

## GLOBAL CITIES AND THEIR ROLE IN SUSTAINABLE DEVELOPMENT OF THE WORLD ECONOMY

*The article dwells upon effects of rapid economic growth of the integrated world causing the necessity of investigation and practical use of sustainable development concept. Much attention is paid to defining the role of world cities in development of national and world economy, which represent certain chances and risks for a globalized society and are a factor of transition to new qualitative economic development setting the balance between satisfaction of modern needs and protection of future societies interests, including their need in safe and healthy environment. The article reviews classification of huge cities according to the impact they have on socio-economic development and determines criteria of these cities division into global cities and mega-cities.*

**Key words:** *sustainable development, globalization, global city, mega-city, advanced producers services networks.*

The main task of the article is to analyze the position of big agglomerations in the global economy and their on the sustainable development of society. To achieve this task it's vital to determine the concept of sustainable development, to define global cities as basic elements of qualitative economic growth, to find out factors and criteria of world cities classification, to investigate the reasons leading to existing of two major contradictory groups of big cities and to describe tendencies of global city-economy development.

The concept of sustainable development shows a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The term was used by the Brundtland Commission which defined sustainable development as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs [5]. Thus it could be said that sustainable development is a qualitative aspect of socio-economic development of human society, the goal which should be achieved in a nearest future as well as the way and pattern (combining social, ecological and economic sphere of life) which should be followed by economic agents of the world economy.

While much discussion and effort has gone into sustainability indicators, none of the resulting systems clearly tells whether the society is sustainable. At best, they are showing that mankind is heading in the wrong direction, or that current activities are not sustainable. More often, they simply draw attention to the existence of problems, doing little to tell the origin of those problems and nothing to tell how to solve them. So it can be seen that sustainability is a generalized and normative goal which can refer to almost anything hence sustainable development can be a means of achieving many different things.

One of the possible interpretations of the goal of sustainability is to investigate and predict productive impacts of economic and bio-physical environmental and scientific and information interaction. One of social outcomes representing such kind of interaction and making it possible could be viewed as urbanization which leads to existence and growing significance of cities in the world economy.

It has long been predicted that improvements in transportation and communication technologies, in term of both cost and quality, will lead to urban concentration. Cities not only do not disappear, they are becoming larger and more important.

It could be mentioned—that the city belongs to the 21st century more than the nation. Now, for the first time in history, more than half of the world's population live in urban areas. As cities increasingly play in a global arena, they are being driven to develop sustainable competitiveness strategies and—with knowledge and productivity as key factors of 21st-century competitiveness—high-speed networks and the technologies that revolve around them have become crucial for attracting and retaining citizens and businesses.

The beginning of the twenty first century has marked a key transition in world development. In 2008, 3.3 billion people (more than half the global population) became an urban population. A total of 58 cities in the world are expected to have a population size over five million by 2015. Not only do United Nations forecasts indicate that five billion people (two-thirds of the global population) will be urban by 2030 but, it should be emphasized, that the most dramatic year-on-year increase in urbanization involves some of the world's poorest cities [3].

Very large cities with a population over 10 million have generally been described as 'mega-cities' in the policy and academic literature but cities of this size actually include different kinds of cities. Their estimated size is dependent on how the boundaries of a metropolitan area are defined, which is a matter of academic debate, and their social, economic, political and spatial constitution differs considerably. Developed world cities such as New York, London and Tokyo are widely referred to as mega-cities alongside cities in the developing world such as Guangzhou, Mexico City and Mumbai. But these examples illustrate very different development processes occurring in different cities, and different reasons for population growth including natural increase. In the developing world, a present cause of urbanization remains major intra-state, rural-urban migration, whereas in the developed world, the causes are more diverse but often include transnational migration. In both cases however, cities are now the present focus of production and employment which are socially essential, and this is the principal driver of ongoing urbanization.

Different terms could be used to show the role of the city in national and world economy, its economic-political-social and environmental influence and development, depending on the aspect that is emphasized. Thus, such notions as mega-city, world city, global city, smart city, primate city or alpha-city could be met in scientific literature. Some of them are rather disputable terms which should be regarded below.

Mark Jefferson postulated the law of the primate city, which is the leading city in its country or region, disproportionately larger than any others in the urban hierarchy. He defines a primate city as being «at least twice as large as the next largest city and more than twice as significant» [1, p. 59]. A primate city is number one in its country in most aspects, like politics, economy, media, culture and universities. Not all countries have primate cities, but in those that do, the rest of the country depends on it cultural, economic, political, and major transportation needs. On the other hand the primate city depends on the rest of the country as paying consumers of the cultural, economic, political and other services produced in the city.

The presence of a primate city in a country may indicate an imbalance in development. However, the urban structure is not directly dependent on a country's level of economic development. For example Paris (9.6 million) is definitely the focus of France while Marseilles has a population of 1.3 million. Similarly, the United Kingdom has London as its primate city (7 million) while the second largest city, Birmingham, which is home to a mere one million people. China, Canada, Australia, and Brazil are examples of non-primate-city countries. Utilizing the metropolitan area population of urban areas in the United States, it could be said that the U.S. lacks a true primate city. With the New York City metropolitan area population at

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approximately 21 million, second ranked Los Angeles at 16 million, and even third ranked Chicago at 9 million, America lacks a primate city.

Ecumenopolis (a city made of the whole world) is a word invented in 1967 by the Greek city planner Constantinos Doxiadis to represent the idea that in the future urban areas and megalopolises would eventually fuse and there would be a single continuous worldwide city as a progression from the current urbanization and population growth trends. Before the word ecumenopolis had been coined, the American religious leader Thomas Lake Harris (1823–1906) mentioned city-planets in his verses, and science fiction author Isaac Asimov uses the city-planet Trantor as the setting of some of his novels [1, p. 38].

Smart cities can be identified (and ranked) along six main axes or dimensions. These axes are: a smart economy; smart mobility; a smart environment; smart people; smart living; and, finally, smart governance. These six axes connect with traditional regional and neoclassical theories of urban growth and development. In particular, the axes are based – respectively – on theories of regional competitiveness, transport and ICT economics, natural resources, human and social capital, quality of life, and participation of citizens in the governance of cities.

A city can be defined as ‘smart’ when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance.

Urban performance currently depends not only on the city's endowment of hard infrastructure (physical capital), but also, and increasingly so, on the availability and quality of knowledge communication and social infrastructure (intellectual and social capital). The latter form of capital is decisive for urban competitiveness. It is against this background that the concept of the «smart city» has been introduced as a strategic device to encompass modern urban production factors in a common framework and to highlight the growing importance of Information and Communication Technologies (ICTs), social and environmental capital in profiling the competitiveness of cities. The significance of these two assets – social and environmental capital – itself goes a long way to distinguish smart cities from their more technology-laden counterparts, drawing a clear line between them and what goes under the name of either digital or intelligent cities.

The spread of information and communication technologies (ICT) has made the role of cities even more powerful as they—much more quickly than towns or rural areas—reach the critical mass required to achieve the network effects that underpin technology adoption. Cities can therefore not only become more competitive through the advanced use of ICT, but they also serve as anchors for national competitiveness strategies that incorporate the power of broadband networks.

One concept which measures the world's largest cities is that of the metropolitan area (table 1), which is based on the concept of a labor market area and is typically defined as an employment core (an area with a high density of available jobs) and the surrounding areas that have strong commuting ties to the core. There is currently no generally accepted, globally consistent definition of exactly what constitutes a metropolitan area, thus making comparisons between cities in different countries especially difficult.

Although there is a consensus upon leading world cities, the criteria upon which a classification is made can affect which other cities are included. The criteria for identification tend either to be based on a «yardstick value» («e.g., if the producer-service sector is the largest sector, then city is a world city») or on an «imminent determination» («if the producer-service sector of city X is greater than the producer-service sector of N other cities, then city X is a world city»).

The Globalization and World Cities research group acknowledged several new indicators while continuing to rank city economics more heavily than political or

Table 1

## Basic characteristics of sample cities

Rank	Population of city	Population of metropolitan area	Metro systems by annual passenger ridership	Number of billionaires (U.S. dollars)	Gross Metropolitan Product at total PPPs
1	Mumbai	Tokyo	Tokyo	New York City	Tokyo
2	Shanghai	Seoul	Moscow	London	New York City
3	Karachi	Mexico City	Seoul	Moscow	Los Angeles
4	Delhi	New York City	New York City	Hong Kong	Chicago
5	Istanbul	Mumbai	Paris	Los Angeles	Paris
6	Sro Paulo	Jakarta	Beijing	Dallas	London
7	Moscow	Sro Paulo	Mexico City	Istanbul	Osaka
8	Seoul	Delhi	Hong Kong	San Francisco	Mexico City
9	Beijing	Osaka	Shanghai	Chicago, Mumbai, Sro Paulo, Tokyo	Philadelphia
10	Mexico City	Shanghai	London	n/a	Washington, D.C.

cultural factors. Cities are sorted into categories of «Alpha» world cities (with four sub-categories), «Beta» world cities (three sub-categories), «Gamma» world cities (three sub-categories), and additional cities with «High sufficiency» or «Sufficiency» world city presence.

Cities are assessed in terms of their advanced producer services (financial, information services, law) measuring a city's level of connectivity with the rest of the world or their integration into the world city network.

The connectivity measures are used to classify cities into levels of world city network integration. These levels are interpreted as follows:

Alpha++ world cities are more integrated than all other cities and constitute their own high level of integration: New York, London

Alpha+ world cities. Other highly integrated cities that complement London and New York, largely filling in advanced service needs for the Pacific Asia: Hong Kong, Paris, Singapore, Tokyo, Sydney, Milan, Shanghai, Beijing

Alpha world cities – Very important world cities that link major economic regions and states into the world economy: Madrid, Moscow, Seoul, Toronto, Brussels, Buenos Aires, Mumbai, Kuala Lumpur, Chicago

All beta level cities are important world cities that are instrumental in linking their region or state into the world economy

Beta+ world cities: Washington, Melbourne, Johannesburg, Tel Aviv, Barcelona, San Francisco, Atlanta, Manila, Bogot6, New Delhi, Dubai, Bucharest

Beta world cities: Oslo, Berlin, Helsinki, Geneva, Copenhagen, Riyadh, Hamburg, Cairo, Luxembourg, Bangalore, Dallas, Kuwait City, Boston

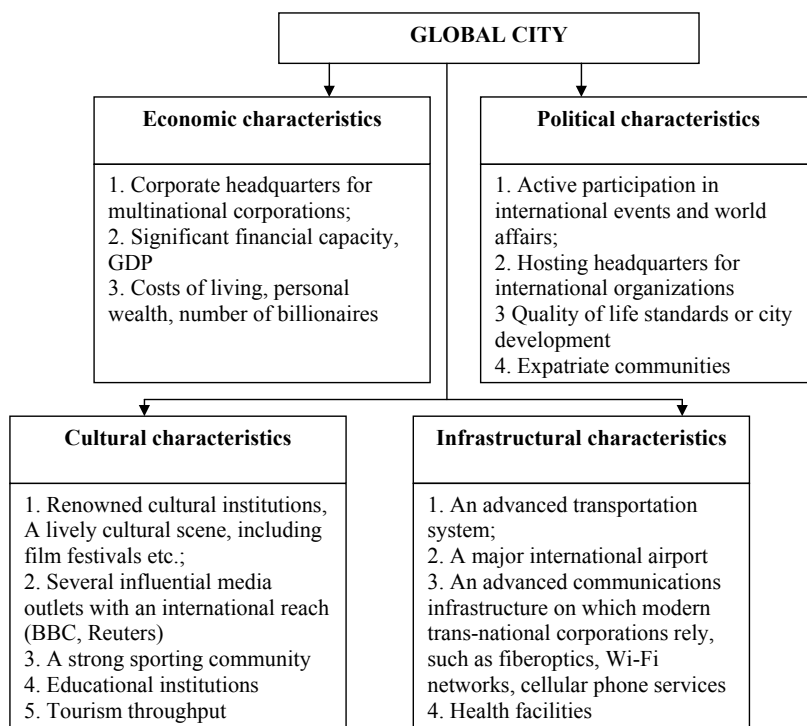
Beta– world cities: Munich, Jeddah, Miami, Lima, Kiev, Houston, Guangzhou, Beirut, Karachi, Дьссeldorf, Sofia, Montevideo, Nicosia, Rio de Janeiro, Ho Chi Minh City

All gamma level cities can be world cities linking smaller regions or states into the world economy, or important world cities whose major global capacity is not in advanced producer services

Gamma+ world cities: Montreal, Nairobi, Bratislava, Panama City, Chennai, Brisbane, Casablanca, Denver, Quito, Stuttgart, Vancouver, Zagreb, Manama, Guatemala City, Cape Town, San Josй, Minneapolis, Santo Domingo, Seattle

Gamma world cities: Ljubljana, Shenzhen, Perth, Kolkata, Guadalajara, Antwerp, Philadelphia, Rotterdam, Amman, Portland, Lagos [3]

Another approach of investigating city position is connected with the capacity to find the demarcation line between global cities and mega-cities. Global city is a city acting as a focus for world finance and trade flows. Twenty-five cities effectively control almost all the world's financial transactions, and New York, London, and Tokyo are at the top of the hierarchy. Figure 1 shows basic characteristic features necessary for a city to be identified as a global one.



**Fig. 1. Characteristic features of a global city**

Global cities are also marked by large-scale in-migration and increasing income and occupational polarization. S. Sassen argues that global cities are witnessing large-scale immigration because migration to rich countries is partly set in motion by flows of foreign direct investment into poorer countries, and because 'producer services', like law, accountancy, management, and financial consulting, drive immigration through a demand for low-paid jobs [2]. Global cities are the sites of increasing disparities in income and occupation because increased earnings inequality, together with sharply inflated prices for business inputs, commercial space, and labour, have led to informalization, often under 'sweatshop' conditions. Immigrants and other ethnic minorities cannot afford the luxury goods that are offered in global cities. They then seek necessary goods from 'co-ethnic' producers, and/or from other low-cost immigrant-run shops. Similarly, the type of niche-market small-batch goods aimed at more affluent consumers associated with the gentrification of large cities leads to labour-intensive, small-scale subcontracting, dominated by migrants.

The growth of the migrant population in global cities has led to an expansion of small-scale producers that can effectively compete with large chain stores and

supermarkets, although competition is intense, returns are extremely marginal, and this in turn drives the demand for ever cheaper labour.

The Global Cities Index ranks cities' metro areas according to 25 metrics across five dimensions [4]. The first is business activity: including the value of its capital markets, the number of Fortune Global 500 firms headquartered there, and the volume of the goods that pass through the city. The second dimension measures human capital, or how well the city acts as a magnet for diverse groups of people and talent. This includes the size of a city's immigrant population, the quality of the universities, the number of international schools, and the percentage of residents with university degrees. The third dimension is information exchange—how well news and information is dispersed about and to the rest of the world. The number of international news bureaus, the level of censorship, the amount of international news in the leading local papers, and the broadband subscriber rate round out that dimension. The final two areas of analysis are unusual for most rankings of globalized cities or states. The fourth is cultural experience, or the level of diverse attractions for international residents and travelers. That includes everything from how many major sporting events a city hosts to the number of performing arts venues and diverse culinary establishments it boasts and the sister city relationships it maintains. The final dimension—political engagement—measures the degree to which a city influences global policymaking and dialogue, by examining the number of embassies and consulates, major think tanks, international organizations, and political conferences a city hosts (table 2).

There are two main conclusions from the assessment of how cities are changing at the start of the twenty first century. First, cities are becoming increasingly important as global social and economic interactional entities (the places where most people will in future live and work). Second two different development processes are happening in cities worldwide – here termed a global city process and a mega-city process.

Table 2

Global cities ranking

	Business activity	Human capital	Information exchange	Cultural experience	Political engagement
1	New York	London	New York	London	Washington DC
2	Tokyo	New York	Geneva	Paris	New York
3	Paris	Los Angeles	London	New York	Brussels
4	Hong Kong	Chicago	Brussels	Tokyo	Paris
5	London	Hong Kong	Paris	Moscow	Tokyo
6	Beijing	Tokyo	Berlin	Los Angeles	London
7	Singapore	Sydney	Frankfurt	San Francisco	Geneva
8	Sanghai	Boston	Tokyo	Berlin	Vienna
9	Seoul	Toronto	Stockholm	Buenos Aires	Cairo
10	Chicago	San Francisco	Washington DC	Chicago	Beijing

Globalization and World Cities qualitative research on the global strategies and practices of advanced producer service networks suggests that without connectivity to the flows conveyed by them, mega-cities, which are the location of the world's poorest expanding population, are unsustainable socially, politically and environmentally and there are implications for the sustainability of smaller cities too, even in the Western world where structural adjustment is needed. Specialized, knowledge-intensive work or 'net-work' which is conducted through cities by network forms of business organization, is now generally recognized as critical to support wider regional and national economies in the developed as well as the developing world. Although inequalities persist between high paid/specialized and low paid /non-specialized service skills and pay, employment is shown to be fundamentally important to inter-generational progress towards greater

economic and social equity. Services create a city environment that is conducive to beneficial flows of knowledge and finance between globalizing cities and to innovation and in investment in less environmentally damaging city infrastructures. They also mark a transition from labour intensive and environmentally detrimental forms of employment, to 'cleaner, hi-tech' economic production.

The degree of relative connection/disconnection from global service networks can thus be understood as defining the different development processes of global and mega-cities. Here it's necessary to emphasize the need for a co-evolutionary approach to the relationship between sustainability and cities in which social development must be considered alongside anthropogenic environmental impacts. Since then, widespread publicity and the scientization and popularization of environmental debate has turned widespread attention towards biocentric 'deep ecology' concerns. Attempts to quantify and model environmental risk have gained prominent media attention. Social concerns and risks which relate to cities, such as poverty, malnutrition, disease, war and urban environmental degradation gain less attention. This tilting of the global debate begun at Brundtland, has implications for green, as well as human, ecological priorities since the former cannot be realized in isolation from the latter in an increasingly urban world.

Agglomeration has substantial environmental as well economic advantages over more thinly spread urban development patterns. Satellite images indicate that the present world urban space (including urban green space) covers just 2.8 per cent of the earth's land area which means that the whole world urban population would fit on less than half of Australia [3]. As already discussed, global connectivity stimulates innovation and investment in cities which can result in improved technologies to support efficient resource use, such as water and energy and communications systems such as public transportation and ICT.

Dense cities are centers of education, cultural, social, health and work opportunities, they can also constitute a more environmentally sustainable development form than dispersed settlements. They can encapsulate "generative" and "innovative agglomeration" – a "behavioral and transactional as well as political and economic concept" [3]. However, these urban assets are unequally shared even within the richest of the world's cities, and city – non-city relations are now polarizing, leading to ongoing rural-urban economic migrations. What seems clear however is that nuanced governance approaches can facilitate a progressive transformation of economy and society by opening up to globalization. The politics of governance remains as important as it was in the last century in shaping the strategies of large cities which can lead to a more, or less, sustainable development process.

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*У статті проаналізовано наслідки бурхливого економічного зростання інтегрованого світу, що призводять до необхідності вивчення та практичного використання кон-*

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цепції сталого розвитку. Особливу увагу приділено визначенню ролі великих міст у розвитку національної та світової економіки, які являють собою певні шанси та ризики для глобалізованого суспільства та є фактором переходу до якісно нової концепції економічного розвитку зі встановленням балансу між задоволенням сучасних потреб і захистом інтересів майбутніх поколінь, включаючи їх потребу в безпечному і здоровому довкіллі. В статті надано класифікацію великих міст світу щодо впливу, який вони здійснюють на соціально-економічний розвиток, та визначено критерії, за якими великі міста можна поділити на дві основні групи – глобальні міста та мега-міста.

**Ключові слова:** сталий розвиток, глобалізація, глобальне місто, мега-місто, мережі високопродуктивних послуг.

*В статье проанализированы последствия стремительного экономического роста интегрированного мира, вызывающие необходимость изучения и практического применения концепции устойчивого развития. Особое внимание уделено изучению роли больших городов в развитии национальной и мировой экономики, которые представляют собой определенные шансы и риски для глобализованного общества и являются фактором перехода к качественно новой концепции экономического развития с установлением баланса между удовлетворением современных потребностей и защитой интересов будущих поколений, включая их потребность в безопасной и здоровой окружающей среде. В статье представлена классификация больших городов мира относительно их влияния на социально-экономическое развитие и установлены критерии, по которым большие города можно поделить на две основные группы – глобальные города и мега-города.*

**Ключевые слова:** устойчивое развитие, глобализация, глобальный город, мега-город, сеть высокопроизводительных услуг.

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