URBAN DESIGN for a Sustainable Future

European Contribution to the International Competition

22nd World Gas Conference in Tokyo in June 2003

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Imprint

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Introduction

The International Gas Union (IGU) has organized an international competition on innovative proposals on urban design as part of a special feature of its 22nd World Gas Conference to be held in Tokyo in 2003 (WGC 2003). The theme of the competition – Urban Design for a Sustainable Future – is in line with the general theme of WGC 2003 to be convened under the slogan: Catalyzing an Eco-Responsible Future. Teams from East Asia (China), South Asia (India), Western Europe (Germany), Eastern Europe (Russian Federation), South America (Argentina), North America (USA and Canada) as well as two teams from Japan were asked to submit proposals reflecting the elements in the future city scenarios in the next 100 years, the city’s future evolutionary process and energy systems based on life-cycle analysis.

CIVITAS 9•0•1 stands for 5,000 years of urban tradition in Europe and 9•0•1 for the years 1900, 2000, 2100. Hence, we are looking 100 years backwards and 100 years forward. The city of Berlin is our case study and our laboratory for urban sustainable development. With Berlin as the target city, the team CIVITAS 9•0•1 focused on the European City. The name CIVITAS 9•0•1 symbolizes the key questions and approach to work. What are the specific principles of the European city and how will they cope with the future in a sustainable way? Looking from the year 2000 back to the urban development over the last hundred years will help to identify those indicators with a structural impact that are likely to shape the European city up to the year 2100.

With its compact spatial structure and its long tradition, the European city represents a sustainable urban process in terms of efficient land use and ability for transformation. It can, therefore, also match future demands. Structural improvement, creative adjustment and spatial transformation are the challenging tasks for the European city 2100.

As we, the team CIVITAS 9•0•1, strongly believe in the self-regulating forces of urban societies in Europe, we have decided to describe a European city which, one hundred years from now, is not so different from the European city today albeit with some improvements in its cosmopolitan liveability and functional flexibility. This holistic view of the European city will be described in this report.
Urban development in Europe has a tradition of 5,000 years with its cradle in the Mediterranean. Cities became the motor and the mirror of society’s development in terms of built environment, political decisions, economic power, social organization and cultural life. The roles and importance of cities changed during this time but they represent the ability to keep pace with ever-changing conditions and requirements. The European city model creates and reflects the continuous transformation of urban society. Due to social changes the city is constantly reedited and adapted to current needs. By this, the European city means the experience of continuity and discontinuity.
Berlin’s urban development is the history of growth and destruction. Berlin was founded in the 13th century. In 1871 it became the capital of Germany. Towards the end of the 19th century, Berlin rapidly grew into a modern industrial city. Berlin’s urban development is characterized by the physical destruction of buildings during the war which ended in 1945 and by the division of the historic centre through the erection of the Wall in 1961 followed by reunification in 1989.

The current Berlin with an area of approx. 30 km² and a population 3.5 million has, despite all these setbacks, an essentially intact urban structure.

Berlin is a laboratory of sustainable urban development. The city’s ground plan shapes the physiognomy of the city and describes the memory and identity of the city. The still existing urban ground plan, with an unambiguous intelligibility of street space and square, a clear outline of the schematised block structure, with buildings that submit to this collective structure, shapes the urban landscape of Berlin. This structure has proven to be both stable and flexible enough to hold together a common city centre with all the various fragments of different urban development models and functions.

We will not focus on Berlin as a whole, but on one exemplary and replicable district. Our case study is Schoeneberg, a typical inner city district.

The substance and historical patterns of the 19th century urban network have largely survived and were selectively complemented with modern office and commercial nodes in the 20th century. Berlin did not develop from its own urban centre but emerged from the periphery when districts started to grow together. This interlinking of the different districts explains a special feature of the urban significance of the district: its functions are local but go beyond the local level in terms of economic performance and atmospheric effect. The key to the urban quality of the inner city district is the special mixture of metropolitan housing, schools, cultural activity and entertainment as well as goods and consumer facilities for both citizens and visitors.
The urban ground plan of Schoeneberg shows how little the physical structure has changed. On the same ground plan and on the same street grid, this typical district illustrates the following: transformation from a village into a dense metropolitan district. In the space of just 15 years, the population grew from 15,000 to 80,000 in the year 1900. An urban structure was created which remained stable during the next decades. After the Second World War demolished buildings were removed and new modern buildings constructed. Since 1964, refurbishment of the historical block structure, the five-tenement buildings and the integration of urban green led to tremendous improvements in living conditions. This urban structure of the European city model since its construction at the beginning of the 20th century through the decades of destruction and exposure to different urban planning models is still well able to meet people’s demands.

The challenge of this sustainability decade is to redesign the urban structure. To cope with social transformation, the city of Berlin - our case study - needed to look to urban structures that were still recognizable and functioning and the city’s new architecture as a modern interpretation of the European city model. This understanding is founded on the belief in the legacy in terms of urban development and architecture. It seeks to respect all the aspects of the common past by endeavouring to carry out the modernization process without major demolition or destruction and by concentrating on the city’s internal development in spatial terms.
Sustainability Dimensions of the European City

Urban development in the 21st century will increasingly be based upon the principles of sustainability, visualized in the sustainability triangle. According to this principle, a balance has to be found between: Economic renewal, expressed in the words efficiency, balanced wealth and creative adjustment. Social improvements in terms of solidarity, empowerment and participative involvement in public matters. And, environmentally responsible behavior by private, commercial and political stakeholders, protecting all kinds of natural resources, promoting biodiversity as well as urban green and reducing air pollution and noise. The economic basis of social inclusion is work, the economic basis of environmental protection is the internalization of external costs. How these principles are implemented in different societies will depend on the respective political and cultural background. Therefore, the cultural dimension is essential for future sustainability and cultural heritage as well as the vivid creative potential of the people in the cities are the most important ingredients of livable cities.

The name CIVITAS 9•0•1 symbolises our commitment to sustainability in all its dimensions. Our approach to the city in the year 2100 is based on a number of key questions: What are the specific dimensions of the European city and how will they cope with the future in a sustainable way? Will the population grow in Europe or rather decline? How will work be organised in the future and will locations of production and services change under global market conditions? How will education and knowledge production be different from yesterday and today? Will migrants be easily integrated, or will social fragmentation lead to spatial polarisation in cities? How will people spend their leisure time and will entertainment follow market principles. And, finally, how will urban development in Europe be governed? Will democratically motivated and justified nimbiism be prevailing, or will powerful institutions and top down policies experience a new renaissance?
Analysis of Urban Development Trends

Many European Cities have a history of more than 1000 years. Hence a time span of a hundred years is a comparable short time period in the life of the European city. In fact, looking backwards, less has changed than one would have expected, and more than one could see today. The complexity of urban social and economic development is difficult to grasp, and describing hundred years of evolution is an ambitious venture. Much has to be unduly generalized. Looking hundred years backwards, the CIVITAS 9•0•1 project is analyzing urban development trends until the turn of the millennium in the following urban policy areas:

- **Demography**: Demographic trends are essential to know as they determine the needs and requirements of the future urban society.
- **Work and Labour**: Knowing the structure of work and labour is important as it refers to the ability of the market to respond to the needs and requirements of the urban society.
- **Energy**: The intelligent use of energy is of fundamental importance for social and economic progress.
- **Mobility**: The flexible mobility of people and goods is a precondition for future urban sustainability.
- **Technology**: Communication, mobility and urban living conditions in cities rely heavily on technology and technological progress.
- **Education and Knowledge**: The evolution of the enlightened society depends traditionally on education and knowledge.
- **Entertainment and Leisure**: Urban entertainment in all its different forms, from highbrow culture to trendy sub-cultures, makes the European city of tomorrow enjoyable, exciting and liveable.
- **Social Cohesion**: Living together in peace and mutual respect is a key element of the future cosmopolitan urban environment.
- **Governance**: Excellent plans and projects cannot bear fruits unless their acceptance and implementation is shaped by good governance.
**Demography**

A city lives from and with its inhabitants. Urban development reacts to the quantitative, structural and ethnic composition and changes in the population.

Quantitative parameters differ greatly around the world. They are functions of economic, social and cultural framework conditions. Two very different influences shape the quantitative development: life expectancy and birth rate.

![Life Expectancy vs Birth Rate Graph](image)

With a growing economic and mostly social basis, life expectancy grows asymptotically to a biologically and medically influenced limit value. The birth rates also increase initially. Depending on the cultural influence this development is reversed sooner or later and stabilises on a negative level.

The current prevailing economic and social conditions are still provoking a major increase, limited by the local availability of food and medical care. In industrial countries, particularly in Europe, this development has already been neutralised, i.e. the growth based on increasing life expectancy still offsets the low birth rates but not in some sub-areas so that overall the population number is stagnant with a downward trend.

Migration to Europe is restricted, at present, by immigration constraints. The debate about humanitarian, social, cultural and economic principles is highly controversial and so far has not produced any tangible results. However, it is becoming clear that migration, which would balance the decline in the population, would lead to a cultural change which the majority of Europeans do not support.

The urban-rural migration of importance for the urban development process around the world has largely been concluded in Europe. After the major migrations in the industrialization phase and the related enormous growth in cities, a process of sub-urbanisation began in the second half of the 20th century with its increasing motorisation and quality-re-
ducing environmental influences in the cities which led overall to a major increase in settlement areas without a parallel increase in the size of the population. At present, this process – in Europe – has stopped. Environmental technologies raise the quality of life. The trend towards a drop in the population hits rural communities more.

Over the last 100 years the European city, examined here using the example of Berlin, has experienced different processes of change in its inner city districts. One hundred years ago, around 1900, there was a maximum population density. High occupancy rates in small apartments, large families even in bourgeois households including their servants led in the case of five to six-storey buildings to values of 1,200 people/km². Smaller families, the disappearance of three-generation households already led in the 1920s and 1930s to lower density values. War destruction and redevelopment then had an impact on density. Despite these changes, the population density is stable. This is confirmed by the constancy of the European city which can react flexibly without losing its fundamental character.

The global development looks different – at present. Growth in the cities in development zones is still uninterrupted and, despite all the problems of urban developments, affords the migrating population groups better access to food, education and medical care. This development has its forerunners in Europe of the 19th century and early 20th century. The systematic enlargement of cities, planned in response, are based in terms of dimensions and infrastructure on the qualitative and quantitative needs of the population. The stability achieved in this way can serve as a yardstick for the megacities of the 21st century when quantitative growth imposes constraints on itself.

Europe has to face another demographical problem. The low birth rate causes a dramatic reduction in the basic population which will not be stabilized on a lower level but will continously decrease. By compensating for this through migration, a political solution will not be found to the social differences between the elder basic population and the young migrants.
Urban development in Europe is always a result of changes in the world of work. The emergence of towns can largely be traced to services and trade whereas the growth in cities in the 19th century is linked to the concentration of workplaces triggered by industrialisation. The urban structures also reflect the development stages in the world of work. The guilds shaped the medieval town landscape as much as the factories did the town enlargements 100 years ago.

The development of the world of work with the steady decline in jobs in agriculture, the initially rising and then falling number of industrial workplaces and the continuous growth in services can be clearly observed in the European city. In the shift from home to workplace of relevance for urban development, the organisation of life and work is, however, of equal importance. With the growing division of labour and long weekly working hours in industrialization, the focal point of life moved to the workplace. It was not until the reduction of working hours and the growing opportunities for leisure that the home once again became the site which shaped life, usually sharply delineated from the workplace.

In the service society the place where a service is rendered is less specific, more flexible, be it through the relocation of work activities to the home or through the “nomadisation” of the world of work which no longer envisages a fixed workplace and, at the same time, allows the household to move too, be it through multiple homes or through boarding houses, hotel stays.

In the same way, the change in the production process has and will continue to influence urban development. The growing division of labour over the last 100 years has led to concentration processes which strengthen the flows of materials and have increased the incompatibility of production sites with the urban structure. Large series reduce unit costs, a high-performance transport infrastructure increases the productivity of distributor structures. Both factors promoted the creation of large production units.

All the same, these monostructures also mean major environmental pollution. The exploitation of raw materials, waste production and burdens from the volume of traffic are
increasingly laid at the door of those responsible and influence the technology of product manufacture. Processing close to raw materials and final production close to points of sale are today the main criteria in location choice.

Information technology and, to an increasing degree, biotechnology influence product manufacture in the same way as materials technology and process engineering. Today, the development and sales organisation influences the allocation of personnel resources to a far greater degree than production itself. The high workplace concentration in the production area is a thing of the past.

Development areas and sales organisations are geared towards other synergies when choosing a location. Science and research are decisive location factors for development work, sales and distribution work is customer-oriented in a decentralized manner. The majority of jobs are shaped to meet new parameters. The city can input its assets as an information system.

The current changes in the world of work are taking place more quickly than workers can adapt. The unsatisfied demand for highly qualified employees and the lack of demand for workers with low skills split the labour market.

Without flexible qualifications and without creating new less qualified jobs, the conflicts between those in need of support and the highly qualified employees who pay high taxes to finance this support will ruin social cohesion.
Energy

Economic and social progress in Europe during the last 100 years was based on the availability of coal and mineral oil. Coal provided electricity and cheap mineral oil fuelled road transport. Energy demand and supply increased manifold. Since the mid 20th century increasing shares of natural gas became important, delivering cleaner energy for industry and households as well as making electricity production more flexible.

Also, about 50 years ago nuclear energy production began to play an important role in European countries. But the early expectations about nuclear power plants becoming the main basis of electricity production did not materialize. The economic and social costs rocketed. The unsolved problem of how to store dangerous atomic waste, and the risks of atomic emissions from malfunctioning plants – as seen in the Three-Miles Island incident in the US and especially from the Chernobyl disaster in the Soviet Union – led to a critical approach. Today, many European countries have decided to phase out the nuclear option within the next decades of the 21st century. There is a common expectation that progress in energy efficiency and the use of environmentally friendly energies will allow the shift away from dangerous nuclear strategies.

Mineral oil plays an indispensable role for transport – especially for passenger and truck transport. It has been growing in the second half of the 20th century but has also come under attack. Global resources are limited and all rich industrialized countries feel uneasy being so dependent on other regions. But the most serious threat seen in fossil fuel use today is global climate change, caused by carbon dioxide emissions.

Both the greenhouse gas problem and the impending shortage of mineral oil have to be addressed when designing energy strategies for a sustainable urban future. Mankind must shift to socially and environmentally friendly concepts. The times of cheap abundant energy will be gone, but energy services will remain affordable. The 21st century will bring a reduction of per-capita fossil energy consumption by a factor of 10, to be achieved by efficiency revolution and decentralized energy supply based on solar heat, photovoltaic, wind, biomass and gas-driven fuel-cell units.
How will the urban areas participate in these changes? The energy system will undergo fundamental changes like it did in last century. Over the coming decades it will shift from large power plants to decentralized units, which integrate electricity and heat production. In future, the large fossil power plants will be removed. Energy will be produced in numerous housing units burning natural gas and – later in the 21st century – an increasing amount of renewable resources. The total energy demand of urban societies will be reduced with advanced energy efficiency measures within all sectors – huge efficiency gains will be achieved in heating and air conditioning of buildings, in household appliances, production and transport. This demands policy actions including, amongst other things, price and tax signals.

Current centralized top-down electricity production in large power plants (see left side) will, in future, be replaced with sustainable energy systems with de-centralized co-generation structures (see right side).

Urban energy in housing, transport and production is still, to a large extent, based on fossil non-renewable resources. Without an efficiency revolution, it will not be possible to achieve either environmental sustainability or a shift to socially responsible green energy resources sustainability.
Urban mobility has come a long way since 1900. In the first half of the last century trams, buses and rapid rail networks enabled cities to grow, and the people to increase their daily activity distances. People got more choices for housing and working, and their social relations changed. There is no doubt that these urban public transit systems made urban life more comfortable and helped to create an urban life-style: living in large cities free and anonymously, making flexible choices what theatre to visit, being able to visit places and friends easily with public transport. Before these new infrastructures were created, daily activities were limited to walking distance.

What made the cities grow, attracting more and more people to leave their rural villages to settle in towns? More than 100 years ago the reasons for that development in European countries were similar to those now taking place in mega-cities of developing countries: The higher productivity in the agricultural sector on the one side and the desire of people to increase their standard by participating in expanding industrial sector.

Urban population growth in European cities demanded more and more urban areas, growing distances and larger diameters for movement. These factors made the development of new transport technologies indispensable. The technical and economic rules of public transport led to a special form of urban growth. New housing areas were oriented towards existing tram and rail networks or were shaped in such a way that served public transport economically. Public transport systems need a high number of customers entering the vehicles at the stops, which again should not be too frequent. These considerations led to specific urban development patterns, which became typical for large cities during the first half of the last century.

In the second half of the century, a new type of transport technology entered the markets, the automobile. Passenger car ownership grew within about 30 years to more than 500 vehicles per 1,000 inhabitants, and this had a tremendous impact on life in the cities and – moreover – changed its shape. The car has made people choose their housing areas more and more outside the traditionally dense urban areas. Sub-urbanized living areas have
been formed, showing a mixture of urban and rural forms.

Although there are still many people in European cities who do not own a car, public transport has began to lose its leading role. There are a number of reasons for this shift which are directly or indirectly related to the increasing car fleet which, in turn, made urban mobility more and more dependent of the private car: The noise and air pollution burdens, as well as the broadening danger of accidents for non-drivers, made living in the cities become less attractive. Moving to green areas of suburbia became attractive which made it necessary to travel by car to the sites of urban activities. Within the cities only a minority of high-income families wanted to stay, and on average the social level of housing in the centers decreased. Huge public investment in urban roads and highways networks were made to benefit the car users, while walking, which is a basic condition for use of public transport, became difficult and less attractive in public spaces.

Now, why are these trends so critical with respect to sustainable development, and what can be done to shift to a sustainable urban future? The crucial factors of the current trend toward car orientation are the losses of urban community culture, social degradation, cost for the public budgets, local and global emissions, and dependency on non-renewable energy resources. These problems have to be addressed both by changing the urban structures in general, and by taking advantage of green transport solutions.

The challenge for sustainable mobility in 2100 can be met by integrating urban functions, focusing on new models of public transport services, and on a shift to clean transport technology. The latter not only means introducing high-tech solutions because: People living in sustainable cities will like walking and cycling.

In order to achieve sustainable urban future, today’s urban and regional patterns have to be re-designed.

Without basic changes, quality of urban environment will decrease.
Technology

Technology is related to, infrastructure, building construction, urban design and communication.

Infrastructure
A network of gas, electricity, water, telecommunication and other media are the basic layers of urban structure and one of the preconditions for the functioning of urban units. Over the centuries they were decided on step-by-step, built up and modernised in line with technological progress and have influenced the urban design.

Health considerations, comfort and production necessities were what prompted sanitation, water management and waste organisation. The dues and fees to implement and run the grids and supplies are state-regulated in most European cities. Their functioning is a precondition of urban settlement.

In the future infrastructure will continue to benefit from technological progress. Intelligent infrastructure is characterised by a combination of physical facilities with information technology, allowing self-regulating operation, risk reduction and resource optimisation. The value of the „underground city“ has determined and will continue to influence urban development and urban design.

To preserve the value of the underground grids as well as the underground infrastructure after wars and other disasters, the decisions taken were mostly in favour of reconstruction. So in many European cities the collective memory of the layout of the historical city was preserved.

Building construction and urban design
Over the centuries building construction followed the traditions and materials that regional possibilities and knowledge could provide: wood, bricks, stone, clay. They were followed later on by iron, steel and concrete, then glass and metal. The international style brought a globalization in construction methods and the corporate identity economy was recognised as the power that it is today.
Specific local expertise got lost, heritage protection failed in many cases, and the export of the international style often was not at all sustainable (concrete in rainy countries, high dimensioned glass windows in hot regions, flat roofs in snow-areas etc.) Big industrial prefabricated complexes were constructed to meet the needs of housing and homelessness without concepts for maintenance.

Over the last decades the mass production of prefabricated new materials, international style and the competitive marketing of global companies led to a loss of specific local knowledge and respect and consideration for heritage protection and sustainability.

**Communication**

Information and communication technologies had most impact on changing our societies. Over the centuries oral information, personal dialogue, and later on letters and journals were the only sources of information. The revolution brought the telecommunication in the last century. The 21st century will be the century of information and the challenge to manage it.

Technology is the driver of development in building construction, efficiency and cost/benefit relations. If no future research or optimisation were to take place, mankind would lose economic prosperity.
Education

When looking at one hundred year’s development in European cities, education was a main topic. Since the European Middle Ages schools and universities have been important elements in urban reputation and identity: Bologna/Italy and its university, the first in Europe, Prague with Karl’s University and the Humboldt University in Berlin from the beginning of the 19th century were symbols of the acknowledgement by society and the powers-that-be that only well-educated young people would be the bearers of the future.

The other important element in advancing European society as a whole and its economy in particular was the high standard in primary school education and suitable education for working people as the precondition to employment. The whole process of industrialisation has only been possible because of the standard of knowledge in the lower and middle classes and just because of the specialisation of the upper classes.

During the 20th century the specialisation grew. Comprehensive schools, comprehensive universities, integrated post-graduate education provided the answers to more and more of the needs of the emerging global economy.

Access to education and lifelong training in knowledge has a long tradition in European societies. For a long time there was unanimous agreement on the special values of education influenced by the Christian religion and dominated by the Latin language. This changed during the 20th century. National languages, regional differentiation, ethnic influences and migration as well as the deeply held belief in equality irrespective of class or background, led to a different approach.

The small, neighbourhood school became the school centre for 2000 pupils. New universities were founded because 50% of school pupils now went on to university. Knowledge is the main capital for human resources.

A new culture of education emerged. At the beginning of the 21st century, society realised that lifelong learning is the key element of successful economies and that, in an increasingly competitive world, this is what brings them out on top.
Continuing learning requires face to face as well as virtual education. Urban design and architecture have to respond to these different needs. Cultural values are the result of education, they characterise society and mould identity.

Buildings for cultural performances, arts and education are key elements in urban design. Over the centuries schools, universities, research institutes and academies have been important elements in European cities (Athens and its Agora, Paris, Prague, Bologna and their universities, Oxford and its colleges are remarkable examples of mutually determining urban situations).

The expansion of knowledge and the need for long-life learning prompted by the acceleration of developments in the field of research and production meant it was necessary to react more quickly and just in time in the future. This led to a shift in architecture and construction to more flexibility and prefabrication as one of the conditions for later recycling by changing or ending specific uses.

Advanced society need educated participants. If knowledge failed to increase, then the chances of advancement and better life conditions would fail.
Entertainment

Since 1900 entertainment and leisure in European society have dramatically expanded. At the turn of the 19th century only a small upper class of the urban society had time for leisure and consumptive entertainment. The majority of bourgeois middle-class households in cities, in turn, spent their leisure time in salons and public theatres, museums, fine art exhibitions or curiosity shows. The majority of the working class had little time left after strenuous working days and weeks to entertain. For many, family festivities and religious holidays were the only occasions where they could enjoy traditional, still very rural forms of entertainment.

With the immense growth and wealth of cities and improving labour rights, the public sector began to offer entertainment and leisure facilities to a wider section of the urban society. Operas, theatres and museums became essential symbols of civic pride. Leisure parks evolved and working class organisations started to organise their own local sport and cultural activities. Over the years all strata of society benefited from easy access to entertainment and leisure facilities. Consequently the cities become entertainment centres for their surrounding regions, and with their entertaining attractions they lured the young and mobile labour force from their rural hinterland to the cities.

Later, during the last quarter of the 20th century leisure time gradually surpassed working time and paid holidays became a civil right. Simultaneously all over Europe, cities experienced considerable growth in entertainment opportunities for everybody, from the traditional high culture institutions, such as operas, theatres and museums, to clubs and other forms of night entertainment. At the end of the 20th century a plethora of entertainment offerings were available for citizens and visitors. Life style concepts evolved and label cities. The entertainment value of cities has become a location factor. Simultaneously, and not surprisingly, entertainment evolved as an important sector of local economies. Entertainment, leisure and tourism industries are increasingly dominated by global entertainment industries and corporations (Disney, Guggenheim, Bertelsmann, TUI/Preussag etc.). Urban tourism has become an essential economic factor in the post-industrial economy. Consequently, at the turn of the 20th century culture and entertainment are globalized in content and in locational
As a consequence of globalising value systems and deregulated property markets, European city centres are becoming commercialised entertainment spaces and losing their aesthetical profile and cultural qualities. Hence, prudent conversation of the historic fabric, the defense of public space and considerable financial support for cultural infrastructure and the promotion of cultural life are essential.
Social Cohesion

Social and spatial cohesion have a long tradition in the medieval European city. In former centuries, social cohesion meant belonging to a special group or part of the society. Cities followed this order (quarters for the nobles, for craftsmen and production, for different nationalities and religions). Industrialisation brought with a high level of immigration. Integration has successfully achieved through work and community activities as well as through knowledge and agreement on certain values. Being of the same religion was also of importance.

De-industrialisation, democratisation, equal pay for equal work, better education and equality demands within the emancipated society brought an advanced status of equality. The urban design responded to these demands of society with

- Affordable housing.
- Mixed-use buildings (mixed used buildings for young and old, for rich and poor, for male and female, for the indigenous population and foreigners).
- Access to social and cultural infrastructure.
- Public open space.
- Public and private greens.

New media, flexible working hours, higher knowledge challenges, greater mobility, increasing private welfare, growing unemployment and an increase in the poor led to trends toward segregation. The element of common work and unemployment in big companies of local importance no longer dominate the cities: social exclusion is growing.

Provision for social cohesion determines the urban character. The built-up appearance of the cities is the mirror of the society of the time. Therefore, all efforts are to concentrate on avoiding segregation through

- Social housing.
- Investment and maintenance of social and cultural infrastructure.
- Access to education and information.
- Support of flexible working hours to support families and allow women to work.
• Intergenerational respect.
• Religious tolerance.
• Respect for minorities.

These elements are part of the housing design, mixed use of generations and ethnics and of economic and financial support programs to create affordable housing through community corporations, and the design of public space.

Access to public space for everybody – over the centuries a characteristic element of European cities - is a vital element of social cohesion and needs to be preserved. Malls and private shopping centres can exclude unwanted consumers. The design and maintenance of public space impact on social cohesion and governance, the latter because of participation processes.

Mixed use and flexible use need the consensus of the dwellers or owners. So these are matters of behaviour and consciousness. Education, qualification and legal awareness are crucial elements in the ongoing necessity to meet the needs of the inhabitants of the community. On the other hand, they are the bearer of the civil commitment within the community, partners in a dialogue with administration and politicians. Networks of relevant, decision-making elected leaders in the different institutions of the community as well as NGOs and CBOs are important sources for generating leadership for self-government within a framework of subsidiary. The success of all this efforts will be a lively community without prejudices and misconceptions that social cohesion is just an utopia, it can become reality.
Principals of the City Region

We, the team CIVITAS 9•0•1, are convinced that examination of these study fields will show us the way to the main principles for a sustainable city region 2100. Structural improvement, creative adjustment and spatial transformation are the challenging tasks for achieving a sustainable city region.

This implies:

- Diversity and mix of functions within a densely built urban structure.
- Provision of private life spaces and preservation of undisturbed natural habitats.
- Respect for and awareness of multi-ethnic society.
- Efforts to accommodate a four-generation society.
- Provision of appropriate public services for all citizens.
- Continuous community monitoring of public decision-making activities.
- Encouragement of local self-government with some taxing and planning power.
- Zero-emission production and efforts towards creating closed material circuits with the city region.
- Management of multi-layered urban infrastructure.
Towards the European City CIVITAS 2100

The year 2100 is far away and, quite obviously, it is extremely ambitious to describe what the European City will look like one hundred years from now, how the citizens will live and work in this future city, how mobile they are, which needs they will articulate and how these needs will be satisfied by whom.

It would be comparably easy to paint well all-embracing horror scenarios of life in the city 2100, following in the tradition of well-known fiction scenarios by Jules Verne, George Orwell or Stanislav Lem, where the environment has been sacrificed to technical utopias, where genetically manipulated citizens live in terrorised communities of a global dictatorship. By contrast, more positive views of the city are far more difficult to develop.

What would have been the possible approaches to the European city 2100?

- The consistent ecopolis, a future city, where all the ecological goals have been achieved which environmentalists postulate to save our planet.
- The ultimate technopolis, where all presently known technical progress is applied to the city, where buildings are intelligent and citizens’ lives are made comfortable by all kind of sensors and information.
- The tourist city in a hyperurbanised city region where the European city has become an entertainment centre for the global traveller, while citizens live in gated leisure communities around.

As we, the team CIVITAS 9•0•1, strongly believe in the self-regulating forces of urban societies in Europe, we have in turn decided to describe a European City which, one hundred years from now, is not so different from the European City today, although it has enjoyed some improvements in respect of cosmopolitan liveability and functional flexibility. This holistic view of the European City will be described in this report.
**Demography**

The three basic components in the population will change permanently over the next 100 years. Without migration, quantitative growth will develop in a dramatically negative manner. With the current average birth rate in Europe of 0.5, the next generation will only be half as large. 30-year-olds today have a reproduction rate of 0.5. If this development continues, then three generations on, the size of the age group born in 2090 would be just 1/10 as large as today’s group of 30-year-olds.

The age structure would correspond to a reverse pyramid: for ten 30-year olds, there would be five babies, twenty 60-year olds and forty 90-year-olds, slightly reduced by the death rate which can be combated but not prevented at least at an advanced age.

The migration pressure from the growing world population, even if it is increasingly balanced by demographic developments, will strengthen the population pyramid in the younger age groups. However, this mixture will probably be highly explosive as the cultural basis of the older people with their demand for maintaining the status quo will not be reconcilable with the differences reflected by the migrants who, in terms of age, are more economically active. This is the impression at least according to today’s experience and analyses of the trouble spots around the world. The overlapping of cultural and social tension is pre-programmed. The longer the opposition to migration pressure holds out, the greater the changes that will take place when the borders are opened and this will be too much particularly for older people.

100 years do not develop without reactions to changes which have taken place in the future. The question about the reaction time in cultural and, by extension, demographic behaviours, is closely linked to how people use the experiences they make. The behaviour of the previous generation is rarely reproduced, what’s more likely is the opposite reaction. In the case of the cultural development of the birth rate, however, a chain must be taken into consideration which crosses over more than one generation. The first generation no longer sees children as security for its old age, the linked independence of women is strengthened in the next generation through medical and economic freedom. The halving of the birth rate...
does not become noticeable until the next generation. Only then, under the influence either of massive migration problems or an equally massive drop in the population coupled with marked ageing, is the need for constant reproduction discussed which leads to changes.

In our scenario, test-tube reproduction which is certainly possible from the biotechnological angle, is excluded. The assumption is far more that already in the first half of the century cultural forces will bring about a social development which will guarantee a birth rate of 1.0 with some regional and temporal fluctuations. Then, after a slow reversal of the top-heaviness in terms of older citizens by the end of the century, a population development would be conceivable with almost steady age groups right up to the biological-medical limit values.

Compared with today, this population structure would be shaped by a far smaller group of the gainfully employed as the training age groups are larger and the senior citizen age groups are not disproportionately large like in the middle of the century but still bigger and more numerous than today. Four generations live together, sometimes five, but mostly with only two of working age.
Work

Work is no longer a way of satisfying necessary, elementary needs. At least, it is no longer seen as such. Work becomes a purpose in life which releases creativity and humanity.

Hierarchical structures and big, multi-layered organisations are replaced by individual responsibility and cooperation. The direct consequence for the urban structure is the dissolution of rigid worlds of work in which thousands of people undertake similar tasks. Industrial complexes will be located close to raw materials and with a low workplace density outside the city. Inside the city, structures will be more decentralised and more closely linked to where people live.

The flexibility of products will lead to a shift in product manufacture intensity from pure material production to application services. The products will be produced close to consumers in a consumer-oriented manner. A mixture of recycling and maintenance will reduce the volume of materials required and increase the service side. Competition for the best solution replaces competition for the best material.

The same products will be produced around the world. Individuality will be satisfied by differing regional and personal applications. High-end production supports the decentralised world of work.

The service share increases and is particularly high in the areas of education and health. In the area of education, the difference between further vocational training and personal continuing training will be gradually eroded. At the same time, however, responsibility for one’s own position in society will no longer increase directly on the labor market. The trade in services, the transfer of skills and aptitudes, create collective action without doing away with individuality. The acceptance of the individual reduces the social striving for equality.

Medical developments open up infinite opportunities in the pursuit of health which are only constrained by the limited resources. The differences in medical care will be reduced around the world, the distribution problem in the case of intensive treatment will remain. The personal use of resources for the preservation and prolongation of life will increase.
The relationship between paid and unpaid services will be shaped by social framework conditions. Care activities for the young, the sick and the old can be provided both in the group as a cross-generation transfer of services or as a service which is settled on a strictly economic basis. These tasks will increase and strengthen employment close to home. The mobility dictated by the world of work will be shaped less by the regular daily journey from home to work and more by the flexible use of different skills at various locations.

This supports the urban structure which can react flexibly to the social development. The task of urban planning is to permit individual use options through a long-term infrastructure network. The permanent change in social framework conditions should not lead to derelict sites in the city but should be supported by perpetual urban conversion.

Uses change in the space of a few years, buildings stand for decades, roads are built for centuries.
The increasing use of energy during the last century has had manifold effects on the cities and the surrounding regions. Production plants and energy infrastructures will move towards less centralized structures, by taking advantage of better energy efficiency and more environmentally-friendly electricity and heat production technologies. Sustainable energy of the future will, to a large extent, be based on renewable resources, shifting away from fossil CO$_2$-emission bound burning of coal and mineral oil. The efficiency gains, advanced technical solutions and the availability of „green“ energy resources can be expected to contribute to social and environmental progress.

Common large-scale electricity production and district heating will be replaced with small units, which will be located on the level of buildings – both apartment houses and detached houses. The development will improve the visual quality of urban areas. Although, of course, electricity and heat are invisible, today’s large power plants and stack plumes signalize their presence in urban life in an unpleasant way. The upcoming progress in energy production and use will permit a welcome message: Energy will continue to be vital for the city but the urban economy and urban households will consume less of it, and urban quality of life will improve. Moreover, the new technologies will allow consumers to become active producers especially of electricity. The energy networks will change from top-down to horizontal cross-linking.

The energy system of the future builds on various resources and technologies: Co-generation of electricity and heat by small combustion engines will grow. Basically, this technology is already available. The next technology step will bring a shift from combustion engines to fuel cells using hydrogen. In the course of a few decades, production costs can be expected to come down to make fuel cells economically competitive. Harmful emissions will be reduced to nearly zero, while system effectiveness will increase. Fuel cell technology will allow the integration of stationary energy use with transport vehicles.

Future research will have to focus on the problem of how to supply hydrogen. Basically, it can be produced from natural gas although several renewable fuels can also serve as the
basis. For economic reasons, the natural gas option seems to be preferable at least over 50 years. Natural gas resources will be available over a long period in contrast to mineral oil. The lower specific CO\textsubscript{2} emissions of gas compared to mineral oil (and, of course, of coal) will be an important argument. It is very likely that the global warming issue that already has prompted the international community to draft the Kyoto Protocol will remain high on the political agenda.

In parallel to the electricity and heat co-generation units, an increasing share of electricity production from solar and wind will enter the markets. On the one hand, there is an opportunity to equip nearly all roofs with photovoltaic cells for de-centralized electricity production – this already has started in some countries, although it must be said that the electricity market share today is rather small. Again the internalization of external cost for fossil power will change the preferences. In many countries, solar heat has not yet achieved a break-through due to unfortunate political conditions. Wind energy has begun to enter the markets for example in some Northern European regions but, of course, this is less suitable for urban areas than for rural regions.

But there are additional social and environmental improvements to be made: to save energy in all kinds of private household devices, e.g. lamps, fridges, computers, TV sets, and so on. The same can be said for production facilities, offices, supermarkets etc. Of special importance is the un-efficiency of passenger cars. In this respect the US are playing a sad role when driving those dinosaur pick-up and 4-wheel trucks even in urban traffic. The consequences of the overwhelming waste of energy are already causing international problems.

The amount of energy consumption most often is more related to attitudes and lifestyles. Societal changes are at least as important for a sustainable future, as new technologies. Policy action is required. Setting the right prices for non-renewable energy will foster the competition for green solutions on the demand as well as on the supply side.
Mobility

With respect to the principle of sustainable development, the changes to urban structures caused by the mobility sector during the last decade must be assessed rather critically. Although tremendous social improvements and economic growth have taken place with the help of transport technologies and, of course, by the broad availability of passenger cars, the general development path has led to huge problems that make it necessary to look for fundamental changes.

The challenge of the 21st century is to ensure good quality of urban life without the negative impacts associated with the irresponsible amount of motorized traffic. There are the losses of urban identity, urban culture and societal balance that have begun to decline especially in the second half of the last decade. And there are equally the increasing economic burdens for the public budgets, which have made clear that sub-urbanization and de-centralization must be reversed.

Because the historical urban success story has been based upon the functional mixture of spaces, which has got lost because of the undue preference for private motor vehicle transport, the central topic of this sustainability decade is to redesign urban structure. The European city has maintained more compact forms and functioning mixes than, for example, most US regions. This asset can be built on.

Urban land is a scarce, precious resource – sustainable cities will manage transport and land-use interaction in order to reduce the kilometers to be driven, and tons of goods to be transported. The locations of social and economic activities have to be chosen very carefully to reduce transport demand in general, and enable comprehensive use of sustainable transport modes. The benefits of environmentally favorable land-use structures will not only consist of improved urban functionality but also include preservation of spaces for urban green for the people, and for natural habitats.

In order to make the desired land-use changes happen, political backing for integrating planning regulations and economic incentives is needed. The urban centers will be revitalized, and sub-urbanization housing and working zones will step-by-step be redesigned into
new decentralized urban areas. This will have to include the abandonment of unfavorable housing areas, it will be a long-term process.

But working on the future shape of cities and on the design of new de-centralized centers is just one side of urban sustainability strategy. It also involves developing sustainable mobility and transport structures. This task includes two basic challenges: Making “green” transport modes more attractive, and modernizing the transport fleets. The term “modernize” must clearly be understood differently to today’s common marketing concepts of the automobile industry.

Sustainable urban mobility should mainly consist of public transport, walking and cycling. A realistic objective would be for a mix of these modes to account for at least 70 percent. Although this understanding of transport modes seems to look rather outdated, there are no better solutions currently at hand. There is no doubt that public transport vehicles will change, advanced solutions like e.g. magnetic monorails, sky-trains, single-cabin systems or other innovations may compete with the traditional concepts of railway, trams and buses. But that is not the point. The argument is that in this upcoming 21st century of sustainable urban mobility, the basic decision has to be made in favor of priority for public transport instead of the dangerous and energy-wasting passenger car, and, by extension, of the rights of walkers and cyclists.

The private passenger car certainly will maintain a certain role within the cities but in a supplementary function. These vehicles will have to be smaller, more economical, and provide more safety for the “weak” traffic partners (e.g. those walking and cycling). To sum up: Our transport vision for the sustainable 21st century city is “soft mobility”.
Technology

Infrastructure

Urban infrastructure will benefit in the future from technological progress. This leads to material optimisation, self-regulating operation, risk minimization and resource organisation. New construction methods recycle materials instead of erecting new buildings. Recycling reduces waste production which, in turn, spares material, energy and transport, protects nature and supports the local economy.

The transformation and reuse of building stocks saves resources, maintains identity and keeps the urban infrastructure intact.

Building construction and urban design

Intelligent buildings, reduction of energy consumption and use of indigenous materials, that can be recycled, characterise the future building stock and have priority for quality maintenance. Maintenance has a major impact on building technologies in the field of energy saving, flexibility, eco-materials and reuse as a whole.

Medium density reduces costs, offers enhanced social quality and better maintenance. The transformation and reuse of buildings is the challenge of the future. This not only concerns existing building stock and its upgrading. New construction methods recycle materials instead of erecting new buildings. This should be part of the design of the building as well as of quarters, companies or infrastructure.

Energy saving, flexibility, recycling, ecomaterials and reuse of materials are integral parts of the design and, as such, the crucial precondition for sustainable maintenance. Continuous research and progress in technology and its increasing efficiency are the ongoing challenge.
Communication

Local communication requirement will be met by the local community network. Local communication will be undertaken as a decentralised offer. This local community network keeps the urban infrastructure intact. The integration of a regulatory model for mobility, media, energy control, self-regulating control and risk minimisation needs to be organised on the local level with links to national networks. Resource organisation will be one sector of the overall communication network.
**Education**

Advanced societies need educated participants. Education and knowledge are, therefore, the attributes of an advanced society. Society has to grasp that sustainable thinking as well as communication towards sustainability are its only chance of survival.

The transformation of an industrialised society into an advanced society needs acknowledgement of diversification, equality and self-responsibility. These are the new values compared to the old values of ethnical, national or religious affiliation. They result from education within the framework of human rights and a culture of dignity. On the other hand, culture is the result of education, it shapes society and promotes identity. Buildings for cultural performances, arts and education are key elements in urban design.

New media, changing lifestyles, acceleration and globalization will bring about a shift in architecture towards more pre-fabricated constructions and flexible uses. Culture and entertainment are globalized in content and choice of location. Urban tourism is an essential segment of local economies. Only cities with a long urban tradition, local identity, rich cultural facilities and attractive public spaces and events are competitive.

The distinction between passive and active consumption in the cities as places of learning and participation is diminishing. More and more citizens participate actively in the production of culture and education. On the other hand, people have to be continuously convinced that their future depends on knowledge and possession of expertise. Sustainable urban design helps to balance these conflicting needs by offering cultural infrastructure and public space as a chance of identification and corporate citizenship.

Education, the main topic for the coming century, is dependent on centres for the exchange of knowledge that are flexible and, at the same time, specialised and integrated, open for decentralisation as well as centralised to offer the best opportunities for learning and acquisition.
The path spanning some 200 years goes from

- The neighbourhood school
- via comprehensive district schools
- to schools as community centres with access to global networks.

That means that the typology of a “school” or a “university” will change into a highly installed flexible cover of technical wonders.

On the other hand emotional relations, cultural differences, regional diversification and the desire for unique design will call for special educational spaces and identity. Society is becoming a knowledge society and has to manage information. On the other hand, the society has to learn sustainable thinking as well as common action towards sustainability. Common learning is one element of the neighbourhood community.
Entertainment

In the year 2100, the distinction between passive and active consumption of leisure has been overcome. More and more citizens in the European city participate and engage in the production of community culture. They are consumers in the morning and producers in the evening. Consequently, public schools in the city of the future have regained a central function as 24-hour community centres where all kinds of pro-active and participatory entertainment and a wide spectrum of sports facilities are offered for those who do not or are not able to subscribe to membership in one or more of the many privately run leisure and sports clubs. Conviviality has remained a key quality of urban life. Simultaneously, due to sustainability goals and security concerns, global tourism has declined and is replaced by local and regional consumption patterns.

Consequently, the locational quality of a city as an enjoyable life space for its citizens is very much defined by its quality for leisure, its fun component and its event culture. And the maintenance and programming of high quality public spaces in the city with 24-hour security has become a major concern of local communities in urban wards.

Shopping in the future urban district has returned from out-of-town green field malls to shopping streets in the urban district, combining traditional with electronic shopping and entertainment. The shopping streets, embedded in themed mixed land-use areas, provide ninety percent of the products, local households require, and shopping in this street is more entertaining than functional. Consequently, shopping streets have become the key entertaining quarters of the urban district, managed and programmed by local managers, who skillfully balance commercial and civic interests over 360 days a year. A small professional urban district culture and entertainment council monitors the equilibrium and intervenes if jointly set rules are neglected.

The entertainment dimension of the urban district reflects the cosmopolitan spirit of the European city at the end of the 21st century. In addition to the overall multi-cultural character of the European society, local communities are enriched by selected ethno-cultural communities which uphold cultural traditions in a post-modern environment and which are quite dis-
tinct from the ethnic enclaves of the past. They maintain the richness of other cultures with all their festive occasions, ethnic food and architectural heritage, although much of it is pure simulacra, replicating the spirit on the surface of originals, rather than copying them.

Since health is a key concern of the five-generation society of CIVITAS 2100, health care is very much linked to entertainment and leisure. Health insurance companies, keen to reduce their costly burden, are launching and promoting healthy entertainment activities in urban districts for a wide spectrum of target groups of different age, ethnicity, financial capacity and consumer interests. Consequently, urban households playfully reduce their financial burden for insurance fees by maintaining health with entertaining activities.

The community school centres sustain a key role in the entertainment environment of cities. Managed by public-private consortia, a full range of active and passive entertainment activities is offered in the centres. Access is given to everyone, with socially differentiated financial contributions to the costs of the institution. Apart from all the traditional offerings of community colleges all the virtual entertainment options are available in the centre. In contrast to the early forms of virtual entertainment, communicative forms of consuming the virtual media prevail. The community centre is the gateway to global entertainment networks, inviting players from around the world to co-operate or to compete, while enjoying the technical dimensions of active participation. Large screens dominate the centres, allowing the visitors to enter into the virtual worlds they wish to explore. And these explorations and escapes from the day-to-day routine of work into other worlds, contribute considerably to reducing physical mobility and the burden on the sensitive global environment.

Although entertainment and leisure after work have not become the dominant consumptive feature in the life of urban households in Berlin by the end of the 21st century, as expected or desired in the beginning of the millennium, productive entertainment and creativity have become a integral factor in all dimensions of a long life span, work and education, health and sports as well as shopping and eating. The degree of urban conviviality has become the trademark of a city. Berlin could become a global model for such a development.
Social Cohesion

The urban challenge in Europe is not a question of growth but of social cohesion and qualification that continues education. These are the two basic preconditions for technical solutions on the path to the future and for the integration of multi-ethnic and increasingly older populations in the cities as well as in rural areas.

In the last century social cohesion was the result of the special working situation in the industrial world and of cultural differentiation due to various different migration waves. Urban design followed these production and living patterns: different quarters, different zoning, different social and cultural infrastructure, followed by high mobility to organise life between these separated places of life and work.

This is not at all sustainable because it uses too much space, produces too much traffic and uses up too many resources in organising life in the homogeneous built-up quarters (living areas, green and recreation areas and consume areas etc.) Mixed land use, decentralisation and some sort of autonomous units (perhaps about 100,000 inhabitants governing themselves within a framework of subsidiarity) are the tasks of the future.

Procedures for reaching this long-term goal bring together the relevant leaders of
- city administration,
- institutions of public concern,
- schools, universities and else,
- investors and companies and
- NGOs and CBOs

to develop self-supporting socially and culturally different units. These units should be a part of a network of settlements within a framework of integrated networks of energy, water, traffic and waste on their respective physical level, and on the psychological level networks of relevant, decision-making, elected leaders of the different institutions.

The organisation of these structures for the preparation of decisions and participation is the precondition for moving towards more sustainable urban patterns.
Sustainability is primarily a question of

- Analysis and research.
- Perception and decision.
- Assuming responsibility and leadership.
- Changing individual and common behaviour.
- Legal awareness and social impact.

Should societies decide to move in the direction outlined above, urban systems will change à la longue and

- use less space,
- use less energy,
- give priority to buildings for education and training,
- use electronic media as a substitute for travelling, which means a reduction of traffic,
- concentrate knowledge and power in new systems of renewable energy
- follow the desires and hopes of the people for living in secure housing with open spaces and medium density. This will make possible social contacts and reliable connections and not increase hybrid and anonymous building and traffic systems.

The society has to change its behaviour, awareness and visions if sustainability really is to be the right path to the future – then urban systems will follow. People follow their individual comfort, their level of education, their experience of social cohesion, not the utopian dreams of ideal designs of architects and planners.
Governance

During the 19th century Europe was dominated by imperial powers. Political, economic and cultural power was increasingly concentrated in a few capital cities. Berlin emerged as a new capital city, trying to catch-up with London and Paris. Strong centralised bureaucracies managed the nation states, regulated development from above and built-up nation-wide infrastructure systems. Cities grew incessantly and expanded into neighbouring local territories. The imperial state on the continent was followed by brief democratic periods before fascism threw Europe into disaster.

After World War II, cities gradually gained more independence and power to manage their own affairs, to plan for urban reconstruction and urban expansion. Citizen participation was slowly being introduced to strengthen the civil society and local identity. Towards the end of the 20th century, the nation states in Europe were gradually shifting regulatory power to a new European-wide government. Simultaneously region and city states strived for more regional independence, while local identities were vanishing.

By the end of the 20th century globalisation and new information technologies had a considerable impact on local communities, on cities, regions and nation states. The complexity of problems and challenges caused a proliferation of actors and institutions, each addressing segments of the complex system of planning and decision making on the five tiers of political hierarchy in Europe. Politically legitimised top-down command structures of the public sector were replaced by round tables and time-consuming consensus finding processes involving public and private actors. Government was gradually replaced by governance. Groups of the civil society articulated public protest against economically justified technocratic decisions or defended their vested interests.

Private investors were increasingly dominating urban development, while the public sector as the main local investor was beating a retreat. The city as a political territory seemed to become an outdated concept, while the local community as the identifiable life space was reclaiming its role as „heimat“ for citizens in a globalized world. The city region with flexible functional boundaries was emerging as the more efficient territory of govern-
ance below national, European and global tiers. Debates were evolving on efficiency versus equality in city region governance.

In the beginning of the new millenium, national democracies all over Europe suffered from, what is called in German „Politikmüdigkeit“, a term which means“ tired of politics“. It was expressed by lower and lower shop-ups in elections, increasing temporary, rather continuous engagement in NGOs or radical nimbiism. Once the citizens realized that most long-term decisions on sustainable urban development, were gridlocked by the way, the (party-dominated) political arena worked, necessary alterations of the established system became acceptable: more efficient decision-making, more professional competence, stronger rules and regulations, clear targets, substantive controlling. Consequently, the mainstream policy to establish consensus-finding arenas, such as fora, round tables or future workshops has in the end been given up, as it became obvious, that such bodies were rather constraining than promoting decisions for action.

This shows that over a period of hundred years, an established political system develops self-regulating, self controlling mechanisms, which in the end garantuee the continous innovation of political processes.

In 2100, at the end of the 21st century, a global government has been established. A technocratic bureaucracy regulates global affairs, carefully monitored by US and Chinese mega-powers and a global council of NGOs. A global sustainability board/council, whose members are elected by mega-region governments and NGO networks, negotiates, formulates and controls binding sustainability goals. In Federal Europe, with its 35 members states, traditional parliaments are established. A second chamber/senate consists of representatives of city states, controlled by a third chamber with representatives of NGOs. This is as well the established political structure of city states, whose degree of self-government is substantial. The public sector has regained power and respect. It earns credits with strong and efficient public management. Political parties continue to organise political opinion formation at all tiers of decision-making. NGOs, in turn, monitor and assess public perform-
The city states collect taxes and share their income with the national states and the European government.

The City State of Berlin-Brandenburg is the territory of around 20 quite heterogeneous Urban Districts, with an average population of 250,000. The State Government is responsible for economic development and promotion, for regional and transport planning, for security and police, for higher education and for cultural facilities as well as for infrastructure and public utilities, the latter in partnership with the private sector. A State Assembly with legislative power, elected for a five-year period, controls the work of the State, and an NGO Senate, in turn, controls the work of the State Assembly. Financially the State has a fixed share of income and corporate taxes.

Schoeneberg, the exemplary Metro Community of Berlin is self-governed by a small District Council, elected for 4 years. This Council is controlled by a second chamber of representatives from a wide array of district community groups. A Community Alliance of innovative representatives from inside and outside the metro community acts as a creative and innovative think-tank of the Community. A small but efficient Urban District Management Unit manages and regulates all household and small firm related local affairs, from building control to environmental protection, from local mobility and time regulations, from schools to health care. Standing and ad-hoc commissions are established to address local community issues (e.g. commissions for local businesses, protecting local identity, resource conservation, entertainment, information management, social cohesion and immigration and a time/mobility commission). The Metro Community receives a certain share of the city state’s income, business and eco-taxes, which the city state collects, and adds a special local tax, which is reviewed at regular intervals by local commissions. The Metro Community runs a complex interactive community information and communication system, which is accessible to everybody inside and outside the Eco-District. The information unit is controlled by an elected community information council.
The Urban Ward finally, the lowest tier of governance in the City State of Berlin-Brandenburg, with an average population of 50,000 is the local „heimat“, the community where everyday life is organised. The urban ward receives allocations from the Urban District in four annual intervals and raises local fees for its communal services. The Urban Ward runs a small local citizen’s office, which is entrusted to take care of local issues. It manages community centres and organises neighbourhood watch. A small council is elected for a three-year period to serve the community and to oversee the work of the citizen’s office. A full-time community planner is the professional arm of the Ward office. He is supported in his daily work, when required, by appointed professional advisors. An elected local ombudsman moderates and resolves neighbourhood conflicts.

The following table summarizes the main features of future governance in in the City State of Berlin Brandenburg. This deliberate normative concept of responsibilities and power in three tiers of government, the Urban Ward, the Urban District and the City State is hypothetical. However, it aims at accommodating the criticism of the present governance model, such as inefficient and timely decision-making processes, inappropriate budget regulations, undue influence of national and supranational politics on local development affairs. It differs considerably from the established system in the following respects:

- reduces the number of council members,
- assigns clear functions to the respective urban tiers,
- adds more professional expertise to decision-making,
- introduces a NGO senate as a control mechanism to (party) politics, and
- suggests much longer periods of budget allocation

As a whole, the suggested system favors professionally supported and NGO controlled urban management over parochialism and extreme nimbilism, misusing democratic legitimation.
<table>
<thead>
<tr>
<th></th>
<th>Urban Ward</th>
<th>Urban District</th>
<th>City State of Berlin-Brandenburg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average population</strong></td>
<td>50,000</td>
<td>250,000</td>
<td>5,000 000</td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td>Local citizen’s office responsible a.o. for</td>
<td>Local administration responsible a.o. for</td>
<td>State government responsible a.o. for</td>
</tr>
<tr>
<td></td>
<td>• Citizen’s Services</td>
<td>• Trade supervision</td>
<td>• Roads and public transport</td>
</tr>
<tr>
<td></td>
<td>• Community centres</td>
<td>• Urban monitoring</td>
<td>• Economic promotion</td>
</tr>
<tr>
<td></td>
<td>• Neighbourhood management</td>
<td>• Public schools and information centres</td>
<td>• Public utilities energy, water, waste and sewage</td>
</tr>
<tr>
<td><strong>Democratic representation</strong></td>
<td>• Ward council</td>
<td>• Local council</td>
<td>• State parliament</td>
</tr>
<tr>
<td><strong>and public participation</strong></td>
<td>• max. 10 elected members</td>
<td>• max 30 elected members</td>
<td>• max 100 members</td>
</tr>
<tr>
<td></td>
<td>• (3 years)</td>
<td>• (4 years)</td>
<td>• controlled by NGO senate</td>
</tr>
<tr>
<td></td>
<td>• appointed professional advisors</td>
<td>• appointed professional advisors</td>
<td>• (5 years)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• State think tank</td>
</tr>
<tr>
<td><strong>Finances mainly based on</strong></td>
<td>• Four-annual allocations from the Urban District</td>
<td>• Four annual allocations from the city state and</td>
<td>• Fixed share of income and corporate taxes</td>
</tr>
<tr>
<td></td>
<td>• Local fees</td>
<td>• Property tax</td>
<td></td>
</tr>
<tr>
<td><strong>Urban Planning</strong></td>
<td>• Micro-Planning: neighbourhood planning</td>
<td>• Meso-Planning: urban planning and zoning</td>
<td>• Macro-Planning: regional/spatial planning</td>
</tr>
</tbody>
</table>

The above structure is mainly based on experience in the Federal Republic of Germany. It may vary from country to country and will have to be adopted according to other traditions and constitutional context.
Selected References


Huapu, Lu. 2002. *Review of the Urban Growth over the Past Twenty Years & Prospects for the next two or three Decades*. Beijing. Tsinghua University


Acknowledgments

The Team CIVITAS 9•0•1 would like to thank the International Gas Union (IGU) and the Japanese National Organising Committee for the invitation to participate in the International Competition on Urban Design for a Sustainable Future as part of a special feature of the 22nd World Gas Conference to be held in Tokyo in 2003.

It was an intellectual and professional challenge for our team to seek out the principles which will have a high impact on the future developments of our cities based on West-European experiences, hopes and desires. The Team CIVITAS 9•0•1 wishes the World Gas Conference every success in its endeavours embodied in the conference theme “Catalysing an Eco-Responsible Future”. We hope that our ideas and principles about the year 2100 will offer stimulus for progressive ideas.