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CURRENT ASPECTS REGARDING THE URBANIZATION, ITS INFLUENCE ON GLOBAL WARMING AND IMPORTANCE OF GREEN ROOFS IN LARGE URBAN AREAS

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Abstract: *This paper examines one of the fundamental characteristics of the contemporary era, namely the explosive growth of the population of our planet, with its negative consequences on the process of global warming. It points out that the Earth's population has exceeded probail 7 billion inhabitants and rhythms huge increase in its countries developing means deforestation accelerated forest areas for agricultural land, especially a massive urbanization and less controlled, negatively impact the living conditions of the inhabitants of large urban areas. A solution to reduce the negative environmental crisis forced urbanization of cities is to maintain and develop green spaces, including the establishment of green roofs, or greenhouses on rooftops as advocates in this work.*
Keywords*: explosive population growth, uncontrolled urbanization, global warming, green roofs, greenhouses on rooftops*

1. INTRODUCTION

The current generation is witnessing and participating in the greatest rate of increase in the population of our planet, which makes the over 7 billion people who currently inhabits be much higher compared to those recorded in any other period in history known these. Living needs of this population are found in various forms in negative and global warming and the rapid concentration and hard to control it in huge urban agglomerations has major consequences on the conditions under which residents must live respective cities. For example, in the next 20 years about 350 million people of China will migrate from rural areas to big cities, which will lead to at least 20 new megacities with over 20 million inhabitants each. Faftul must take into account that China is a positive example in this respect, since the halt in the last 25 years population growth, record high growth rates, and leading the country's political system allows sustainable development of cities. Not the same assessment can be made at most countries in the developing world, on account of which is now increasing world population, the urbanization is forced and chaotic, forcing part of the population to migrate to other countries in the hope of a better life. A special contemporary initiative, started in the most developed countries of Europe, North America and East Asia is about ensuring every citizen in an area of urban green space, considered vital to their health. Because space is limited on the ground, it was carried virtually prous and greening roofs of buildings in these conurbations, including building greenhouses for vegetables and flowers or green spaces for relaxation in these roofs. This action was initially regarded with confidence, it is currently only supported by the majority of the urban population in many countries.

2. MATERIALS AND METHOD

2.1. Urbanization seen as a result of population growth and living standards

Urbanisation is defined as a "process of transformation of social and professional structure, a restructuring of forms of rural life and the old urban forms after new models" [8]. Also, by means urbanization and urban population growth over time relative to the population of rural areas. In principle, the urban area is the area where they held activities unrelated to agriculture. In most countries and cities have privileged legal status associated with specific administrative forms.

Urbanization is regarded as a factor of social progress, in most situations this offering superior materials socio-rural areas. However, in terms of influence on the process of global warming, urbanization accelerated in the last three decades and included the negative factors. [14]

Urbanization is now a trend accelerated growth as it brings a host of facilities to conduct more comfortable life through better access and quality of population to public services (systems of water supply, sewerage, sewage treatment, waste management systems etc.).

The city is but an ecosystem specific [8], a complex of natural and artificial that provides a range of facilities to conduct more comfortable life, but that exposes the population to various risks and discomforts, depending on the organization and use their. Most often in urban systems, artificial factors extend the natural expense. Development of human settlements is significantly correlated with changes in the structure of the local economy, the population structure and culture. But it must take into account the limited availability of resources (human, natural and financial locally available), aiming at their efficient allocation and balanced public authorities. They should encourage community and individual civic responsibility, partnership in implementing local development projects, private initiatives so that the positive effects of urbanization to be maximized, and to minimize the negative [9].

Urbanization rate refers to the percentage annual increase in population in urban areas of the country, being inversely proportional to urbanization normal (eg. Africa, South America, Southeast Asia). China alone is expected to move from rural to urban areas in the next 20 years 350 million. Also in this country during the period 25-30 cities will exceed 20 million inhabitants each, with unpredictable consequences for the climate and all aspects of the natural environment in these areas [20].

The main source of population growth in cities consider the following:

• rural-urban migration, which represents the major source of population growth of cities, especially in developing countries. This migration is influenced by both the push factors (which forces households to move from rural to urban) and attracting factors (mirage of wealth, higher civilization etc.);

• population growth rate, which is higher in cities than in rural areas, because poorer social features encourage people to participate in a larger natural increase;

• commuter population, working during the day in cities, housing it self being in the suburbs or satellite towns. In fact, they form metropolitan areas not covered by any normal characteristics of cities, nor those of villages.

The implications are multiple urban population growth, standing out mainly [7]:

❖ pressure on urban sectors (housing, infrastructure, economy, environment, education, health) due to serve the needs of the rapidly growing population;

❖ increasing urban non balanced in the sense that there is a growing urban excess in one area of a country and the emergence mega cities (eg. Banngkok is 30 times larger than the second largest city in Thailand and Lima include about 1/3 of Peru's population). Mega cities are specific to developing countries, but are also found in developed areas of the world. The most populous city in 2015 was Tokyo, capital of Japan, with 36.5 million inhabitants, the figure is relative, because the city's population increases every year at least 0.5 million. A similar growth rate is also reflected in Hong Kong, while in mainland China and South East Asia growth rates and large urban areas are higher;

❖ economic growth is directly proportional to the increase rate of urbanization, with the exception of most states in Africa and some South Asian.

50s number of people in cities has doubled every 20 years [9], and their percentage in the population of the world increased on average by 7%. Today it is considered that the number of people in cities is higher than the rural population (3.586 versus 3.304 billion). It should be noted that half the Earth's population is in six countries: China, India, USA, Russia, Brazil and Japan.

Picture urbanization is different from country to country [21]. On the one hand the world 2/5 of countries still majority rural population (Africa, Asia, Latin America), and on the other, in 52 countries the population of cities exceeds 75% of the total population (Europe, North America, East Asia). Today, however, the huge increase in urban population occurs in developing countries, particularly in Asia region (over 55%), which largely determines the character of the contemporary world urbanization less controlled.

One of the obvious characteristics of modern urbanization is rapid growth in the number of mega cities (over 8 million) and their population concentration. In the mid twentieth century 7th each country have a city with over 1

million inhabitants, and currently has about 375 Earth agglomerations with population over 1 million, where there are about 37.6% of city dwellers and 17. 8% of the world [23].
In the process of formation of cities in developing countries' position is strengthened continuously. If the last half century urban population in developed countries has doubled in the developing countries townspeople number increased about six times larger cities and the population was increased tenfold. More than a third of cities with more than 1 million people are in eastern, southwestern and central part of Asia, and another third is in Europe and North America. In 1975 there were three cities: Mexico City, New York and Tokyo. Today there are 21. For the first time in history the urban population surpassed the rural one. If things go the same way, in 2050 70% of the world population will live in a metropolis.
In the last half century list of the top 30 cities of the world was changed [22]. If in 1950 two thirds of the list was occupied cities in Europe and North America, in 1990 only a third of the list comes from these regions. Cities such as Milan, Berlin, Philadelphia, St. Petersburg, Detroit, Napoli, Manchester, Birmingham, Frankfurt, Boston and Hamburg disappeared from the list of cities forehead, which is refreshed cities such as Shanghai, Seoul, Jakarta, Delhi, Beijing, Manila , Karachi, Lagos, Istanbul, Lima, Tehran, Bangkok, Dhaka., Sao Paolo, Rio de Janeiro, Hong Kong etc. Forecasts of future development show that only some cities will remain very high on the list, namely Tokyo, New York, Los Angeles, Paris, Moscow, Osaka, Mexico City and London, the other will be replaced by mega cities in China India, South America and Africa.
Evolution and domination of urban lifestyle is not a simple accident. [17] Cities provide greater opportunities for business, creative activities and wealth. Another factor that influenced the development of cities was that here education, health and social services is a higher standard than in rural areas (it is the developing countries).
In the world there are countries with urbanization rate (number of population living in urban centers compared to the total population) of 100% (Singapore) or 90% (Australia, Belgium, Israel, Kuwait, Lebanon, Canada, etc.). The most obvious line performance on economic development and eliminate the gap between urban and rural regions are evident in countries with high urbanization.
Urbanization to these blessings must not overlook its negative effect on environmental degradation and global warming. Concrete and glass have replaced huge green areas, highways annually swallow million hectares of farmland and smog sometimes force people to wear masks to filter respirators. It notes that forced and chaotic urbanization have also caused damage to the environment that are huge expenses for their removal or even impossible for the current generation.
Note that the only ones guilty of this situation are the inhabitants of our planet, with their huge propagation pace with growing needs and physical and social utility.

2.2. Concerns about the negative effects of urbanization forced on the process of global warming and large urban population

Specialists of global warming have already set changes [18], [5] that will move the planet in the next hundred years. These changes will be felt most in crowded urban areas. Will feel a lack of natural RESOURCES, a decrease of water resources, food, health will be put to hardships, there will be many cases of respiratory, allergy, cardiovascular and gastrointestinal diseases
How countries plan, build and manage their cities determine the consequences of global efforts to achieve a sustainable future. A roundtable discussion of the UN along with experts in civil society ended by asking the international community to take action regarding their cities, so that the impact of rapid urbanization be managed better and contribute to sustainable development [3].
"We need a platform of intense debate on the challenges we encounter" warns Joan Clos, Executive Director of "UN-Habitat", describing its purpose "City that we need", a document that outlines the vision of a city of the XXI century which tends to draw attention to the links between urbanization and major global challenges such as global warming.
Launching the document at a press conference, Mr Clos i joined Nicholas You, President of the Committee of Directors of the Campaign "The World Urban", Eugenie Birch, co-director of "Urban Research Institute Penn" and Jocking Arputham, president and founder of "Slum Dwellers International." The city we need is a booklet with nine principles that can be implemented to achieve sustainable urban development, being conceived, designed and written by members of the "World Urban Campaign".
"World Urban Campaign" is a platform that brings together over 70 institutions and networks coordinated by UN Habitat and was created in 2010 in order to define the direction in which urban development should focus in the coming decades.

The representative of "World Urban Campaign," emphasizes the fact that the next 40 years the urban population will double. "We will build more unsettled than I did at the beginning of human history. If we do this properly, we all hope to achieve sustainable development for each individual. If we fail, there will be major problems. We have the chance to correct future problems of urbanization, and this opportunity is in the next 30 years; this is why we must begin to act now. "

Excessive heat or fever abnormal specific, global warming process, some risks to the health of the population in urban areas, where temperatures are higher [24]. It confirmed that high temperatures increase the risk of death in people sensitive to the effects of heat stress. The greatest vulnerability presents people aged over 65 years (retired). Also, the heat can cause real disasters, promoting or maintaining forest fires produce human negligence. Outside the destruction of large areas of forests (as factors stabilizing the climate and air composition), these fires endanger the lives of residents in those areas, and thick clouds of smoke hinder the normal air transport [19].

The greenhouse effect is manifested more intensely in large urban areas, where buildings with many floors are not only permanent sources of greenhouse gas emissions pronounced, but also additional sources of heat coming from the consumption energeticce huge, concentrated in volumes arranged vertical ,, which provides the connection to the ground is no longer any heat exchange. Total alienation of the individual lost in an urban multi-million exposes it to numerous mental illness, with negative consequences on yield intellectually and even physically. The existence of green areas in the landscape dominated by concrete and style should not be seen as a factor that contributes to reducing carbon dioxide content of the atmosphere of large urban areas, but also as a reason for their residents mental relaxation. The future use of public transport with electric drive and drastically limiting individual car transport with internal combustion engines, tightening laws regarding the location of buildings, increasing concerns about its maintenance and development space and cleanliness etc. See will help keep in the cities of the future living conditions as close to normal, in terms of environmental quality.

Urbanization is regarded as a factor of social progress, in most situations this offering superior materials socio-rural areas. However, in terms of influence on the process of global warming, urbanization accelerated in the last three decades included the negative factors [15]. One of solutions that are currently calling for reducing negative effects of uncontrolled urbanization of the population of large urban agglomerations is the greening of cities, including plant growing on roofs and terraces of buildings.

2.3. Growing plants on roofs and terraces of buildings

An important component of the concept of "green city" refers to the cultivation of plants on the roofs and balconies of buildings in major cities to improve air quality and to give a more human aspect of these cities [4]. Among the concerns that arouses a growing interest is the creation of green roofs or buildings that can be grown not only pitch, but also flowers, vegetables or bushes, developing true even organic greenhouses. By growing flowers or vegetables on the roofs and terraces of buildings nature plays a part of the area that was deprived by the construction of these buildings, complement and highlight their architecture and large urban areas gives a little friendlier. A suggestive name for buildings "green" is that of "vertical farm" (vertical farm) [1] or "vegetable roof" (vegetated roof) [2]. In fact, this aspect are dedicated a lot of research and achievements that will further highlight. The history of the evolution of ideas on green roofs (VR) and putting them into practice sees as promoter German landscape architect Hans Luz, who performed in the 1960s ... 1970 first roofing plants that were cultivated in the warm seasons. The same ideas are promoted Hohenhaim period at the University of Stuttgart, Germany, the oldest university in the world horticultural profile. In 1975 it established the German Society for Research, Development and Constructions of Landscape FLL (non profit) and in the UK Professionals Association founded in 1990 in FBB-Green Roofs. Also in 1997 it set up the European Federation of Green Roofs-EFB, and in the same year established the Canada Green Roofs for Health Cities Organization [2]. In 1999 in the USA -Atlanta www.greenroofs.com launches information portal, consulted and continuously filled by those who want to adhere to the concept of green city by building green roofs. Administration initiative deserves detained and Linz in Austria, which since 1983 gives financial incentives to residents who grow plants on the roofs of buildings. In 1990 Swiss promotes an law witch promoting a green roof.

Toronto is the first city in the world that has approved legislation that obliges new construction to have green roofs, in other words, environmentally friendly. Eco-roofs program was launched by the city authorities who took this measure is responsive to signals of alarm on global warming dynamics [27].

German law in this area are addressed first appearance precise that promote the construction of green roofs, as elements of nature protection at the federal level. It shall provide building codes in buildings with roofs. Also, integration into urban landscape etc. In the spirit of this legislation since 1980 in Stuttgart is implementing a program

of urban renewal, and in 1988 in Berlin was imposed as if building occupies the green area is provided with a green roof, whose surface to play some equivalent nature. About 43% of German cities offer significant incentives to build buildings that feature green roofs.

In Romania the Environment Ministry has launched a program called Casa Verde Plus which, among other aspects with ecological be funded and terraces green, which can be arranged gardens or orchards [25]. A green terrace of 40 m^2 would cost about 20.000 lei. The Ministry of Environment did a program guide, which states that the maximum amount that will be given to each beneficiary. Then everything will start and Casa Verde Clasic program, which will be funded solar panels and environmentally friendly heating systems.

The walls and green roof is a new concept in Romania, joined them into their gardens and vertical. A company that deals with services landscaping gardens and houses, working in landscaping, conducted a case study thinking of putting on the role of a project aimed at putting blocks and buildings with walls and green roofs [12] . It should be noted that all capital is affected by the pollution, but there are areas where traffic is really intense, for example Militari district, which is why these areas represent a higher point of interest to those who came up with the idea of using green roofs on buildings or blocks. According to the study, the benefits if this project would be put on the role evidenced by the differences between current and future Militari district. In the current Militari district is found : heavy traffic, influenced by the presence of the A1 motorway, which is why it is intense pollution (dust 92-110 g / m^2 annually; 4 t lead into the atmosphere every day); very vulnerable in terms of noise (65 dB average noise -limit permitted is 70 dB); parks and planted areas with significant (except Polytechnic campus) and 14 m^2 of green space/capita. Militari district in the future, after project implementation is estimated as follows: even if traffic will not expedite, even the presence of green roofs and living walls will significantly reduce pollution and purify the air; the remaining dust will be dust 75.5-93.5 g/m^2 per year (compared to 92-110 g/m^2); average noise pollution would reach 55 dB; green space/capita will be about 24 m^2.O relatively optimistic prediction on this issue is presented in Figure 1, the roofs of existing residential buildings, and other similar buildings could be "green". Financial effort initially will be compesat the many advantages specified above [6].

Fig. 1. Green roofs of blocks of Bucharest-project [6]

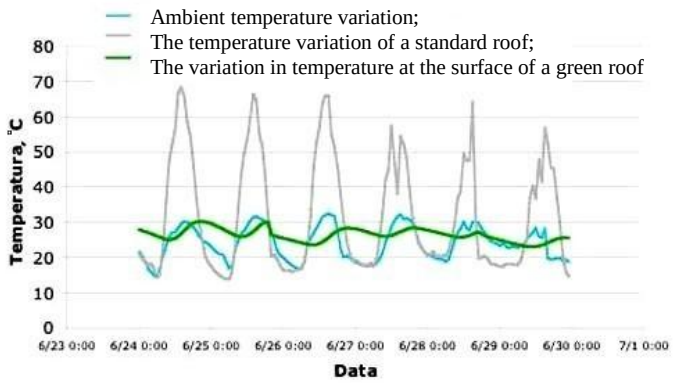

Fig. 2. The variation of the temperature of the surface of a roof as compared with that of a standard of a green roof USA [16]

Due to the major advantages of green roofs bring residents of urban centers and beyond, people are becoming increasingly interested in their presence in everyday life.

According to research conducted by Penn State Center for Green Roof Research of Pennsylvania State University in USA USA [16], a roof mounting ecological advantages are obvious, as recorded in Figure.2.

A solution used more frequently lately is the location on the roofs of old buildings and new spaces where grown flowers, vegetables or ornamental shrubs, that aspect of environment protection also have an economic effect or relaxation tenants of those buildings. Due to the emergence of a multitude of high-performing materials, there is the possibility of creating cultures directly into the soil surface disposed on the roof allocated. In Figure 3 is an example of planning for cultivation of small rooftop St. Luke's International Hospital in Akashi, Tokyo (Photo: Ian Muttoo on Flick) [11],, and Figure 4 shows a roof of 120 m2 in Shaoxing, Zhejiang Province, China, which was successfully cultivated rice [10].

Fig. 3. The roof ecological St. Luke's International Hospital, Akashi, Japan [11]

Fig. 4. Cultivation of rice on a roof Shaoxing, Zhejiang Province, China [10]

It should also be chosen plants whose dynamics to match such a project to be viable long time and that can be easily replaced by similar [28].

Worldwide have imagined many futuristic projects, a significant example is shown in Figure 5. [13].

Fig. 5: Project futuristic building "eco" [13].

Fig. 6. Green roof of the airport in Amsterdam [26].

Travellers can admire the green roof of the airport in Amsterdam (Netherlands), where landscape architects have managed to create a useful and pleasant ambient environment (Figure 6) [26].

It follows from the results that the establishment of a green roof (ecological) has a number of advantages, among which we can mention:

• retain rainwater as it prevents water run-off by 75%;

• reducing energy consumption in space under roof, both during winter and summer, acting as a thermal insulator true;

• waterproofing protection from ultraviolet radiation, and freeze-thaw cycles, thus extending the life;

• improving air quality in urban areas, because the plants filter the air and absorb carbon dioxide;

• using green roofs in urban agriculture projects can create a local food system for the community;

• aesthetic improvements and obtain spaces with recreational destinations etc.

Note that achieving a green roof is a very complex action. As remarked Mary Ann Uhlmann in Chapter 5 of [2], such a project should attend: botanists; horticulturists specializing in the environment (for plant selection and maintenance), APLI of horticulture and horticultural academic research; agronomists knowledge of interactions between plants and soil and of agricultural technologies; specialists in soil science; geologists; environmentalists; landscape architects; engineers specialized in civil engineering, thermal and hydro insulation, irrigation and climate control etc.

In Tokyo, the largest metropolis in the world, green spaces are scarce and massive use of air conditioners during the summer heatwave worsens. For several years, all new skyscraper in Tokyo must have one mandatory rooftop garden, but the requirement is difficult to meet because of earthquake prevention regulations limit the maximum permissible load for roofs and walls.

The Japanese company Suntory Holdings Limited invented an artificial soil type, more porous, more robust and easier than the earth, which can be applied on the roofs and walls of buildings to plant vegetation and temperature in major cities such refresh.
Green roofs can reduce heating costs or air conditioning in homes with up to 26%, ensuring optimum thermal insulation for the entire year, according to studies conducted by the manufacturer of additives and building materials Sika Romania. Another advantage of this type of roofing is the ability of plants making up the atmosphere to absorb pollution and to prevent excessive emissions of greenhouse gases. At present, the degree of promotion and implementation of green roofs is growing worldwide. Currently, in Germany, 10% of all roofs are environmentally friendly and in Switzerland legislative rules require that any newly built covering an area greater than 500 m2 to be achieved using such a system [10].
Interest and the outcome of the 2016 contest organized by the City of Paris on the rehabilitation of a total of 22 heritage buildings with over 300 years old. Of the 810 participating teams of architects have won the competition 22 teams, which included elements in the designs of "greening" of buildings in question.

3. CONCLUSIONS

1. An important contribution to increased global warming has explosive world population growth and urbanization out of control in some areas, of which require increasing energy consumption, helping to accelerate the growth rate of emissions of greenhouse gases, namely global warming. The fundamental feature of world population in the postwar period is considerable acceleration in the growth rate, whose value reached 2% annually. This process has been called plastic explosive demographic. Mankind have had thousands of years to reach the first billion (around anului1850), the second billion was achieved in about 80 years (in 1930), the third in about 30 years (1960) fourth in 1975, while in 2005 the population to reach the sixth billion and currently about to reach seven billion inhabitants.
2. According to the census of 2011, Romania had a population of 20.121641 people present, temporarily left or left for a longer period, compared to 21.6 million recorded in the 2002 census and it is expected that in the coming years to register a slow decline in population due to negative natural growth. 1.5 million inhabitants difference between 2002 and 2011 is less pronounced than in the 1992-2002 when it was about 1.2 million.
3. Urbanization is defined as a "process of transformation of social and professional structure, a restructuring of forms of rural life and the old urban forms after new models." Also, by means urbanization and urban population growth over time relative to the population of rural areas. In principle, the urban area is the area where they held activities unrelated to agriculture. In most countries and cities have privileged legal status associated with specific administrative forms. Urbanization is regarded as a factor of social progress, in most situations this offering superior materials socio-rural areas. However, in terms of influence on the process of global warming, urbanization accelerated in recent decades and included the negative factors.
4. One of the obvious characteristics of modern urbanization is rapid growth in the number of megacities (over 8 million) and their population concentration. In the mid twentieth century 7th each country have a city with over 1 million inhabitants, and currently has about 375 Earth agglomerations with population over 1 million, where there are about 37.6% of city dwellers and 17 8% of the world population. .In The process of formation of cities in developing countries' position is strengthened continuously .. In 1975 there were three cities: Mexico City, New York and Tokyo. Today there are 21. For the first time in history the urban population surpassed the rural one. If things go so in 2050 about 70% of the world population will live in a metropolis.
5. Compared to the many blessings of urbanization should not overlook its negative effect on environmental degradation and global warming. Concrete and glass have replaced huge green areas, highways annually swallow million hectares of farmland and smog sometimes force people to wear masks to filter respirators. It notes that forced and chaotic urbanization have also caused damage to the environment that are huge expenses for their removal or even impossible for the current generation.
6. An important component of the concept of "green city" refers to the cultivation of plants on the roofs and balconies of buildings in major cities to improve air quality and to give a more human aspect of these cities. Among the concerns that arouses a growing interest is the creation of green roofs or buildings that can be grown not only pitch, but also flowers, vegetables or bushes, developing true even organic greenhouses.
7. The green roofs can reduce heating costs or air conditioning in homes with up to 26%, ensuring optimum thermal insulation for the entire year. Another advantage of this type of roofing is the ability of plants making up the

atmosphere to absorb pollution and to prevent excessive emissions of greenhouse gases. Currently, the degree of promotion and implementation of green roofs is growing worldwide.

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