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# EMERGING MEGACITIES IN LATIN AMERICA

## INSTRUMENTAL IN SHAPING A GLOBAL DEVELOPMENT

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"Cities will be on the front lines of the battle for sustainable development",[1] at least in the opinion of Jeffrey Sachs. The U.S. economist, who came to be best known for his work as Special Advisor to the Millennium Development Goals, sees cities as playing a decisive role, seeing that they are directly affected by climate change themselves on the one hand and offer the best opportunities to identify solutions for sustainable development on the other. Numerous statistics appear to confirm his view. According to the United Nations Human Settlements Programme, UN-Habitat, cities cover no more than two per cent of the earth's surface, but cause up to 70 per cent of worldwide harmful greenhouse gas emissions.[2] Approximately 90 per cent of cities are situated in close proximity to the sea and are therefore particularly at risk from the potential consequences of climate change.

Over 50 per cent of the world's population already live in cities today – a proportion that is due to rise to 67 per cent by 2050 according to the UN.[3] And the megacities will also gain in importance economically. The combined economic

1 | Cf. Jeffrey Sachs, "Cities and Sustainable Development", 25 Nov 2013, http://project-syndicate.org/commentary/jeffrey-d--sachs-argues-that-urban-areas-must-lead-the-way-toward-environmentally-healthy-and-socially-inclusive-economies (accessed 23 Dec 2013).

2 | Cf. "Hot Cities: Battle-ground for Climate Change", United Nations Human Settlements Programme (UN-Habitat), 29 Mar 2011, http://www.unhabitat.org/downloads/docs/GRHS2011/P1HotCities.pdf (accessed 10 Nov 2013).

3 | Cf. "World Urbanization Prospects, the 2011 Revision", The United Nations Department of Economic and Social Affairs (UN DESA), http://esa.un.org/unup/CD-ROM/Urban-Rural-Population.htm (accessed 13 Nov 2013).

output of Rio de Janeiro and São Paulo constitutes some 40 per cent of Brazil's total GDP.[4] At some 450 billion U.S. dollars, São Paulo alone has a GDP approaching that of countries such as Poland and Norway.

Furthermore, over two thirds of urban centres are located in less developed countries.[5] The list of the 30 largest cities thus includes 22 so-called emerging megacities from newly industrialised countries, among them some of the largest in Latin America such as Mexico City, São Paulo and Buenos Aires. According to the World Bank, Latin America and the Caribbean form the most urbanised region of the world today, with approximately 80 per cent of the population living in cities there already.[6] The measures taken in dealing with growth in these new centres of the emerging economies, which will combine an increasing part of the world's population as well as its economic output, will be instrumental in determining the level of sustainability of global development.

This debate is giving new impetus to the fundamental idea of the subsidiarity principle and thereby local self-government. Sachs therefore considers the cities to be centres of innovation for new approaches in policy making, given that their mayors need to search for solutions to a multiplicity of problems. Supplying citizens with water, establishing professional waste management and transport infrastructure as well as planning for disaster mitigation and the supply of provisions in emergency situations become real challenges in view of an annual influx of new residents frequently running into the hundreds of thousands. Bogotá in Colombia, for instance, which has a population edging towards seven million, is growing at a rate of about 2.9 per cent per year.[7] Not all areas are equipped with sewage systems or schools; the metropolises tend to lag behind

4 | Cf. *Megacity Challenges. A stakeholder perspective*, Siemens, Munich, Jan 2007, http://siemens.com/entry/cc/features/urbanization_development/all/en/pdf/study_megacities_en.pdf (accessed 12 Nov 2013).
5 | Cf. n. 3.
6 | Cf. "Data. Urban Development", World Bank, http://data.worldbank.org/topic/urban-development (accessed 23 Dec 2013).
7 | Cf. Thomas Brinkhoff, "Major Agglomerations of the World", http://citypopulation.de/world/Agglomerations.html (accessed 23 Dec 2013).

the advancing urbanisation and are more akin to structures sprawling in an uncontrolled manner, totally inadequate in their capability to fulfil the requirements of modern municipal management.

## CONGESTION, CONGESTION AND MORE CONGESTION

The new middle class, which is emerging particularly in the cities of the newly industrialised countries, has created demand for consumer goods that had been out of reach for the great majority until recently. In 2000, fewer than 14 per cent of Brazilians had a mobile phone, for instance. Today, the number of mobile phones even exceeds the number of people. According to the state agency ANATEL, there are 136 mobile phones for every 100 of the country's Brazilian inhabitants. Thanks to rising incomes and new financing models, many households have also been able to fulfil their desire for a car. The number of car owners is shooting up. While the proportion of households owning a car in 2008 was approximately 45 per cent, it was already 54 per cent by 2012.[8] Economic and social progress is therefore increasingly making itself felt on the roads as well. According to the Traffic Index published by TomTom, people with a 30 minute commute in São Paulo spend 102 hours a year in traffic jams.[9]

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The metropolis therefore began taking countermeasures several years ago. Driving restrictions ban owners from driving their vehicles in the metropolitan area on one workday per week based on the last digit of the vehicle's number plate. The idea is to encourage car-sharing and the use of public transport. However, the city has become so congested that drivers are finding themselves in traffic jams even during supposedly quiet times of day. In addition, the alternating driving authorisation has had unintended consequences. Multi-vehicle households with different types of number plates can circumvent the problem. The policy has thus created an undesirable incentive for people to acquire

8 | Cf. Sérgio Mindlin, "Política de incentivos fiscais e mobilidade urbana", Instituto Ethos, 25 Dec 2013, São Paulo, http://www3.ethos.org.br/cedoc/politica-de-incentivos-fiscais-e-mobilidade-urbana (accessed 16 Nov 2013).

9 | Cf. "TomTom Traffic Index", TomTom International, http://tomtom.com/en_gb/trafficindex (accessed 12 Nov 2013).

an additional car instead of encouraging them to switch to public transport.

To alleviate the situation, there are plans to build further underground lines and expand the networks of the totally overloaded inner-city trains and the Bus Rapid Transit (BRT). This system, which consists of express buses travelling on specially marked lanes throughout the city, was first introduced in the Brazilian city of Curitiba in 1963. It has since been replicated numerous times, and after the export of the model to Istanbul, Jakarta and Bogotá, the BRT has now found its way back to other Brazilian cities such as São Paulo and Rio de Janeiro.

The BRT's initiator, Jaime Lerner, an urban planning expert and former mayor of Curitiba, has a vision that goes even further. According to Lerner, the car will become a societal nuisance on a par with smoking in public. He believes its use in public spaces will gradually be prohibited and tolerance will decrease until at some point in the future no one will be able to imagine that a means of transport causing not only thousands of deaths but also noise and pollutants had ever been people's favourite mode of transportation.

## WASTE PICKERS IN THE SHADOW OF THE TRADING CENTRES – THE INTEGRATION CHALLENGE[10]

The cities' rapid growth also poses major challenges to their administrations in other areas as well. Not all inhabitants of Latin America belong to the new middle classes. Many continue to live in the precarious conditions of the huge slums in cities such as Lima and São Paulo. The waste pickers of these metropolises, who are a ubiquitous sight in Latin American inner cities moving around with their handcarts, exemplify the economic, social and environmental challenges of urbanisation. The informal sector makes up 51 per cent of the economy in Latin America's

10 | Cf. Stefan Schaltegger, Christian Herzig, Oliver Kleiber, Torsten Klinke and Jan Müller, *Nachhaltigkeitsmanagement in Unternehmen*, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) et al., Berlin and Lüneburg, 2007, http://econsense.de/sites/all/files/nachhaltigkeitsmanagement_unternehmen.pdf (accessed 17 Nov 2013).

conurbations.[11] Millions of street vendors, domestic staff and waste pickers have no qualification or fixed employment contract. Their access to social security systems, which are underdeveloped in any case, is limited and they are particularly vulnerable to negative life events such as unemployment and illness.

**People who are engaged in informal labour are particularly vulnerable to the effects of external shocks such as the global economic crisis of 2007.**

A survey by the WIEGO organisation conducted in ten cities in emerging economies, including Lima, Bogotá and Santiago de Chile, shows that economic crises do not merely cause the informal sector as such to expand. People who are already engaged in informal labour are particularly vulnerable to the effects of external shocks such as the global economic crisis of 2007. Drops in demand are felt on the black economy as well. 65 per cent of respondents reported a decrease in their sales volume, 41 per cent had to lower their prices. The impact appeared to be strongest on waste pickers, whose products are affected directly by fluctuating raw material prices due to the global trade in these commodities. Prices dropped by up to 50 per cent within Latin America.[12] This means that the very actors who are engaged in recycling in Latin America, which is at a low level in any case, are particularly vulnerable to economic and social risks.

The increase in consumption by the new middle classes is fuelling a general trend towards a rapid rise in the volume of waste. Today, cities around the world already produce 1.3 billion tonnes of waste per year. By 2025, this figure is expected to nearly double, rising to 2.5 billion tonnes.[13] The problem of vast volumes of waste is

11 | Cf. "Urban Informal Economy Statistics", African Centre for Cities (ACC), http://africancentreforcities.net/programmes/applied-urban-research/informal-economies/urban-informal-economy-statistics (accessed 12 Nov 2013).

12 | Cf. Zoe Elena Horn, *No Cushion to Fall Back on the Global Economic Crises and Informal Workers*, Women in Informal Employment: Globalizing and Organizing (WIEGO), Cambridge, Aug 2009, http://wiego.org/sites/wiego.org/files/publications/files/Horn-Global-Economic-Crisis-1.pdf (accessed 12 Nov 2013).

13 | Cf. Daniel Hoornweg and Perinaz Bhada-Tata, "What a Waste. A Review of Global Waste Management", in: *Urban Development Series*, No. 15, World Bank, Washington D.C., Mar 2012, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2012/07/25/000333037_20120725004131/Rendered/PDF/681350WP0REVIS0at0a0Waste20120Final.pdf (accessed 12 Nov 2013).

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a typically urban phenomenon. Statistically speaking, city dwellers produce at least twice the amount of waste as the inhabitants of rural areas, who consume fewer industrial products, waste less food and are generally less affluent.[14] Due to the enormous logistical effort involved, waste disposal quickly becomes one of the most cost-intensive services in the cities' budgets. One symptomatic fact is that the cost composition of urban waste management in the cities of the emerging countries still differs greatly from that in industrialised countries. In the latter, the largest part of the expenditure goes on waste disposal, in industrial waste incineration facilities for instance, while the majority of the costs in poorer cities tend to be incurred in connection with the actual waste collection.[15] In many cases, this task is delegated to municipal companies, which do not always work with the greatest market economy efficiency or simply do not have adequate capacities. In locations without organised waste disposal sites, the collected waste is deposited at waste dumps, which cause relatively low costs due to their simple structure. As soon as the cities take measures to close the dumps and switch to waste disposal sites run in accordance with environmental or safety standards, the costs to the city administration explode. When a modern waste disposal facility was opened in Rio de Janeiro, for example, the price per tonne of waste rose to approximately 13 euros. Previously, the waste had been disposed of at a waste dump in the middle of Guanabara Bay, which had only involved direct costs of some two euros. With 8,000 tonnes of waste daily, the city therefore incurs extra costs upwards of 32 million euros per year. To Europeans, this amount may seem manageable considering the enormous costs the city will save in the long term elsewhere. But in the megacities of the emerging economies, which are still faced with dramatic social problems, environmental protection has not been at the top of the priority list to date. In many cases, decision-makers may be willing, but they lack funding from the municipal administration as well as

14 | Cf. Daniel Hoornweg, Perinaz Bhada-Tata and Chris Kennedy, "Environment: Waste production must peak this century", *Nature*, 30 Oct 2013, http://nature.com/news/1.14032 (accessed 12 Nov 2013).

15 | Cf. Hoornweg and Bhada-Tata, n. 13.

the sheer political capital to implement measures whose opportunity costs are difficult to convey to the voters.

In the cities of the South, public debate tends to focus much more on social issues. Waste management illustrates the conflict between the priorities of social and environmental policies. In locations where there are no institutionalised structures for waste separation in private households, the poorest of society make a living by selling raw materials they retrieve from waste bins and city dumps. Millions of people in the megacities wage a daily battle for survival, earning no more than two euros a day. Dire sanitary conditions in the waste heaps visited by flocks of vultures, where the waste sorters compete for the most valuable materials such as cans and other metals among poisonous or contaminated materials and around unsecured refuse trucks, also ruin the lives of children and adolescents even before they can take advantage of the opportunities offered by the new emerging world.

Over the last few years, the waste pickers in many cities have begun to organise in associations. Some cooperatives now provide a basic structure for the professionalisation of the workers and facilitate investment in more efficient equipment. Besides making for greater job security and more regular incomes, the political involvement has also increased. Brazil's 2010 National Solid Waste Policy specifically mentions waste pickers as actors within the national strategy. In Bogotá, meanwhile, an association of waste pickers, who are also referred to as "recyclers" these days, has been awarded the Goldman Prize, a major environmental award.

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However, political measures in the area of waste disposal are not always aimed in the direction of modernisation. Fearing for what is already a meagre livelihood, waste picker associations from Brazil to Mexico are organising protests against the construction of modern waste incineration plants or the replacement of informal waste dumps by organised waste disposal facilities, to which waste pickers generally have no access for safety reasons. Reconciling the needs of a socially disadvantaged sector of the population with the urgent need for development in tune with the

environment represents one of the major challenges facing the cities in these emerging economies.

Backbone of the recycling chain: Waste separation in a public building and a waste picker in Belo Horizonte. | Source: © Kathrin Zeller.

Innovative models attempting to integrate social, economic and environmental aspects are already being tested in various locations. In Rio de Janeiro, for instance, there are plans for the remuneration of the waste pickers to be improved by the trade in $CO_2$ certificates at a regional exchange. The system envisages the creation of certificates for all types of valuable materials, thereby enhancing the pickers' income on the one hand and providing incentives against them competing for particularly valuable materials such as aluminium.

**CITIES AS VICTIMS AND PERPETRATORS**

In 1992, the UN identified Mexico City as the most polluted city in the world. Within a single generation, one of the cleanest in the world had turned into the absolute opposite, causing some 1,000 additional deaths per year. While the situation has since improved through measures relating to transportation as well as local industry, the problem persists. And not only in Mexico – the smog is also becoming denser over Santiago de Chile and Quito, for instance.

The fact that major cities are hit particularly hard by the global impact of climate change is also apparent on the coasts. Some 90 per cent of all urban areas around the

world are situated near the sea. Recent storm surges have illustrated the vulnerability of settlements close to the sea. According to a study by the magazine Nature Climate Change, flooding in coastal cities already caused damage in the order of six billion U.S. dollars in 2005. The study anticipates annual costs to potentially rise to a trillion U.S. dollars or more by 2050. Latin America is also vulnerable. Due to the low social and economic resilience of poorer countries, the city of Guayaquil on the Pacific coast of Ecuador, for instance, is the third most vulnerable city worldwide.[16]

In this context, the capability to deal with crises is becoming ever more important. For this reason, cities are increasingly focusing on the capacity to withstand external shocks from environmental events, i.e. resilience. Compared to mere adaptation to climate change, this concept goes one step further. The idea is that taking proactive steps in preparation for risks will facilitate dealing with the occurrence of events and managing the aftermath. Local decision makers are therefore learning to identify the cities' vulnerabilities and to acquire tools to mitigate against them. These tools include measures such as the collection of data on risk factors as a basis for making decisions on investments as well as communication centres for coordinating interventions in crisis situations.

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## OPPORTUNITIES OFFERED BY MEGACITIES

All in all, cities offer a number of advantages particularly due to their high population density. Public transport is thus far more difficult in rural areas as far as cost-efficiency is concerned because utilisation is too low. The collection of household waste is also less cost-intensive in cities with large housing estates. Experts are looking at models for holistic sustainability strategies for cities to examine the integration of the various areas of responsibility. The European Union, for instance, is attempting to enhance the quality of life in cities through the concept of "Smart

16 | Cf. Stephane Hallegatte, Colin Green, Robert J. Nicholls and Jan Corfee-Morlot, "Future flood losses in major coastal cities", *Nature Climate Change*, No. 3, 18 Aug 2013, http://nature.com/nclimate/journal/v3/n9/full/nclimate1979.html (accessed 23 Dec 2013).

Cities". The expectation is that various measures such as innovations in town planning, greater involvement of the local population, higher levels of energy efficiency and improved transport solutions will improve people's health and reduce greenhouse gas emissions.[17]

High-rise blocks at the Copacabana: Rio de Janeiro was home of several civil society meetings in which questions of sustainability have been discussed. | Source: © Kathrin Zeller.

Modern sustainability management in cities involves attempts to include civil society to ensure both efficiency as well as long-term acceptance of investments. Citizens in emerging cities demand a right to participate in the decision-making regarding their living space. Contrary to more abstract discussions on issues such as tax legislation at a national level, the problems of the cities are immediately tangible to all citizens. It is not for nothing that local issues sparked recent protests both in Turkey and in Brazil. While a city park was the bone of contention in Istanbul, it was initially the price of a bus fare in São Paulo.

The role played by major events such as the FIFA World Cup is therefore being questioned with increasing frequency. Particularly the marginalised groups of the population with extremely low to average incomes in the cities of the emerging economies, who still number in the

17 | Cf. "Smart Cities and Communities. Support for a better future", European Commission, http://ec.europa.eu/eip/smartcities/index_en.htm (accessed 12 Nov 2013).

millions, weigh up investments in new stadiums against things such as the badly needed expansion of the medical infrastructure or more social housing. The population does not necessarily figure potential positive and more long-term effects on the regional economy, which are not immediately obvious, into their calculations. Recent events have shown that unlike metropolises such as Madrid or London the cities in the emerging economies are limited in their ability to channel capital efficiently to the benefit of the whole of society. Due to corruption, mismanagement of major construction projects and the prioritisation of locations that produce a great deal of prestige but suffer from a lack of demand for the new structures when the sporting events are over, the initial euphoria for mega events is giving way to cautious reluctance.

In actual fact, the events offer considerable potential for local development and specifically for local infrastructure, which is frequently poorly developed. The huge marketing machinery accompanying the events is being used purposefully to promote concepts relating to sustainability. Since the World Cup was awarded to Brazil, for instance, various international organisations have been holding workshops in Rio de Janeiro on a variety of topics such as sustainable consumption, social inclusion of poorer sections of the population in the restructuring of the city, recycling and the expansion of the network of cycling paths. International reporting on the events is also providing opportunities for local civil society actors to come to international attention and to emphasize their demands for greater participation. In spite of all the issues, the mega events can therefore also help to bring about positive developments in the cities, which would otherwise have hardly got off the starting blocks or only much later.

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## CITIES AS NEW PLAYERS ON THE WORLD STAGE

A number of networks linking cities have been established in an attempt to provide mutual support. These generally focus on an exchange of good practices, such as those relating to "Smart Cities". In spite of the great diversity of conditions from the tropical zones in Central America to the Andes Mountains, the cities are facing similar challenges.

The empowerment of local decision makers was initiated back in 1992 at the Rio de Janeiro Climate Conference with Agenda 21, a programme to encourage participatory governance and the planning of sustainable regional development. In Germany, for instance, the local implementation of sustainable development is conducted in part through action platforms such as the Landesarbeitsgemeinschaft Agenda 21 NRW e.V. (LAG 21 NRW), whose members include communities, districts and associations. In a project entitled "50 local-level climate partnerships by 2015", German local authorities collaborate with partner regions and communities in developing and newly industrialised countries to devise programmes of action for climate protection and climate adaptation. This project is one of numerous examples illustrating that city partnerships go far beyond mere cultural exchange nowadays. There are also bilateral city partnerships in place that are focused on joint projects relating to environmental and climate protection. The purpose of the city partnership between Cologne and Rio de Janeiro, for instance, which has been in place since 2011, is to produce concrete results through projects on urban sustainability management.

Multilateral networks in particular are becoming ever more popular. As early as 1990, during a first UN meeting on a sustainable future, a worldwide association of 200 local governments from 43 countries was founded, the Local Governments for Sustainability (ICLEI). In addition to the Cities for Climate Protection campaign, ICLEI successively included further key topics such as biodiversity and renewable energy in its work. ICLEI now represents over 1,000 cities, communities and districts and offers various services including technical upskilling and tools for local environment management such as climate action plans. The international network of megacities called C40 pursues similar goals. Set up in 2005 by the former Mayor of London, Ken Livingstone, the initiative joined with the Clinton Climate Initiative one year later to form the Climate Leadership Group with the goal of helping to reduce greenhouse gases and mitigate climate risks.

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Today, the world's largest cities, including metropolises such as Tokyo, Moscow, Paris, São Paulo, Lagos and Bangkok, are working towards a joint climate goal through the exchange of good practices and mutual support with advanced training for actors involved in the project management to implement local environmental policies. At the C40 summit in Rio de Janeiro, which took place in conjunction with the 2012 World Climate Summit, the mayors set themselves objectives of an annual reduction in greenhouse gas emissions of 248 million tonnes by 2020 and of one billion tonnes, equivalent to 45 per cent, by 2030.[18] Contrary to the representatives participating in the meeting of nation states, they thus returned home with clear results from their negotiations. Since the network was founded, the cities, which now number 58, have already implemented over 5,000 measures. Beijing, for instance, announced a new plan in September 2013, which envisages a reduction in the use of vehicle fuel of five per cent by 2017. The target is to be reached through a combination of investments in public transport, the gradual phasing out of older vehicles via emission standards modelled on EU standards and improvements in the city administration management systems. Lagos in Nigeria started organising an "Energy Conservation Month" for the first time in October 2012 to increase awareness of their energy usage among the city's over ten million inhabitants. Under the slogan "Conserve Energy. Save Money", the campaign used step-by-step instructions to demonstrate ways for households to save energy. New partnerships with ICLEI, the World Bank and Siemens increased the capability of the network to implement concrete measures.

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The C40 network is also having an impact by other initiatives following its lead. In Brazil, for instance, a forum modelled on the C40 has been established combining the 27 regional capitals, which are now also collaborating through the exchange of good practices and technical knowhow and are known as the CB27. The importance of the cities is not necessarily fully reflected in their budgets. In Brazil and

18 | "Megacities Slash Greenhouse Gases, Share Best Practices", Environment News Service, 19 Jun 2012, http://ens-newswire.com/2012/06/19/megacities-slash-greenhouse-gases-share-best-practices (accessed 6 Jan 2014).

in numerous other countries the cities are controlled by a centrally organised administration, which determines the allocation of large parts of the public funds. In many cases, there is little financial flexibility for cost-intensive measures in public transport or waste management, typical municipal responsibilities. Links between local administrations should therefore also result in a greater awareness of the importance of the local authorities within the countries and thus to a redistribution of funds in favour of the cities.

The C40 already represent a twelfth of the world's population and some 18 per cent of global GDP. Strengthening the role of megacities within international cooperation is one of the key goals of the network. New York's former Mayor Michael Bloomberg, Chairman of the C40 until December 2013, put forward the following idea: while international negotiations are hardly producing any real progress, the city association has already implemented thousands of measures for climate protection. Other cooperation projects between cities are arguing in a similar vein. Rahm Emanuel, Mayor of Chicago, founded the new partnership with Mexico City so as not to remain hostage to what he considers a dysfunctional national policy. The hope is that the intensification of investments will generate new jobs on both sides.

The cities are thus turning into a form of coalition of the willing through numerous partnerships and networks. With cities being the main sources of global $CO_2$ emissions, the initiatives therefore originate from the very actors that can probably exert the greatest influence over the future course of events. Even though there are still many problematic issues, achievements made by numerous initiatives provide some hope that the megacities are proving to be new actors capable of working towards sustainable ways of shaping the future through effective cooperation.