of the population, coupled with a phenomenon of globalization and an increase in the average standard of living of individuals, first of all poses the problem of energy resources. In fact, major part of this energy, almost 96%, is produced from fossil fuels (petrol, natural gas, coal). The use of fossil fuels also poses environmental problems (pollution of water, soil, air, and all that results from it - loss of biodiversity, reduction of vital resources, etc.). Its combustion notably releases gaseous and particulate species into the atmosphere that are highly harmful to human health and ecosystems, and greenhouse gases (GHGs) that warm the climate on a global scale. The consequences of air pollution on health and associated costs are well identified.

The possible consequences of climate change on our societies living in urban areas in form of development of urban heat island (UHIs) which make the cities warmer than its surrounding non-urban areas are also clearly identified. Without adaptive measures or enhancing the resilience capabilities, it further pushes us towards a very uncertain future. Other observations made on different areas across the world already show very significant impacts on the water resources (strong droughts), on the crops (lower yields) and thus on the basic food of our food chain.

Another observation is that the population is concentrating more and more in the cities. Since 2007, the population of cities represents more than 50% of the world population. By 2030, this percentage is expected to exceed to 60%. Today almost 75% of total global energy is consumed in urban areas today. Favored by the dense presence of polluting activities and urban objects, very localized peaks of concentrations of a large number of harmful pollutants such as particles, nitrogen oxides and certain hydrocarbons are observed in urban atmosphere. If the reduction strategies of air pollution are not associated with significant growing urban population, it will pose even more health problems.

Urbanization, through the alteration of natural land into artificial surfaces, the horizontal and vertical extension of buildings, the activities they generate, and the amount and type of energy they consume, also raises the problem of local warming of cities, the urban heat island, which tends to make cities populations even more vulnerable to climate change and air pollution. Some advantages of these urbanized spaces are to exploit: they concentrate the activities, well developed thus they can limit the needs of energy and resources through sharing; urban heat island reduces winter energy needs in the coldest countries, and increases the atmospheric mix of air pollution.

Awareness of the environmental problems created by our lifestyles associated with their direct and indirect costs (present and future) is progressively increasing and regularly drives the policies to take measures to reduce the impacts of human activities and ensure the durable development of our societies. But what is a sustainable or durable future? How to qualify sustainability? Which indicators can be used? All of these questions need to be addressed quickly in order to evaluate the actions that will be taken.

In transforming phase of the cities with use of modified form of buildings' materials, space management, modes of eco mobility, alternative uses

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of energy etc., the research (public and private) is currently strongly mobilized to ensure technological innovation in all sectors (building, materials, mobility, informatics, etc.), which will enable us to reduce our impacts. The actors involved in spatial planning must also accelerate the integration of energy and atmospheric issues in their development projects and in particular those affecting the cities (production and distribution of energy, mobility, buildings, agriculture, waste, tourism, economic development, etc.). They must ensure that all projects lead to a drastic reduction in our energy consumption, to a better air quality that respects the health of ecosystems, to a climate protection and its effects, short and long term. Thus, the problems of the city become more and more multidisciplinary.

Today the cities are a place of all issues since they welcome, and will continue to host most of the population for a long time. However, tools and knowledge in urban areas have yet to be developed, as the urban environment is complex because of its heterogeneity, and its dynamics of evolution are strongly influenced by localized sectoral policies that are not always consistent.

To discuss the major issues of urban areas, an interdisciplinary conference titled “European International Conference on Transforming Urban Systems (EICTUS-2019)” was organized by Zone Atelier Environnementale Urbaine (ZAEU) from 26 – 28 June 2019 at Université de Strasbourg. The major themes of this conference were air, climate (risks, resilience, vulnerability, adaptation), energy; mobility; adaptation to climate change; urban governance, economy; public initiatives, planning, society and environment and associated risks; health and social inequalities; land cover landuse change, urban sprawl, urban forms; urban agriculture, nature in cities; sustainable urbanism and architecture; urban water and sustainability; and Smart, sustainable buildings and housing. Almost 160 abstracts were received and 108 people from 28 countries presented their work on 20 different topics as mentioned below.

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