DOWNLOAD PDF TOWARDS SUSTAINABLE CITIES

Chapter 1 : The Habitat II Conference: Moving Slowly Toward Sustainable Cities | calendrierdelascience.co

Chapter III Towards sustainable cities Introduction Cities and towns have become the primary human living space. Since , more than half of the world's population has been living in urban.

Xeriscaping - garden and landscape design for water conservation Sustainable transport , incorporates five elements: Key areas of focus are soil, vegetation, hydrology, materials, and human health and well being. Increase of Cycling infrastructure would increase cycling within cities and reduce the amount of cars being driven and in turn reduce car emissions. This would also benefit the health of citizens as they would be able to get more exercise through cycling. Educating residents of cities about the positive impacts of living in a more sustainable city and why it is important would increase the initiative to have sustainable developments and push people to live in a more sustainable way. Architecture[edit] Buildings provide the infrastructure for a functioning city and allow for many opportunities to demonstrate a commitment to sustainability. A commitment to sustainable architecture encompasses all phases of building including the planning, building, and restructuring. Sustainable Site Initiatives is used by landscape architects, designers, engineers, architects, developers, policy-makers and others to align land development and management with innovative sustainable design. Eco-industrial park[edit] The purpose of an eco-industrial park is to connect a number of firms and organizations to work together to decrease their environmental impact while simultaneously improving their economic performance. The community of businesses accomplishes this goal through collaboration in managing environmental and resource issues, such as energy, water, and materials. The components for building an eco-industrial park include natural systems, more efficient use of energy, and more efficient material and water flows Industrial parks should be built to fit into their natural settings in order to reduce environmental impacts, which can be accomplished through plant design, landscaping, and choice of materials. For instance, there is an industrial park in Michigan built by Phoenix Designs that is made almost entirely from recycled materials. The landscaping of the building will include native trees, grasses, and flowers, and the landscaping design will also act as climate shelter for the facility. In choosing the materials for building an eco-industrial park, designers must consider the life-cycle analysis of each medium that goes into the building to assess their true impact on the environment and to ensure that they are using it from one plant to another, steam connections from firms to provide heating for homes in the area, and using renewable energy such as wind and solar power. In terms of material flows, the companies in an eco-industrial park may have common waste treatment facilities, a means for transporting by-products from one plant to another, or anchoring the park around resource recovery companies that are recruited to the location or started from scratch. To create more efficient water flows in industrial parks, the processed water from one plant can be reused by another plant and the parks infrastructure can include a way to collect and reuse storm water runoff. Urban Agriculture Urban farming is the process of growing and distributing food, as well as raising animals, in and around a city or in urban area. According to the RUAF Foundation, urban farming is different from rural agriculture because "it is integrated into the urban economic and ecological system: Such linkages include the use of urban residents as labourers, use of typical urban resources like organic waste as compost and urban wastewater for irrigation , direct links with urban consumers, direct impacts on urban ecology positive and negative , being part of the urban food system, competing for land with other urban functions, being influenced by urban policies and plans, etc. In order for urban farming to be a successful method of sustainable food growth, cities must allot a common area for community gardens or farms, as well as a common area for a farmers market in which the foodstuffs grown within the city can be sold to the residents of the urban system. Berms of fava beans have been planted at Hayes Valley Farm, a community-built farm on the former Central freeway ramps of San Francisco. Urban infill[edit] Many cities are currently in a shift from the suburban sprawl model of development to a return to urban dense living. This shift in geographic distribution of population leads to a denser core of city residents. These residents provide a growing demand in many sectors that is reflected in the architectural fabric of the city. This new demand can be supplied by new construction or historic rehabilitation. Sustainable cities will opt for historical rehabilitation wherever

possible. Having people live in higher densities not only gives economies of scale but also allows for infrastructure to be more efficient. Walkable urbanism[edit] Walkable urbanism is a development strategy in opposition to suburban sprawl. It advocates housing for a diverse population, a full mix of uses, walkable streets, positive public space , integrated civic and commercial centers, transit orientation and accessible open space. It also advocates for density and accessibility of commercial and government activity. New Urbanism[edit] The most clearly defined form of walkable urbanism is known as the Charter of New Urbanism. It is an approach for successfully reducing environmental impacts by altering the built environment to create and preserve smart cities which support sustainable transport. Residents in compact urban neighborhoods drive fewer miles, and have significantly lower environmental impacts across a range of measures, compared with those living in sprawling suburbs. The concept of circular flow land use management has also been introduced in Europe to promote sustainable land use patterns that strive for compact cities and a reduction of greenfield land taken by urban sprawl. In sustainable architecture the recent movement of New Classical Architecture promotes a sustainable approach towards construction, that appreciates and develops smart growth , walkability, architectural tradition and classical design. This in contrast to modernist and globally uniform architecture, as well as opposing solitary housing estates and suburban sprawl. Both trends started in the s. LEED recognizes whole building sustainable design by identifying key areas of excellence including: In order for a building to become LEED certified sustainability needs to be prioritized in design, construction, and use. One example of sustainable design would be including a certified wood like bamboo. Bamboo is fast growing and has an incredible replacement rate after being harvested. By far the most credits are rewarded for optimizing energy performance. This promotes innovative thinking about alternative forms of energy and encourages increased efficiency. The building principles of SSI are to design with nature and culture, use a decision-making hierarchy of preservation, conservation, and regeneration, use a system thinking approach, provide regenerative systems, support a living process, use a collaborative and ethical approach, maintain integrity in leadership and research, and finally foster environmental stewardship. All of these help promote solutions to common environmental issues such as greenhouse gases , urban climate issues, water pollution and waste, energy consumption , and health and wellbeing of site users. The main focus is hydrology, soils, vegetation, materials, and human health and well being. In SSI, the main goal for hydrology in sites is to protect and restore existing hydrologic functions. To design storm water features to be accessible to site users, and manage and clean water on site. For site design of soil and vegetation many steps can be done during the construction process to help minimize the urban heat island effects, to and minimize the building heating requirements by using plants. In order to reduce the environmental impact caused by transportation in metropolitan areas, sustainable transportation has three widely agreed upon pillars that it utilizes to create more healthy and productive urban centers. The Carbon Trust states that there are three main ways cities can innovate to make transport more sustainable without increasing journey times - better land use planning, modal shift to encourage people to choose more efficient forms of transport, and making existing transport modes more efficient. Car free city[edit] The concept of car free cities or a city with large pedestrian areas is often part of the design of a sustainable city. A large part of the carbon footprint of a city is generated by cars so the car free concept is often considered an integral part of the design of a sustainable city. Emphasis on proximity[edit] Created by eco friendly urban planning, the concept of urban proximity is an essential element of current and future sustainable transportation systems. This requires that cities be built and added onto with appropriate population and landmark density so that destinations are reached with reduced time in transit. This reduced time in transit allows for reduced fuel expenditure and also opens the door to alternative means of transportation such as bike riding and walking. Transportation in downtown Chicago Furthermore, close proximity of residents and major landmarks allows for the creation of efficient public transportation by eliminating long sprawled out routes and reducing commute time. This in turn decreases the social cost to residents who choose to live in these cities by allowing them more time with families and friends instead by eliminating part of their commute time. Compact city and Pocket neighborhood Diversity in modes of transportation[edit] Sustainable transportation emphasizes the use of a diversity of fuel-efficient transportation vehicles in order to reduce greenhouse emissions and diversity fuel demand. Due to the

increasingly expensive and volatile cost of energy, this strategy has become very important because it allows a way for city residents to be less susceptible to varying highs and lows in various energy prices. Among the different modes of transportation , the use alternative energy cars and widespread installation of refueling stations has gained increasing importance, while the creation of centralized bike and walking paths remains a staple of the sustainable transportation movement. Access to transportation[edit] In order to maintain the aspect of social responsibility inherent within the concept of sustainable cities, implementing sustainable transportation must include access to transportation by all levels of society. Due to the fact that car and fuel cost are often too expensive for lower income urban residents, completing this aspect often revolves around efficient and accessible public transportation. In order to make public transportation more accessible, the cost of rides must be affordable and stations must be located no more than walking distance in each part of the city. As studies have shown, this accessibility creates a great increase in social and productive opportunity for city residents. By allowing lower income residents cheap and available transportation, it allows for individuals to seek employment opportunities all over the urban center rather than simply the area in which they live. This in turn reduces unemployment and a number of associated social problems such as crime, drug use, and violence. Urban strategic planning[edit] Although there is not an international policy regarding sustainable cities and there are not established international standards, there is an organization, the United Cities and Local Governments UCLG that is working to establish universal urban strategic guidelines. The 60 members of the UCLG committee evaluate urban development strategies and debate theses experiences to make the best recommendations. Additionally, the UCLG accounts for differences in regional and national context. All the organizations are making a great effort to promote this concept by media and internet, and in conferences and workshops. Development[edit] Recently, local and national governments and regional bodies such as the European Union have recognized the need for a holistic understanding of urban planning. This is instrumental to establishing an international policy that focuses on cities challenges and the role of the local authorities responses. Generally, in terms of urban planning, the responsibility of local governments are limited to land use and infrastructure provision excluding inclusive urban development strategies. The advantages of urban strategic planning include an increase in governance and cooperation that aids local governments in establishing performance based-management, clearly identifying the challenges facing local community and more effectively responding on a local level rather than national level, and improves institutional responses and local decision making. Additionally, it increases dialogue between stakeholders and develops consensus-based solutions, establishing continuity between sustainability plans and change in local government; it places environmental issues as the priority for the sustainable development of cities and serves as a platform to develop concepts and new models of housing, energy and mobility. Obstacles[edit] The City Development Strategies CDS addresses new challenges and provides space for innovative policies that involves all stakeholders. The inequality in spatial development and socio-economic classes paired with concerns of poverty reduction and climate change are factors in achieving global sustainable cities. According to the UCLG there are differences between regional and national conditions, framework and practice that are overcome in the international commitment to communication and negotiation with other governments, communities and the private sector to continual to develop through innovative and participatory approaches in strategic decisions, building consensus and monitoring performance management and raising investment. The UCLG has specifically identified 13 global challenges to establishing sustainable cities:

Chapter 2 : Goal Sustainable cities and communities | UNDP

Stakeholders from all over the world met in Quito, Ecuador, from October for the United Nations Conference on Housing and Sustainable Urban Development to discuss the trends in urban planning and management.

At the core of the event were official negotiating sessions attended by delegations from nations. Representatives of accredited non-governmental organizations NGOs were also allowed to attend. The outcome was an Istanbul Declaration listing principles and goals of urban development, as well as a Habitat Agenda, or Global Plan of Action. Nearly 3, NGOs attended from all over the world, including many from the host country Turkey. Hundreds of groups presented material at booths or tables. The forum also featured hundreds of seminars on topics ranging from gender in development to use of GIS computer mapping. A third focus of activity was the enormous Best Practices Exhibition held about a mile away at renovated warehouse buildings on the Istanbul waterfront. The Exhibition featured displays of some projects from 90 nations. Still, the exhibition featured impressive displays from countries such as Germany, Austria, Sweden, the Netherlands, and Indonesia, as well as numerous presentations and parallel one-day events. A fourth series of events consisted of 10 one-day forums on development topics held at the luxurious Marmara Hotel, which dominates the skyline of modern Istanbul. Although mainstream agencies sponsored many of these forums, most acknowledged that dramatically new approaches to urban development are needed. The Transportation Forum, for example, highlighted the need to move away from automobiles, improve public transit, coordinate land use with transit, and redo transportation pricing structures. Steps Toward Sustainable Development It is an open question whether much progress has been made on urban issues since the Habitat I conference was held in Vancouver 20 years ago. At that optimistic event nations agreed to an ambitious set of 64 goals, including steps toward insuring equity and preventing land speculation in urban areas. But mids idealism then ran into the hard realities of Reaganism, Thatcherism, and structural adjustment. Few if any Habitat I goals were met. But by million urban dwellers still lacked this basic necessity. The atmosphere around Habitat II this year was far more cautious. Few people spoke of setting such ambitious targets. Yet it was clear that progress has been made at least on some fronts: There is much broader global understanding of the need for development which meets long-term environment and social goals as well as economic ones. Multilateral and bilateral aid agencies are committing themselves to sustainable development, and sustainable city programs and networks are being established worldwide. Gender issues are finally getting the attention they deserve. Whereas Habitat I emphasized top-down government planning, there is now a realization that change must involve all sectors of society. A number of methodologies are emerging to help governments plan for sustainability. Much progress has been made in specific areas such as making buildings more energy efficient, reducing air pollution, pedestrianizing urban downtowns, and developing procedures for restoring wetlands and contaminated urban land. Remaining Issues Though consensus is slowly emerging on many elements of healthy cities compact urban form and transportation systems that do not rely on the automobile, for example , the obstacles to sustainable urban development are still mindboggling. One main quandary has to do the scale and pace of development. Rapid, large-scale development is occurring the world over, whether in the form of modernist high-rise housing projects in Turkey or China or home subdivisions in the U. Is development at such a large scale desirable or sustainable? The trick will be to find more incremental styles of development that can house large numbers of people within more diverse, adaptable, human-scale communities. A housing economics that supports small-scale, incremental development will also need to be nurtured. These are communities in which recent migrants build housing for themselves without legal title to land. Informal developments now account for the majority of new housing in many Third World cities, including Istanbul. They vary greatly in different parts of the world, and contain a wide range of housing, some of it very solid and well-built. Many of the older informal communities around Istanbul are indistinguishable from other areas of the city and have had their land titles legalized by the government. Visually they appear to offer far more attractive, diverse, and community-oriented urban fabrics than large master planned housing tracts. The challenge may be to combine the entrepreneurial spirit and incremental style of informal settlements with

sufficient advance planning and guidance to preserve land for parks and community facilities and ensure availability of transportation, water, sewage and electricity. One glaringly obvious problem at Habitat II was the unwillingness of the developed nations, particularly the United States, to address the deficiencies of the suburban model of development and the more general issue of First World over-consumption. This is a particular problem since many Third World nations are copying American-style suburbs and lifestyles. Until the rich nations are willing to address issues of consumption and equity, there is likely to be little overall global progress towards sustainability. However, it is clear that much of the global economic order has been built upon having the prices wrong, and benefits from them continuing to be so. Unfortunately, few business leaders were present at Habitat II to indicate how the emerging global economy can redo its internal accounting to put broader social and environmental goods ahead of private gain. Regional planning was another under-emphasized topic at Habitat II. Such planning is urgently needed to constrain suburban sprawl and put in place transportation frameworks that de-emphasize the automobile. Two positive examples were provided by Frankfurt, Germany and Vienna, Austria. Frankfurt has just reaffirmed its commitment to a strong greenbelt around the city and is successfully converting an abandoned air force base into a mixed-use community. Vienna has adopted a strong regional plan which calls for channeling growth along several transit corridors out from the central city. Conclusion What overall lessons can be drawn from Habitat II? For one thing, that sustainable urban development will not come quickly or easily. On the other hand, many initiatives showcased at Habitat II point to a determined effort in many parts of the world to pursue concepts such as sustainable development. This is a profoundly hopeful sign. The real work for conference participants now lies at home, to reform national and local governments so that they can more effectively respond to urban problems, to change our own lifestyles, activities, and consumption patterns, and to develop more fully the vision of sustainable cities.

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Chapter 3 : Towards sustainable cities

According to Wikipedia a sustainable city, is a city designed with consideration of environmental impact, inhabited by people dedicated to minimize the use of energy, water and food, and production of heat, air pollution - CO2, methane and water pollution.

Have you ever envisioned a time when experts from different disciplines come together with the hope of mitigating emerging global climate risks? What if cities also played a key role in the process? What if I told you that there is new a book encompassing all this, and more? Cities are complex organisms composed of interdependent systemsâ€”i. Needless to say, within this complexity lie complex challenges. For instance, many key and emerging global climate risks are concentrated in urban areas , and yet urban centers are essential to global climate change adaptation IPCC, Unsurprisingly, projections show that global urbanization will continue over the next decades. In this scenario, there will be a high demand of services, infrastructure food and other resources crucial to promote and sustain the healthy development of dwellers. Indeed, the future is urban. But is global urbanization the solution to attain sustainability? So far, scientists are working hard to be heard by state leadersâ€”who, without much of a choice, are beginning to pay attention. When the side effects of climate change begin to be irreversible, it is hard to ignore them. However, this is not enough. Likewise, knowledge gaps between the global north and global south, along with the divide between scientists and practitioners, are still latent obstacles to conceive equitable representation in decision-making processes. Meanwhile, humankind is already navigating in a time of uncertainty. Will we be able to sustain a progressive narrative for our species? This is yet to be seen. It is a global network convening a transdisciplinary research base, focused on the co-design, co-production and co-implementation of knowledge and tools to provide solutions to the sustainability challenges facing cities. In April of , members of this network released Urban Planet: Knowledge towards Sustainable Cities. With over contributors, the book brings together a wide range of expertise by urban stakeholders to demonstrate that the coproduction of knowledge is attainable. As a scientist based in South Africa who is also a practitioner, she challenges the notion that the boundaries of science, policy, and practice with no fixed institutional allegiances cannot be crossed. We need a new breed of urban practitioner, who is capable of moving between the worlds. All in all, Urban Planet is not only a refreshing reality check, it features practical solutions already being implemented as well as a holistic understanding of current trends and issues in global urban sustainability.

Chapter 4 : Urban Planet: Knowledge towards Sustainable Cities | Future Earth

*Towards Sustainable Cities: East Asian, North American and European Perspectives on Managing Urban Regions (Urban Planning and Environment) [Peter J. Marcotullio, AndrÃ© Sorensen] on calendrierdelascience.com *FREE* shipping on qualifying offers.*

Anthony Zonaga Abstract The current state of the world is at a crucial turning point; technological advancements have made the development of efficient systems of city planning possible. However, our reliance on unsustainable systems such as the design of cities for cars rather than people can potentially lead humanity down a path leading to the devastation of the natural world. There is a need for architects, designers, planners and governments to re- evaluate commonly accepted design practices in favour of a more ecologically sustainable system of city planning and design. The writings of environmental planners, historians and authors such as Richard Register, Ken Yeang and Steven Nelson can be used to inform design choices in the construction of new cities. However, sustainable building is not necessarily integrated into the parameters of any given development; ecocities are expensive and more difficult to plan out than conventional cities, simply because we have fallen complacent with current practices and therefore have honed an already outdated method of design. Therefore, it is initially ambiguous as to whether or not it is possible to reach a global standard of ecologically sustainable city planning. Through examining examples of sustainable communities and cities in past, present and future, we can gain a clearer understanding of what the future holds for the ecocity. The purpose of this research paper is to explore the development of the sustainable city throughout history, the present, and the implications that these have for the future. The analysis of a historical eco-community, the Mousgoum people in Cameroon, reveals that such design principles have already been employed and thus provides insight into how we may adapt these in a contemporary context. The development of the Sino-Singapore Tianjin Eco-city is analysed as an example for a contemporary ecocity still under development. Finally, the paper will draw conclusions from all the research conducted as to the position of sustainable cities in the present and future, and if a global shift to sustainable design at such a scale may ever be possible. Towards Sustainable Cities An essay by Anthony Zonaga examining the permeation of the ecological city throughout history into the present day, and its consequent implications on the future of architectural design Preface The world today exists in a state of global prosperity, with a plethora of new technologies and the accrual of knowledge from thousands of years of human development through history continually pushing the boundaries of society, economy, technology and culture. Following the Industrial Revolution, minimisation of input and maximisation of output became a focal point for humanity, and new means of increasing efficiency were now achievable across all facets of living, particularly in the construction, design and planning of cities. However, the cost of such rapid growth has become clear in recent decades; Philip Shabekoff, environmental writer for the New York Times, draws out one common theme from interviews with hundreds of environmentalists: Species extinctions, global warming, climate change, soil loss, the collapse of ocean ecologies, and on and on â€" we are getting worse every day. Island Press, , Building Cities for a Healthy Future California: North Atlantic Books, , Can we push ourselves towards a global architecture of sustainable cities, or will our complacency within outdated practice foster an immutable global languor? We must re-evaluate our design practices with respect to not only Register but new technologies if we are to improve the human living condition and design cities which are not only functional, efficient and habitable, but also ecologically healthy. This research paper will explore the development of the sustainable city throughout history and its place in the present global condition. From this, we can ascertain the implications of the ecologically healthy city for the future of architecture and urban design, and whether a global adoption of sustainable city design is a realistic goal for humanity to reach in the coming decades. Building Cities for a Healthy Future. However, ecological design pioneer and architect Ken Yeang, aptly summates the common denominator across all definitions. Mark Roseland, Director of the Centre for Sustainable Community Development, is an extremely difficult undertaking for the urban development of any given city. Conditions such as completely carbon neutral and renewable energy production, layout that

prioritises walking and cycling over vehicles, and the preservation of the surrounding natural environment5 require careful and effective planning. Additionally, issues with funding, government corruption, and the complacency of residents favouring the well-established mode of car transportation and unwilling to adapt to pedestrianised cityscapes are all pertinent problems and may arise with any given project. Many leading theorists and scholars head the vanguard advocating for the adoption of sustainable practice in the planning and development of cities; Register in particular, however, will be the primarily emphasised due to his overwhelming contribution to the field of eco-masterplanning. Register has published multiple books on his ecological urban philosophies, and is the founder of non-profit organisations Urban Ecology in and Ecocity Builders in Whilst many examples exist of contemporary ecocities such as the ecologically sustainable city of Curitiba in Brazil Figure 1 and its highly developed network of public transportation 7, they are unfortunately few and far between. World Bank Publications, , One such historical example of a functioning eco-community is the teleuk in Cameroon and Chad. The layout of the homestead consists of many of these dwellings arranged in a circular pattern Figure 2 , specifically tailored to the familial social structure of the household: China Architecture and Building Press, , Building Cities in Balance with Nature California: Berkeley Hills Books, , The structures themselves are constructed of found local materials â€" soil, grass and animal waste, which are percent reusable and biodegradable â€" and were designed to maximize the thermal properties of the building materials, allowing the naturally cool interior to withstand the high temperatures of the local climate. As a vernacular example of sustainable design on a small scale, it is easy to dismiss the teleuk village as irrelevant to contemporary city planning; however, we must consider it not in terms of the relevance of its architectural design the teleuk was in fact said to be on the brink of extinction by , and its suitability for climates outside of Cameroon is poor , but rather in the conception of a functioning eco-society which was designed around the surrounding environment, the culture of those living within and their specific societal, economic and religious structures. The obvious conclusion as to why these proto- ecocities were successful for centuries is that their scale was significantly smaller. However, the principles of their design remain timeless. Van Norstrand Reinhold Co. The University of Chicago Press, , So why do so few ecocities exist today? By comparing the culture of the Mousgoum people to the global culture of today, the answer is clear: Yet the globalisation of all facets of society has amalgamated them into one enormous constantly-shifting grey area, such that the ambiguity of the future is extremely difficult to design for. Many isolated examples of sustainable architecture exist today, but to make the leap from building to city is another matter entirely. Therefore, in order to truly tackle the problems of climate change, air pollution and the destruction of the natural environment, the scale of sustainable architecture must somehow increase thousand-fold: However, that is not to say that each individual victory should not be celebrated. Robyn Lawrence, environmentalist and author, has noted that events such as the BP oil spill and the banking meltdown have begun to tip the balance in favour of smaller sustainable developments across America: We celebrate small steps because they move the collective balance. However, their relevance today is muted and hidden beneath a new global culture, from beneath which have emerged many hundreds if not thousands of examples of sustainable architecture. The next step for humankind, then, is towards a worldwide standard of ecologically-healthy and well designed cities. The Contemporary Front There are many cities around the world which have been classified as ecocities, almost all of which are contemporary examples: Richard Register wrote in Ecocity Berkeley, in , that it is impossible to determine the presence of what he defined then as an ecocity: No city stands still Once we have started seeking the healthiest, most vital relationship of city to nature, we will discover there is no end to it in time or variety. As such, many contemporary cities such as Curitiba, outlined earlier have been dubbed examples of ecocities. The groundbreaking ceremony was held in late and the 30km2 city is predicted to be fully developed by the early-to-mid s, housing approximately , residents Design by Surbana Urban Planning Group, the large scale development is intended to be a paradigm for the design of future cities in Singapore and particularly China, which is in need of new cities to accommodate its constantly growing population. The ecologically healthy practices that the city is intending to use include solar power, wind power, recycling of rainwater, treatment of waste water and desalination of sea water. Once communities have been shaped for cars they remain dependent upon them Cars are preventing the

next step in our now-cultural evolution, the step in which we build as if we knew we were evolving. The multitude of scales that are considered is particularly worthy of note. Due to the contemporaneity of the city, however, it is difficult to ascertain if Tianjin will achieve everything it states; currently, the only primary sources pertaining to the city are from the Government of Singapore and China, and from Surbana Urban Planning Group. The question outstanding is whether or not Tianjin will demonstrate that the ecocity is a viable replacement for the common metropolis of the 21st century: The city itself is designed to be practical, replicable and scalable 23, suggesting it can be placed anywhere and still function. Hence, the implication is that no one ecocity can be examined for its own merit as what may be applicable in one country may be irrelevant in another evoking the image of the Mousgoum teleuk once more. Nevertheless, the Tianjin Eco-city has so far proven as an exemplary step towards promoting global sustainable practice on a city-wide scale, and has much potential in future to influence the design and planning of cities in the northern Asia area and perhaps the world. Register hopes to see an era in which we cast off the global dependence on non-renewable energy sources and cities planned around a predominant car culture, and re-evaluate and re- examine in a contemporary context, in light of the current global condition, the most ecologically healthy and environmentally sustainable manner of not only planning, designing, and constructing our cities, but living within them. As stated by Register, it is impossible to predict when a global ecocity architecture will be achieved, if at all. However, if an example such as Curitiba is any indication, these cities can definitely achieve the state of modern cities and push them even further. Irrevocably, it comes down to overcoming inaction: Aerial render of Tianjin Eco-City, c. The render above demonstrates the intended outcome of the urban development. Van Norstrand Reinhold Co, Richard Register, Ecocity Berkeley: North Atlantic Books, Philip Shabekoff, Earth Rising: Berkeley Hill Books, Hiroaki Suzuki et al, Eco2 Cities: World Bank Publications,

Chapter 5 : Sustainable city - Wikipedia

Goal Sustainable cities and communities. More than half of the world's population now live in urban areas. By , that figure will have risen to billion people - two-thirds of all humanity.

In the s the concept of sustainable city and sustainable urban development gained the international interest. Suggested sustainable management strategies and examples of good practices seemed to be a visionary solutions to urban challenges. The need to achieve a high level of sustainability by the growing cities was reflected in targets of the Goal 11 of the new Agenda for Sustainable Development: The analysis of selected concepts and definitions aimed to show a multitude of approaches to the issue. The work also rank twenty the most sustainable cities by their sustainable performance according to the Sustainable Cities Index. On the example of Brazilian Curitiba, the most successful management strategies originated in the s proved that the city experiencing so many challenges caused by the rapid population growth might reach a high level of sustainability. Common urban challenges include a congestion, growing pressure on natural resources, lack of funds to provide basic services, shortage of adequate 83 Ewa Jaworska housing, deterioration of the living environment, declining infrastructure and many other aspects of the demographic, social and economic development. The development challenges of urban areas across the world are extremely diverse, and the need to achieve a sustainable level of development requires a wide range of sustainable management strategies. In addition, the dynamic population growth of many cities in Less Economically Developed Countries affects the changing character of these cities, and hence the need for wise and well-thought-out management of urban space. Sustainable solutions within any city seem to be specific and isolated, but at the same time interconnected. All action plans should involve partnerships between responsible actors such as governments, entrepreneurs, NGOs, municipal agencies, community groups, and individuals. Urbanization can be a driving force of development with the power to change and improve lives on the long-term basis. This paper focuses on the important idea of sustainable cities and sustainable urban development â€" development based on the economic, social, environmental and governance dimensions. Because of so many aspects related to the concept of sustainable city and the process of sustainable development, the researchers from different disciplines offer a variety of interpretations. It seemed to be valuable to analyse the chosen concepts and definitions to check to what extent they are similar and coherent with targets of the Goal 11 of the new Agenda for Sustainable Development: The author reminded these targets as one of the most important suggestions for sustainable urban development that must have effective linkages to ensure coherence in their implementation. The models by Rogers R. The work also presents the sustainable performance of twenty the most sustainable cities according to the Sustainable Cities Index. On the example of Brazilian Curitiba, analysis of the chosen urban management strategies involved in designing the sustainable city with aim of reducing the effects of urban areas on the environment were added. The example of Curitiba demonstrates that 84 Towards sustainable cities thanks to the integrated and environmentally-sensitive action plan, wise urban planning and strong leadership, a set of problems can be solved. Goal 11 of the Agenda for Sustainable Development: The new Agenda was build on the Millennium Development Goals to seek to complete these targets that has not been achieved before Countries decided to implement the plan of actions related to 17 universal Goals and targets of critical importance for humanity, its prosperity and the planet that have to stimulate diverse activities over the next 15 years. These integrated and indivisible Goals and targets balance the economic, social and environmental dimensions of sustainable development. One of them â€" the Goal 11 â€" pays attention to urban issues and intended to make cities and human settlements inclusive, safe, resilient and sustainable. Targets connected with this goal are listed in Table 1. The point 34 of the new Agenda expresses concerns connected with the challenges of urban development and plans of actions that became the basis for the formulation of the Goal 11 and its targets. We will work with local authorities and communities to renew and plan our cities and human settlements so as to foster community cohesion and personal security and to stimulate innovation and employment. We will reduce the negative impacts of urban activities and of chemicals which are hazardous for human health and the environment, including through the environmentally

sound management and safe use of chemicals, the reduction and recycling of waste and the more efficient use of water and energy. And we will work to minimize the impact of cities on the global climate system. Sustainable development targets of the Goal Make cities and human settlements inclusive, safe, resilient and sustainable Target Make cities and human settlements inclusive, safe, resilient and sustainable â€" continuation Target It was the United Nations Conference on Housing and Sustainable Urban Development Habitat III that offered a unique opportunity to discuss the important challenges of how different forms of settlements can be planned and managed, in order to fulfill their role as drivers of sustainable development. Sustainable development was defined in general terms, thus the many-worlds interpretation has been gaining acceptance. As a consequence of differentiated approaches to the issue, many concepts and definitions on sustainable cities, urban sustainability and sustainable urbanization have occurred, such as: A Sustainable City has a lasting supply of the natural resources on which its development depends using them only at a level of sustainable yield. These cities attain an efficient use of natural resources, reduction of ecological imprints and an adequate quality of living conditions for their population. A higher level of sustainability may be reached when citizens, civic and private organizations start to value more aspects of urban design and development that contribute to and create a sustainable quality of life. The joint creation of value is what makes these cities fundamentally different from others. Creation of value develops, as certain changes in beliefs occur on what quality of life implies; a societal transition to sustainable quality of life. The analysis of selected concepts and definitions shows a multitude of approaches to the issue and the emphasis on the various aspects of sustainable urban development and sustainable city. This is due to the diverse interests of authors, the specifics of a given scientific discipline, human subjectivity or the difficulty to include so many principles of sustainable development in one definition that should refer to the equal concern on economic, social, environmental and governance sustainability. Some of the presented definitions and concepts concentrate on the environmental protection, security from environmental hazards, proper use of resources, protection of human and natural resources, while others stress the role of the urban design, governance, the balance between environmental protection and its integration with social and economic goals, the economic development and regeneration bringing a vitality and diversity. The authors of presented concepts are aware of the long process of transformation towards sustainable cities through the strategic process of planning and managing that encompasses the full range of human settlements with links at the national and global levels. This transformation needs not only the long-term goals and sustainable urban management strategies, but also the change of social behavior. The city system â€" sustainable and unsustainable cities Figure 1 and Figure 2 provide a useful outline of urban metabolism as a process Roger It is clear from the models that this metabolism involves inputs in the form of resources, food, energy and goods, as well as outputs â€" being the effects of a series of interrelated processes of change related to urbanization. As suggested by Figures 1 and 2, the relationships between inputs and outputs are complex. Cities remind a system having own metabolism. Some of these outcomes may be perceived as problems commonly observed in unsustainable cities. Such attempts are seen in the city with circular metabolism, which minimizes its inputs and maximizes recycling to reduce the level of pollution and amount of waste. Such a city system is related to the idea of sustainable city. Linear metabolism cities that consume and pollute at a high rate. Circular metabolism cities minimize new inputs and maximize recycling. It consists of a variety of elements, some of which are relatively easy to measure, but a comprehensive measurement of a qualitative approach can be challenging. Because of that, it is difficult to find a set of indexes that would measure all aspects of sustainable urban development despite the significant development of methods, techniques and tools for assessing sustainable performance during the urbanization process. There are a lot scientific attempts to measure the level of chosen aspect of sustainability level in particular cities Petersen et al. As a result of the methodological difficulties, it is a challenge to prepare the ranking of cities on sustainable urbanization performance based on one universal composite measure. The ranking of the top cities on their sustainable urbanization performance. A given city received a score on each of the three pillars of sustainability. The Sustainable Cities Index was introduced in to bring together many data points into one place and rank the selected cities according to their overall performance in implementing sustainable urbanization. However, significant differences in the rankings of cities in and show

methodological differences that make the comparison of both rankings unreliable. In seven additional sustainability indicators were added and the number of cities was doubled Arcadis reports, , Referring to Table 2, the 16 performers of the top 20 places in overall index ranking were European cities. Zurich, Stockholm, Vienna and London were leaders. Three Asian cities have achieved high results comparable to European cities: Singapore, Seoul and Hong Kong, placing second, seventh and sixteenth position respectively. Canberra is the Australian leader, occupying the nineteenth position. The top 20 places do not include the American and African cities. The highest North American cities to appear on the ranking are Vancouver and New York with twenty-third and twenty-sixth positions respectively. However, this ranking is different if consideration is given to the three sustainability dimensions separately. From the perspective of environmental sustainability, Zurich, Stockholm, Geneva, Vienna, Frankfurt are the leaders. Making cities attractive and sustainable â€" chosen sustainable urban develop- ment strategies To make cities attractive and sustainable, the urban development should be guided by a sustainable planning and management vision that aims to balance short-term needs with long-term desired outcomes. Many cities all over the world implemented sustainable urban development strategies, depending on their problems and possibilities to overcome them. These strategies are understood by Nagle G. It is worth noting that a mixture of sustainability tactics and practices does not add up to a sustainable strategy. The strategy must take into account the interests of all stakeholders such as governments, residents, investors, employees, employers, NGOs. Curitiba â€" the city with a successful implementation of the sustainable urban development strategies Curitiba, the capital city of the state of Parana in the southeastern part of Brazil, has experienced the rapid population growth since the s. In it was inhabited by approximately ,2 thous. Population number in Curitiba in Meantime, in , two new institutions were created: The original goal of the second institution was to assist in the selection and approval of the Master Plan. However, PPUC was chartered to implement, revise, develop and coordinate this comprehensive development plan. By , all the projects were ready for implementation. According to Arbel J. The elimination of private cars from them oxygenated the heart of the city. The most intensive transformation in Curitiba took place up until the s, when the demographic growth started normalizing Macedo Major changes initiated by the Curitiba Master Plan 1. The establishment of pedestrian zones. Areas for exclusive or preferential use by pedestrians, as well as a renewed urban landscape and historic preservation initiatives were additional elements of the integrated planning structure. The creation of open green areas. Many recreational parks covering the foodplains have lakes and are aimed to catch runoff in low-lying areas preserving natural drainage and providing aesthetic and recreational value to the thousands of people who use city parks. Houses and other buildings that were the subject of flood in the s and s were destroyed or converted into leisure and sport activities. Nagle, Cooke Some parks with characteristic buildings remind about the presence of diverse nationalities across the area, e. Portugal park, Japan square, German church, old Polish house. A new road design to minimise traffic based on the Trinary Road System. The radial layout of major roads based on a plan by the French architect Alfred Agaches was rearranged into a linear model. It caused the fundamental change in the directions of the Curitiba expansion along five structural axes guiding public transportation and determining population densities Macedo

Chapter 6 : Rethinking Urban Sprawl: Moving Towards Sustainable Cities | The Forum Network, hosted by

To promote China's sustainable city construction and development, this Brief has preliminarily used an assessment indicator system and development index of a sustainable city, based on a summary and analysis of the existing Sustainable City theories and practices both at home and aboard.

Subjects Description While there has been much recent research into achieving sustainability in urban areas, most of this is specific to a particular region. This volume broadens these discussions by extending the analysis from North American and European cities to include East Asian cities. Many cities in Asia have deep historical roots, have sustained dense populations through time and have grown prosperous in recent decades. They also face significant environmental degradation and other planning challenges. In bringing together and comparing strategies and experiences from three distinct global regions, this book offers unique insights and new perspectives on the challenges of moving towards greater urban sustainability. While questioning which strategies can promote sustainable cities in a global context, the book also illustrates that while formulae generated out of American and European experience cannot be universally applied, some of the analytical approaches and experience of the other developed countries can offer insights for those working in different contexts. It argues that managing urban change for greater urban sustainability in diverse regions requires detailed understanding of local issues and regional strategies as well as strong support from local communities. In particular, it places the challenges and recent experience in moving toward sustainable cities in Asia - the most rapidly growing part of our urban world - in a comparative context. Projects and Initiatives Table of Contents Contents: Marcotullio and Jill Grant; Sustainable urbanism in historical perspective, Jill Grant; Why the Asian urbanization experience should make us think differently about planning approaches, Peter J. A critique, and the Los Angeles counterpoint, Harry W. A policy based on de-concentrated clustering, Jef Van den Broeck. Towards land management policies for more sustainable cities, Jill Grant, Peter J. About the Series Urban Planning and Environment Urban Planning and Environment Maintaining and enhancing living conditions in cities through a combination of physical planning and environmental management is a newly emerging focus of governments around the world. For example, local governments seek to insulate sensitive land uses such as residential areas from environmentally intrusive activities such as major transport facilities and manufacturing. Regional governments protect water quality and natural habitat by enforcing pollution controls and regulating the location of growth. Some national governments fund acquisition of strategically important sites, facilitate the renewal of brown fields, and even develop integrated environmental quality plans. The aim of this series is to share information on experiments and best practices of governments at several levels. These empirically-based studies present and critically assess a variety of initiatives to improve environmental quality. Although institutional and cultural contexts vary, lessons from one commonly can provide useful ideas to other communities. Each of the contributions are independently peer reviewed, and are intended to be helpful to professional planners and environmental managers, elected officials, representatives of NGOs, and researchers seeking improved ways to resolve environmental problems in urban areas and to foster sustainable urban development.

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aluminium: towards sustainable cities quantifying the in-use benefits of aluminium in architecture and built environment In over million tonnes of aluminium were estimated to still be in use in buildings and infrastructure.

Ville Radieuse, the Radiant city, was designed to include extensive green spaces and effective public transportation, with separate zones for business, residence and entertainment. The project never became reality and was, in fact, criticised by modern architects for several reasons. At the core of his designs were sustainability, greener lifestyles and social equality â€" characteristics that are glaringly absent in our cities today. Jawaharlal Nehru wanted New Delhi to be the modern, poverty-free capital of independent India. Unfortunately, it has become one of the most polluted cities in the world with high social and economic inequality. The impact of uncontrolled urbanisation is already evident in our country. If Indian cities are to survive the massive population wave that will hit them in the coming decades, sustainable development is paramount: Wikimedia Commons Compact cities Large-scale rural to urban migration has multiplied the demand for basic infrastructure like housing in recent years. Hence, cities are stretching further out to accommodate a swelling population. Slums and illegal colonies have emerged within major cities, and settlements have encroached on lands surrounding them as well. These areas are characterised by poverty, congestion, poor health and inadequate sanitation and water facilities. Additionally, travel from peri-urban and suburban regions to city centres for work and other purposes has increased the number of vehicles and consequently, our carbon footprint. Compact cities are now being touted as a solution to such unsustainable urban sprawl. A compact city stresses on shorter distances between homes and urban services, higher residential density, walking or cycling and a sound public transport. In order to achieve the aforementioned features, mixed land use is afforded prime importance in such city designs. Houses, schools, offices, hospitals, parks, shops etc. Amsterdam, one of the top five most sustainable cities in the world, is an ideal example in this case. It makes optimal use of space while preserving natural reserves and public health. However, Indian cities face a more pronounced population pressure when compared to Europe or the West in general. Hence, achieving the goal of compact cities will be a tough task. Perhaps the concept would work better if local governments identified certain areas in the city for compact growth and connect them to the centre and with each other through smooth functioning state transport facilities. These areas, essentially functioning as cities within cities, will reduce the pressure on just one part of the urban landscape and give more affordable options to citizens based on their requirements. Energy efficiency India is the third largest consumer of energy in the world. Yet, we fall short of our energy needs, with only 79 percent of the population having access to electricity, not all of which is uninterrupted. Hence, it goes without saying that energy efficiency should be high on our sustainability agenda. Presently, the primary source of energy in the country is coal followed by crude oil. The share of renewable sources not including hydroelectricity in our energy mix, though low, has steadily risen over the years to The NDA government has now set an ambitious target of increasing our renewable energy capacity to more than , Mega Watts Mw by This shift in focus towards clean energy is a welcome move. Though initial investment in renewables may be high, it is more than offset by the significant reduction in energy expenses later on. By either providing subsidies to low income sections, which the National Bank for Agriculture and Rural Development NABARD is already doing , or completely funding renewable energy projects in extremely backward areas, the state can get one step closer to becoming energy efficient. The government is also hoping to save about billion rupees a year by upgrading to energy-efficient air conditioners, irrigation pumps, lights and fans. Insulating homes can also reduce the use of air conditioners or heaters by effectively blocking out heat in the summers and keeping it in during winters. Finally, decentralisation of energy production will greatly add to the efficiency quest. A part of the energy is lost during transmission from remote areas through national grids. Carbon emissions are also high in this method of supply. Hence, producing energy locally, be it from renewable resources, fuel run engines or cogeneration , will be both cost-effective and eco-friendly in the long run. Public transportation system The significance of an efficient public transportation system to sustainable development cannot be stressed enough. As we

mentioned above, for cities to take the route of compact growth, well connected mass transit facilities are fundamental. They reduce the dependence on private transport, thereby cutting down on greenhouse gas emissions as well as fuel demand. It is also an affordable and time-saving mode of commute. Hence, it has to be made an attractive option to the public. A systematic, safe, timely and well-maintained network of rail, metro and bus is crucial. If the government invested in more lines, better maintenance and upgradation of infrastructure, even those who avoid taking the trains might feel encouraged to do so. Similarly, the bus system is efficient and connects to cities all over Korea as well. The popular T-money card , which can be easily recharged at stations, ATMs, convenience stores or kiosks next to bus stations, can be used for trains, buses, taxis as well as at accepted retailers. Such easy methods of payment make travel by public transport hassle-free. Simultaneously, new measures to discourage the use of private transport can be put in place. New Delhi plans on introducing congestion taxes as well as increasing parking prices to reduce the number of private vehicles on the street. A government panel also suggested more investment in infrastructure for walking, cycling and buses and less in flyovers. Such initiatives combined with a superior mass transit network will surely boost sustainable growth. Protection of natural resources The grave consequences of extensive ecological damage need no explanation. Vehicular and industrial pollutants, large-scale deforestation, contamination of water bodies, dumping of waste, high noise levels and several other harmful practices are systematically degrading our natural environment. Similarly, destruction of the Yamuna river due to sewage and industrial effluents has long been discussed. So has the issue of encroachment on lakes and storm-water drains in cities like Bengaluru and Hyderabad, making them prone to floods. Despite debate and discussion in public forums, laws, judgements and panel recommendations, the degree of pollution has only risen in the country. Strict enforcement of rules is key to protecting our ecological resources. Government representatives have quite often turned a blind eye to blatant violations of environmental law. This is evident in the cases of illegal sand mining , building construction on water bodies or mangrove destruction , to name a few. Transparency and accountability are a must, so is greater awareness among the general public. Cities could start with setting up low emission zones, where vehicles with carbon emissions higher than a prescribed limit will be barred from entry. A shift to public transport dominated travel will further reduce the amount of greenhouse gases released into the air. Besides pollution from vehicles, industry emissions need to be controlled as well. Installing carbon capture and storage systems CCS , like those in Rotterdam, will prevent harmful gases from escaping into the environment. Similarly, more silence zones should be mapped out in the country to bring down noise pollution, while existing ones are monitored strictly. Citizens are becoming more conscious of the ill effects of excessive noise and are taking steps to reduce it, especially during festive seasons. Abysmal waste management is one of the major reasons for water and land pollution in cities. Either it is directly let out into nearby lakes, rivers and backwaters or dumped into landfills, where waste is set on fire. Segregation of garbage, proper waste collection systems, sewage treatment plants, biodegradable waste disposal practices and recycling centres require major emphasis in our cities. Private sector investment To modernise and upgrade infrastructure for sustainable development, government funding alone will not be enough. Investment in sustainable public transport is one of the best ways to engage the private sector. In fact, several such projects have already been completely or partly funded by corporate companies. Similarly, encouraging builders to design green buildings would go a long way in securing our sustainable future, especially since real estate is one of the largest growing industries in the country. However, it is in the hands of the government to incentivise private companies either by ensuring good returns or decreasing the risk on investments. Besides that, corporate social responsibility CSR too can help in bringing money for investment or initiate projects for social, environmental and economic sustainability. We have already brought irreparable harm to the planet.

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Amsterdam, one of the top five most sustainable cities in the world, is an ideal example in this case. It makes optimal use of space while preserving natural reserves and public health.

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Data, research, outlooks and country reviews on environment including biodiversity, water, resource and waste management, climate change, global warming and consumption., This report provides a new perspective to the nature of urban sprawl and its causes and environmental, social and economic consequences.