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The International Society of City and Regional Planners (ISOCARP) is a global association of experienced professional planners. It was founded in 1965 in a bid to bring together recognised and highly-qualified planners in an international network. The ISOCARP network brings together individual and institutional members from more than 70 countries worldwide. As a non-governmental organisation ISOCARP is recognized by the UN, UNHCS and the Council of Europe. The Society also has a formal consultative status with UNESCO.

Although ISOCARP members work in many different fields they share a common interest in the spatial and environmental dimensions of urbanisation. They advise key decision-makers, proposing and supporting projects for intervention in a spatial context through general or specific actions.

The objectives of ISOCARP include the improvement of planning practice through the creation of a global and active network of practitioners. ISOCARP encourages the exchange of professional knowledge between planners, promotes the planning profession in all its forms, stimulates and improves planning research, training and education and enhances public awareness and understanding of major planning issues at a global level.

The association's main event is the annual World Congress, which focuses on a globally-significant planning theme and which takes place in a different country each year. Prior to the congress Young Planning Professional Workshops are organized. This YPP programme seeks to bring together emerging young planning professionals from all over the world to tackle 'real-world' planning projects. Smaller-scale events such as seminars and working groups are also organised.

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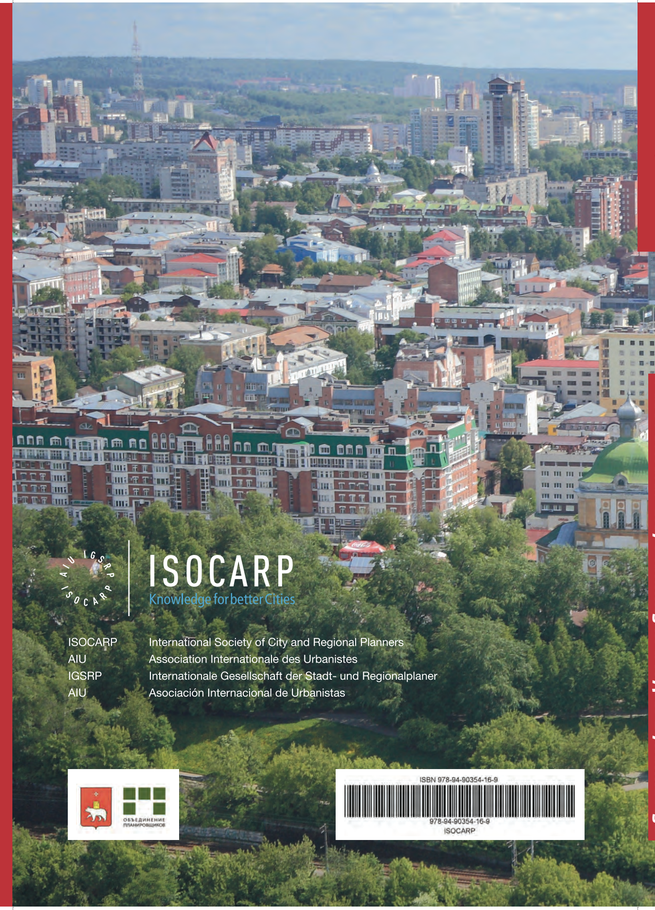

ISOCARP
Knowledge for better Cities

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AIU	Association Internationale des Urbanistes
IGSRP	Internationale Gesellschaft der Stadt- und Regionalplaner
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ISOCARP REVIEW

Fast Forward: City Planning in a Hyper Dynamic Age

Fast Forward: City Planning in a Hyper Dynamic Age

Editors: Shi Nan & Chris Gossop

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Towards Sustainability in European Cities Contrasts between the Overall Effects of European Union Policies and Achievements at the Level of Individual Cities

Pierre Laconte

Exemplary solar housing in a low carbon urban extension to Freiburg, Germany. Image by Chris Gossop ©

New kinds of multilevel challenges and opportunities arise from the effects of climate change, the energy and resources crunch, and the loss of biodiversity. These challenges affect citizens and decision makers at international, regional, national and local level. The present paper focuses on the European level and the local level.
Four sets of European Union (EU) policies affecting urban sustainability are examined:
1) Regional policies – their encouragement of urban dispersal, with some exceptions (former URBAN Programme);
2) Transport policies – their encouragement of road-based mobility (with the exception of some TENs); 3) Energy policies – their limited effect on low-energy cities and regions (energy production and energy consumption, fossil and renewable); and 4) Policies related to agriculture.
At the local level many urban best practices exist, independently from EU incentives. They require critical assessment and evaluation. Some practices are mentioned which reflect the author's experience.[1]

Introduction: Defining Urban Sustainable Development

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According to the classic Brundtland definition, sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987). This requires the reconciliation of the 'three pillars' of sustainability: environmental, social and economic.

As stressed by F. Biermann (2007), earth system governance is multi-layered and fragmented. It covers not only problems of the 'global commons', but also local problems from air pollution to soil degradation and it involves multiple levels of decision-making.

In the case of cities and regions, governance needs to take into account:

- The environmental aspects of air and water quality, measured by pollution levels, including noise pollution, low carbon emissions and the general quality of their ecosystems services.
- The social desirability for their citizens and users, its safety and security and its social cohesion i.e. peaceful coexistence of different social groups and conflict management, easy access to urban services such as education and culture, and easy human face to face interaction.
- The economic capacity for the city and its hinterland to provide the services needed by the economic actors, production of goods and services, employment and commerce, keeping in mind the needs of the next urban generations, by saving resources and energy.

Inasmuch as a majority of the European population lives in cities or urbanised areas, the sustainability of Europe is largely the sustainability of cities and their hinterlands.

European Union (EU) Policies and their Effects on Cities

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Regional Policies and Their Effect on Urban Sustainability

For the period 2007-2013 the regional policy funds represent the second biggest item of the EU budget after the funds for the 'Common Agricultural Policy' (CAP). These structural funds are specified by objectives. Objective 1 areas include the outermost regions and low population density regions.

These regional funds, managed by the EC Directorate General REGIO (Regional Development), as well as the subsidies from the Directorate TREN (Transport and Energy), now split between Mobility and Transport and Energy, have encouraged a dispersal of EU funded investments into exurban areas and peripheral regions, to the detriment of the urbanised core and of existing cities (Doucet 2006).

The European Spatial Development Perspective (ESDP) was the first policy framework document adopted in 1999 by the Council of Ministers in Potsdam, at the end the German presidency. It confirmed the overall EU policy in favour of a balanced development throughout the Union, which meant reducing structural disparities between regions and promoting equal opportunities for all, in other words encouraging all activities in all places. This aim was translated into a variety of financing operations, principally through the structural funds and the Cohesion Fund (Doucet 2006).

The proponents of dispersal ('polycentricism') include the interest groups representing infrastructure developers looking for subsidies, the oil, concrete and automobile industries looking at more vehicle travel and the 154 peripheral maritime regions (CPMR 2011). This subsidised polycentricism meant more urban sprawl, more motorised road transport, more fossil fuel consumption and higher greenhouse gas (GHG) emissions, in contradiction to the discourse on global warming mitigation.

At the margin of the main regional policy and funds, the URBAN I and URBAN II programmes have been able to finance some 200 individual city projects by giving them direct access to Brussels funds. This programme has led to some remarkable results, mainly in deprived urban areas of Southern Europe (Lecce in Puglia and Cosenza in Calabria, for example), as was recognised by the EU report *'Cities of tomorrow - Challenges, visions, ways forward'* (REGIO 2011). The lobbying by cities – dispersed between different associations - proved unable to prevent the scrapping of this successful programme by the Council of Ministers. It has been replaced by a reinforcement of URBACT, a mere exchange network of experiences between selected cities, their selection being in effect controlled by central governments at the national level. The funding of reports replaced the funding of projects.

A minor shift in the territorial cohesion policy has recently emerged, as a result of the 2007 Leipzig conference of the Council of Ministers followed by the 'Lisbon to Leipzig Declaration' (L2L 2007).[2] Following this conference, cities are conceptually re-emerging as motors of regional development and actors in combating global warming and resource depletion. This emerging territorial cohesion policy shift could lead to an emphasis not only on deprived regions but also on deprived urban neighbourhoods. The EU Stockholm Cities and Climate Change Conference Report (Stockholm 2011) reflects this new EU emphasis. A complete policy reversal in favour of encouraging specialisation of territories rather than dispersal of infrastructure investments all over the EU, and of encouraging inner city development as opposed to urban spread, would reduce the need for automotive transport and would better preserve the natural environment from urban settlements and soil sealing.

EU Mobility and Transport Policies and Their Effects

Regional funds have especially been invested in heavy infrastructure projects, particularly highways, airports, and dams (Bannister 2000). The total direct transport subsidy in the EU amounts to €280 billion (milliard) per year, around half of this amount for roads. This figure has been fully documented by the European Environment Agency (EEA 2007).

A European network of high speed rail could have been achieved from the 1960s, in line with the Japanese Shinkansen, which has been operational since 1964 and was an immediate success, reaching the 100 million passenger mark in less than three years. Instead, a Trans European Road Network was financed, as the result of concerted lobbying by road, oil and automobile interests, while rail interests were dispersed among countries, among the sectors involved and among rival rail transport associations.

Meanwhile, worldwide, about 1.3 million people die each year as a result of road traffic crashes; road traffic injuries are the leading cause of death among young people, aged 15–29 years and without action, road traffic accidents are predicted to result in the deaths of around 1.9 million people annually by 2020 (WHO 2011).

EU Energy Production and Distribution Policies and Their Effects on Energy Efficiency in Cities

Energy production

Confronted with the perspective of fossil fuel depletion, energy suppliers look for alternatives. The EU policy is to encourage them (Dir. 2009/28/EC). According to the EEA, the most promising new energy sources are at present photovoltaic concentration and wind farms and, at a later stage, energy from the sea, i.e. wave and tidal resources (EEA 2008). As to emissions reductions and energy savings, different EEA reports suggest that the main area of concern is transport (road freight, aviation and shipping) (EEA 2009).

There are reservations in some quarters about the use of biofuels. For example, in a joint OECD/ITF report it is noted that US bio fuel tax subsidies are to grow and grow, resulting from a coalition building between agricultural interests and oil producers seeking alternatives (OECD/ITF 2007). Together with the pronouncements of the EEA, this report emphasises the side effects: pressure on the supply of food for humans and animals; deforestation and indirect land use change.

Nuclear energy remains a contentious issue. Producers have emphasised its low emissions but rely on future technical progress to find solutions to safe nuclear waste storage, recycling of old plants and reduced exposure of plants to large-scale incidents.

Energy distribution: 'super-grids' and 'smart-grids'

Access to a distribution grid at any time and at fixed conditions is essential for the market of alternative energy suppliers (huge storage facilities not being available with present technologies). This objective can be achieved at regional scale through super-grids and at local level through smart-grids.

The super-grids covering large regions are a European as well as world issue. China, for example, is now investing massively in four huge wind energy concentrations, requiring a super grid to serve the

Figure 1: Concentrated solar power plant.
(c) European Environment Agency

consumer areas. In the EU, solar concentration power plants are now sprouting in southern Europe; they include Spain's Andasol plant serving a 200,000 population). In a longer-term perspective, EU originated projects include the ambitious Desertec project). A 1997 EU White Paper (EC White Paper 1997) describes a scenario of electricity demand and supply opportunities for renewable energy in the integrated EU/Middle East and North Africa (MENA) region up to 2050, and stresses the need for international cooperation to achieve economic and environmental sustainability. The 'Desertec, project includes an energy cable connection to Europe, taking stock of the diminishing cost of long distance energy transport. Its implementation would also trigger development in the MENA region, e.g. through feeding of desalination plants.[3]

By contrast, the local level smart-grids are meant as incentives to local production of alternative energy by optimising its access to electricity networks, using IT tools. In the US, the Pacific Northwest Smart Grid Demonstration Project (Northwestern 2011) illustrates this movement, as opposed to the nationwide super grid proposed by President Obama (Obama 2011), which would instead improve long-distance transport of coal based energy.

The optimal distribution grid network probably lies in a correct regional and local modelling of the peaks in electricity production compared to the peaks in demand for electricity at respective locations. It should include the links required to keep a regionally balanced supply in the face of diverse and changing climatic conditions, and maximise user information. An ambitious example of such a connection can be seen in the proposed Greenpeace North Sea electricity grid aimed at providing links between wind farms (Greenpeace 2011).

The EU is encouraging this double trend, in line with its commitment to carbon reduction, and perhaps even more in line with Germany's need to improve the interconnectedness of its northern and southern regions. As with other EU states, that country is seeking to diversify its range of energy sources and to facilitate access by small electricity producers to its grid (Duerr 2012).

EU Energy Consumption Policies and Their Effects on Energy Efficiency in Cities

The best alternative kilowatts are the ones not used, through increased energy efficiency and thriftier consumption in buildings and neighbourhoods.

Buildings are perhaps – the 'powerhouses of tomorrow', as formulated by Jeremy Rifkin (Rifkin 2011). This can happen through lowering consumption (mainly better thermal insulation) and use of sunlight and other resources. Today's roofs can incorporate photovoltaic (PV) panels. Windows can be PV captors and with micro energy savings there can be a positive energy balance. The relevant EU policies are contained in Directive 2002/91/EC on the energy performance of buildings and subsequent adaptations. Its key points are minimum standards on the energy performance of new buildings and existing buildings that are subject to major renovation, and energy certification for new and existing buildings.

However, innovations in energy supply and demand can only be achieved if strong regulations give them an economic justification. That is why Germany has become a pioneer in energy savings. Particularly promising energy-saving projects are so-called 'cross-sector technologies' supplying heat, mechanical energy and light. Combined heat and power (CHP), also known as cogeneration, is an efficient, clean, and reliable approach to generating power and thermal energy from a single fuel source. By installing a CHP system designed to meet the thermal and electrical base loads of a facility, CHP can greatly increase operational efficiency and decrease energy costs. At the same time, CHP reduces the emission of GHGs, which contribute to global climate change.

These cross sector technologies account for up to 65 percent of total end use energy consumption in German industry. Experience shows that much energy can be saved, for example, by using more efficient motor applications. And looking ahead, optimized systems for air compressors, pumps, blowers and chillers could reduce the annual total energy consumption of German industry by 101 petajoules by the year 2020. Moreover, a further 111 petajoules could be saved by using more efficient technology in lighting, heat generation, drying and industrial furnaces (Schroeter 2009).

Besides energy savings in new constructions, the saving of the energy stored in existing buildings and neighbourhoods, alongside heritage considerations, makes the case for labour intensive restoration and adaptive reuse of existing buildings instead of their massive replacement by new buildings. However, there is no EU policy stance on this, the present directives being mainly aimed at new construction. Obviously heritage is an important reason for pursuing rehabilitation and it should be weighed in the balance in decision making; in other cases, other non energy considerations, like social ones, may justify the retention of buildings. Europa Nostra is campaigning on this issue (Europa Nostra 2012).

Policies on Agriculture

Since the 1960s, the EU Common Agricultural Policy, the CAP – (EC 2009) has promoted efficient/intensive agriculture production, with the help of export-oriented subsidies. It combines : direct subsidy payments for crops through price support mechanisms, including guaranteed minimum prices; import tariffs; and restrictive quotas on certain imports from outside the EU, mainly sugar and beef. The system has been of particular benefit to large scale monoculture farms.

Reforms are underway, based on sustainability and wildlife concerns and these seek, among other things, to transfer some of the subsidy to land stewardship rather than specific crop production (including environmental land conservation) (Civitas 2011). However, policy contradictions remain. For example, while the Water Framework Directive (EC 2000) imposes strict limitations on aquifer pollution, the Nitrate Directive (EC 1991) allows 80 kg of nitrate per ha/year (even more because of control difficulties).

Other European policies also directly affect rural areas (and sometimes the hinterland of cities), such as the Habitats Directive (92/43EEC) creating Special Areas of Conservation in line with the UN Convention on Biological Diversity. It has generated a network of protected sites called *'Natura 2000'*.

Some Present Challenges for Urban Sustainability

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Urban Demography

World urbanisation has reached the level announced by Doxiadis 40 years ago (Doxiadis 1967) but is still far from having reached its apex. If one takes into account the difference between the present world population and standard UN demographic projections, another estimated 1.8 billion inhabitants will need housing by 2030. The majority of this growth will be in urban areas. To cope with this projection, we need to be building a new city for a million inhabitants every week, year after year. Meanwhile, the oil production peak will sooner or later reduce fossil fuel energy supply. The time of the peak will largely depend on the results of new explorations and on the development of non-conventional fossil fuels. Climate change will generate additional constraints. These issues are intrinsically linked to spatial development patterns. City and regional planners need to be poised to help address them.

In Europe the situation is very different as population increase is mostly slow, as shown by Eurostat's latest population projection scenario for the continent.[4]

It focuses more particularly on population ageing, undoubtedly a key demographic challenge in many European countries over the next fifty years (Eurostat2011). Its implications for socioeconomic systems, such as public pension programmes, health care or kinship structures, may be considerable. An EU study has addressed this issue (EU 2009).

Megalopolis Governance and the Quest for Sustainable Energy Consumption

At the global level, the 'Urban Age' paper presents comparative studies about the size and population of some of the largest conurbations like Istanbul, New York, London, Mexico and Shanghai, illustrated by a set of maps at the same scale (LSE 2009). This study identifies an 'unfulfilled quest for a governance blueprint'. In other words the governance at level of the traditional city has to be complemented by strategies and implementation tools at metropolitan level. This requires new forms of political representation.

In Europe, the tight urban network inherited from the early urban age based on merchant caravans and the industrial conurbations, mainly in coal and steel areas, has generated loose urban regions close to each other, and in quest of strategies and tools which respect all levels of citizenship: urban villages, central cities, peripheries and US type 'edge cities'.

The oversupply of built space is a specific challenge in areas of old industrialisation and related urban sprawl, and where there is a shrinking population. Shrinking cities are dense cities that have experienced notable population loss. Out-migration is a common reason that cities shrink. Since the infrastructure of such cities was built to support a larger population, its maintenance can become a serious concern.

The German research project 'Shrinking Cities' has developed a body of international knowledge in this field. It includes a world map of shrinking urban areas (Shrinking 2011).[5]

The unification of East and West Germany and the addition of five New Länder has produced a number of initiatives at this territorial level to reduce the discrepancies with the older ones that resulted from decades of separation. The International Building Exhibition for the Urban Redevelopment of Saxony-Anhalt - IBA Sachsen-Anhalt - and the renovation of historic Köthen (as part of this project) can be cited as examples (IBA 2011) [5, 7].

From Urban Sprawl to Sustainable Urban Development through Land-Use and Transport Policies

Forecasts of automobile growth, the main contributor to GHG emissions suggest a much slower increase in population than in car ownership, and even more so in vehicle km travelled per person. While the 19th century was the age of great railways and urban rail, the 20th century has clearly been the age of the automobile. Henry Ford's large scale production of his Model T and his capacity to convince governments to pay for road construction and maintenance - while urban rail had to pay for both and enjoyed no right of way on the street - entailed the end of self-supporting rail public transport in US cities. Street views of Chicago in the 1930s show streetcars locked in traffic. Thus the automobile-based American way of life became the motor of development, linked to highways built in accordance with traffic forecasts ('predict and provide') (Laconte 2011).

The limits to road construction were shown by the UK Government's 1995 SACTRA Report (SACTRA 2005). This report shows the effects of new roads in terms of traffic generation and that the 'need' for space generated by those roads is higher than the additional space provided. New roads thus increase congestion, after an initial relief period, and enhance further urban sprawl.[8]

The side effects of traffic in terms of personal safety, air pollution, stress and obesity have been shown again and again. The WHO warned that people walking (or cycling) less than a half hour per day risked jeopardising their health. Bike rental schemes have proved successful in cities like Paris, Lyons and Barcelona (Guet 2009).

International Sustainable City Best Practices – Evaluation Issues

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Benchmarking the Green Cities

The multiplicity of best practices and supporting certifications at all spatial levels, from single buildings up to cities and conurbations, justifies an evaluation of the evaluations, at least an assessment of the assessments. European cities have been the subject of many 'green rankings'. A comparison between rankings has been made by B. Georgi (Georgi 2012), mainly using KPMG expert panels and Siemens and from her experience (jointly with the author) as expert evaluator for the European Green Capital Award (EGCA) 2012 and 2013 (EGC 2012).

The different assessments and rankings follow different purposes. The EGCA is initiated by a public body, the European Commission's Directorate General for the Environment and aims to promote and reward the most active and progressive cities in terms of the environment. This should stimulate the debate and progress towards more sustainable urban development in Europe. The award is based on three evaluation criteria for each of the twelve indicator areas: the performance of the city, the implementation of efficient and innovative measures, and future commitment. Furthermore, the winning cities should be able to act as a role model and inspire other cities (Berrini & Bono 2010). With the substantial documentation of the whole process and the shortlisted cities, the EGCA goes beyond a simple ranking. It is a tool to stimulate other cities across Europe and enable them to learn from the frontrunners. As the cities have to apply themselves by presenting their performance and activity across a broad range of areas, the application process forced internal municipal communication and co-operation even in areas, where this did not happen before.

The Singapore Lee Kuan Yew World City Prize also aims to inspire other cities and focuses on governance and leadership. It is thematically broader than

	European Green Capital Award 2010/2011 (Expert panel) (EGCA)	**European Green Capital Award 2012/2013 (Expert panel)** (EGCA)	**European Green Capital Award 2012/2013 (jury)** (EGCA)	**European Green City Index** (Siemens, 2009)	**Mercer Eco-city 2010 (European cities)** (Mercer, 2010)	**Mercer Quality of Life Index 2010 (European cities)** (Mercer, 2010)	**EIU Liveability Index 2011 (European cities)** (EIU, 2011)	**Globe Sustainable City Award (European cities)** (Globe Award, 2010)	**Monocle's most liveable Cities Index 2010 (European cities)** (Monocle, 2010)
1	Hamburg	Barcelona	Vittoria-Gasteiz	Copenhagen	Helsinki	Vienna	Vienna	Malmö	Munich
2	Stockholm	Malmö	Nantes	Stockholm	Copenhagen	Zurich	Helsinki	Murcia	Copenhagen
3	Munster	Vittoria-Gasteiz		Oslo	Oslo	Geneva		Stargard Szczecinski	Zurich
4	Amsterdam	Nuremberg		Vienna	Stockholm	Düsseldorf			Helsinki
5	Freiburg	Nantes		Amsterdam	Nuremberg	Frankfurt			Stockholm
	Oslo	Reykjavik		Zurich	Bern	Munich			Paris
7	Bristol			Helsinki	Zurich	Bern			Vienna
8	Copenhagen			Berlin	Aberdeen	Copenhagen			Madrid

Table 1: The "European Green Index by Siemens – Economist Intelligence Unit, KPMG expert panels and others, ranked from 1 to 8

	European Green Capital Award (EGCA)	**European Green City Index** (Siemens, 2009)	**Urban Ecosystem Europe** (Berrini, M. and Bono, L., 2007)	**Urban Metabolism headline indicators** (Minx, et al., 2011)	**Mercer Eco-city** (Mercer, 2010)	**Mercer Quality of Life Index** (Mercer, 2010)	**EIU Liveability Index** (EIU, 2011)	**Globe Sustainable City Award** (Globe Award, 2010)
energy / climate	Local contribution to global climate change	CO_2 emissions	energy and climate change	Per capita CO2 emissions from energy consumption				
		energy		Efficiency of residential energy use				
transport	Local transport	transport	Planning , design and better mobility	Energy efficiency of transport	traffic congestion	public services and transportation	infrastructure	Technical and Infrastructure Capital -
				Public transport network length				Transportation and ICT
				Registered cars				
land use and nature	Green urban areas	waste and land use	Local action for health and natural common goods	Green space access		housing	infrastructure	Environmental Capital - Natural Resources Preservation
	Sustainable land use	buildings		Urban land take		natural environment	culture and environment	
	Nature and biodiversity			Land use efficiency				
health			Local action for health and natural common goods			health and sanitation	healthcare	
						recreation		
air	Quality of local ambient air	air quality		NO2 concentrations; PM10 concentrations	air pollution			
	Noise pollution							
water	Water consumption	water		Efficiency of urban water use	water availability			
					water portability			
consumption and waste	Waste production and management	waste and land use	responsible consumption and lifestyle choices	Waste intensity	waste removal			
	Waste water treatment			Recycling	sewage			
environmental management	Environmental management of the municipality	environmental governance	local management towards sustainability and governance					
economy			vibrant, sustainable local economy	Unemployment rate		economic environment		Financial Capital - Assets and Financial Management
				GDP per capita		consumer goods		
social / culture			social equity, justice and cohesion			political and social environment	culture and environment	Political Capital - Confidence and Public Trust
						socio-cultural environment	Stability	Social Capital - Well being and Social Relations
						schools and education	education	Human and Intellectual Capital - Innovation and Social Intelligence
								Culture and Leisure Capital - Experience

Table 2: Indicator areas used in different indexes and assessment approaches

the EGCA by honouring a holistic approach to sustainable development towards liveable, vibrant cities with a healthy environment. It differs from the EGCA in that cities cannot apply themselves; instead, they are nominated by independent experts.

Siemens' European Green City Index offers an indicator system to measure and rank the environmental performance of cities. It increases our understanding of why there are differences and of the potential to improve the situation. For that purpose, it ranks 30 European capitals, the selection of which is a systematic choice. Other assessments build on voluntary contributions, direct participation of cities in the assessment process, or cities are selected according to good data availability. In this way the lists that emerge can sometimes contain unexpected candidates. Often, however, they comprise only the cities which are already ahead. Examples are the EGCA or the Urban Ecosystem Europe (Berrini & Bono 2007).

Other indexes like Mercer or Monocle rank cities according to their performance in terms of the environment or sustainability, or quality of life. Their regular rankings are greatly welcomed by the cities which are listed at the top. Those cities use their ranking as a marketing instrument to promote themselves in the world.

Depending on the intentions of the respective assessments, every initiative chooses its own 'ideal' mix of indicators. For example, Siemens' Green Cities Index (2009) puts more weight on climate related indicators. Two out of eight indicators – CO_2 and energy - are directly linked to climate change mitigation, but also the indicator for buildings describes nearly exclusively energy efficiency.

The EGCA lists an indicator for green urban areas and a separate one for biodiversity. Both are, on the one hand, strongly interrelated – plants and animals live in green areas and major ecosystem services are generated there. On the other hand, each of them also has exclusive concerns, such as recreation which is relevant to green areas but not biodiversity; meanwhile species numbers definitely belong to the biodiversity indicator.

It requires a careful selection of sub-indicators to ensure the right balance and avoid double counting. One could go further, using sub-indicators such as soil sealing. The conclusion is that comparisons have to be assessed according to the criteria and indicators chosen in each case, coherence being the key (Georgi 2012).

More specifically, the benchmarking of cities as to their GHG emissions remains a daunting technical challenge, namely for those who want to engage in emissions trading. As an example of the difficulty of comparing best practices, let us take the CO_2 emissions per capita deriving from energy consumption.

The EU Joint Research Centre - JRC Workshop on Methodologies for Sustainable Energy Action Plans attempted to analyse the variables used by the methodologies on hand for the quantification of imported and exported emissions, the boundaries of observation areas and the sources of energy used (Bader & Bleischwitz 2011).

Six standard tools were analysed, and they revealed that different standards are used but no one standard seems to be widely accepted. Most of the tools are based on IPCC guidelines but they are not always completely consistent with them.

If the aim is to ensure interoperability of methodologies in order to allow cities to gauge their policies, and facilitate an effective action-driven decision-making process, the options can only be:

- Enabling communication between existing tools;
- Development of an international standard;
- Adoption of a unique tool.

Case Histories

Selected case histories from the authors' practice illustrate successful attempts by a few cities and urban regions to achieve sustainability. The author has previously identified a number of best practices (Laconte 2011), including Berlin, Chicago, Curitiba, Freiburg im Breisgau, Oregon, Portland Metro, Singapore and Zurich. The present case histories will limit themselves to three recent international awards for best practice (Bilbao, New York and Copenhagen) and concentrate on a specific achievement for each case.

Bilbao has been recognised as a successful example of revitalisation through cultural investment. It won the Lee Kuan Yew World-Cities Award in 2010, for its achievements over a long period. The same municipal team has been at the helm since 1989 and has implemented its revitalisation objectives through a public-public partnership, i.e. a partnership between the public authorities, local, regional and national that owned the industrial land to be redeveloped (Abandoibarra). A public company (Bilbao Rià 2000) was entrusted with land assembly and the planning

and coordination of the redevlopment. Tackling these difficult sites could not be done by the private sector, because of its divergent interests, nor by a single public authority. It needed a public-public partnership to be able to unlock its potential. Bilbao Rià 2000 has had all the partners that count and it was given the political mandate to secure the redevelopment. It needed to operate with a significant degree of autonomy in its day to day operations, to avoid dependence on budgetary allocations from its shareholders. Handing over the land to Bilbao Rià 2000, for it to use as leverage and raise funding, was an important measure.

Bilbao Rià 2000 made a surplus in its regeneration of Abandoibarra, which it then used to redevelop other areas in need of rehabilitation. It has large landholdings, which remain available for future development (Laconte 2005).

The Bilbao success story has triggered the 'Bilbao next' initiative, focusing on knowledge, and the setting up of a selective network of 'cities of excellence'. That may include Copenhagen, which was selected in June 2012 for the EGCA 2014. The cities of Hamburg, Stockholm, Vitoria Gasteiz and Nantes were the previous award winners.

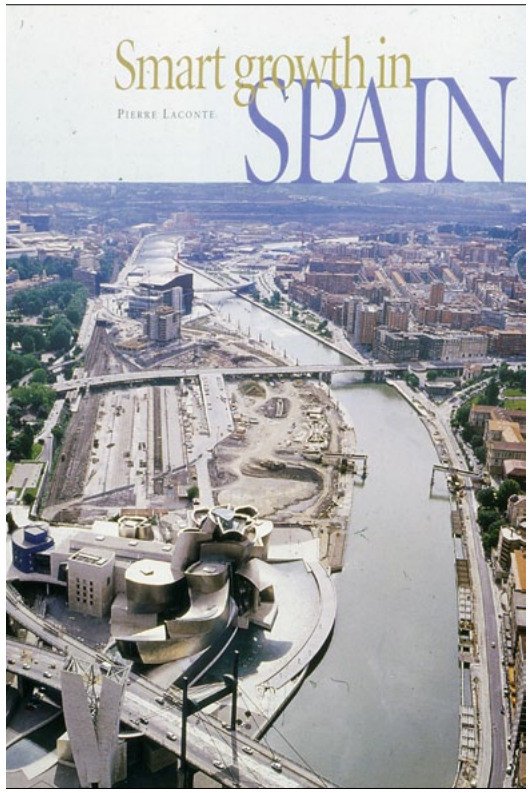

Figure 2: Bilbao renewal – industrial land clearance at Abandoibarra (2005)

Figure 3: Bilbao renewal – 2012 view of the site shown in Figure 2, as redeveloped for housing and services (Arch. César Pelli)

New York City has recently developed a growing awareness of its urban environment. In mid-town Broadway there are five times more pedestrians than cars, but pedestrians get only 10% of the street space. The City has now made plans to pedestrianise some of its streets. It won the 2012 Lee Kuan Yew World-City Prize (LKY 2012). The citation for the Prize includes the following:

'Central to New York City's success is the swift and effective implementation of the PlaNYC 2007, a long-term, comprehensive plan that aligns city agencies, business groups and the community towards a common goal. One of the key strategies underlying New York's successful transformation in the last decade is the investment in public infrastructure to increase liveability and sustainability. Improvements have been made to encourage sustainable modes of public transport, such as the Bus Rapid Transit and bicycling. 700 acres (283 hectares) of parks and open spaces have been added in the last 10 years, bringing the total parkland to 29,000 acres (11,736 hectares).
More significantly, the city has displayed a great level of experimentation and innovation with an emphasis on practical urban solutions. Instead of developing new sites, more than 35,270 square metres of roadways and underutilised spaces have been consciously redesigned into 'instant' public plazas. Innovative zoning tools have also unlocked the development potential of derelict industrial sites to create housing, office spaces, parks and waterfront promenades. New York City is an excellent example of how persistence, determination, commitment and a strong partnership with the community can turn visions into reality. It serves as a model for other global, high-density megacities to rethink their cities in terms of sustainability into the future.'
(Lee Kuan Yew World-City Prize, Press release 2012)

Figure 4: View of Brooklyn Bridge Park, Pier I, © Julienne Schaer. (Benepe 2012)

The City of Copenhagen was awarded the Green European City Award 2014 as well as gaining a special mention in the LKY Prize 2012 (jointly with Malmö). The citation included the following:

> *"The Award jury (of the GECA) considered Copenhagen's Green Business Model to be an example of sustainable economic development, tackling environmental, economic and social concerns, with good potential for replication in other cities of the world.*
> *Copenhagen has placed public-private partnerships at the core of its approach to eco-innovation and sustainable employment. The City works with companies, universities and organisations in dedicated forums to develop and implement green growth. Its North Harbour project, for example, will include a 'green laboratory' that will focus on eco-technologies, a model that can be transferred to other towns and cities.*
> *The jury singled out Copenhagen as a good model in terms of urban planning and design. It is also something of a transport pioneer, aiming to become the world's most practicable city for cyclists. Its goal is to have 50% of people cycling to their place of work or education by 2015 (35 % cycled to their workplace or school in 2010), helping the city reach an ambitious goal of being CO_2 neutral by 2025.*
> *Communication actions to engage citizens are very effective, as Copenhageners feel they are part of the solution.'*

In the case of Copenhagen one could also point out its integration, through a fast rail link, with Malmö (Sweden), a Green city in its own right (Building and Social Housing Foundation Award 2010).

Figure 5: 35 % of Copenhageners cycled to their workplace or school in 2010.
(c) Copenhagen Cyclists 2012

Conclusion

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This paper has addressed global to local issues in sustainable urban development, emphasising the european region and european cities.

Three main sets of European Union (EU) policies affect urban (and rural) sustainability:

1) Regional policies – with their encouragement of urban dispersal, with some exceptions such as the URBAN programme;
2) Transport policies – with their encouragement, mainly of road-based mobility through the transeuropean networks (TEN);
3) Energy policies – with their limited effect as yet in fostering low-energy, low carbon cities and regions;
4) Policies on agriculture that have emphasised intensive agriculture, but moderated by recent ecological approaches and the Natura 2000 and related directives).

The EU policies have in effect only marginally addressed the challenges of urban (and rural) sustainability. There is a huge challlenge for the future.

As to the local level, many best practices exist. They require critical assessment and evaluation. Some comparative assessments have been presented according to different criteria and indicators.

Endnotes

1 An earlier version of this paper was presented at the INTECOPOLIS (International Council for Ecopolis Development) Symposium at the XVIIIth International Conference of the Society for Human Ecology in Las Vegas, April 2011.

2 This declaration was confirmed by the June 2010 Declaration of the Toledo Informal Meeting of the Ministers in charge of Urban Development, Point C1 'Strengthening the urban dimension in Cohesion Policy' www.rfsustainablecities.eu /the-toledo-declaration

3 http://www.desertec.com

4 The 27 EU member states and the European Free Trade Association (called since 1999 European Economic Area) countries.

5 http://www.scribd.com/doc/54064004/Sustainable-Infrastructure-in-Shrinking-Cities .For the German project. Visit http://www.shrinkingcities.com).

6 See also the paper *High Speed Suburban Decline in the Cities of East Germany* by Professor Johann Jessen which appears earlier in this volume.

7 The IBA Urban Redevelopment Saxony-Anhalt 2010 embraces the federal state of Saxony-Anhalt as a laboratory for the city of tomorrow. Exemplary and innovative urban. Redevelopment tools are put to the test in 19 cities, which are affected by demographic change.

8 Urban Sprawl was the theme of the 44th ISOCARP Congress (La Greca 2008).

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